

1/2 028

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--EFFECT OF TOXIC DOSES OF ANTINEOPLASTIC AGENTS ON THE CELLULAR
COMPOSITION OF LOOSE CONNECTIVE TISSUE IN MICE -U-

AUTHOR--ROZENBERG, I.B.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 212-16

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTINEOPLASTIC DRUG, TOXICITY, CELL PHYSIOLOGY, LEUKOCYTE,
MACROPHAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0132

STEP NO--UR/0390/70/033/002/0212/0216

CIRC ACCESSION NO--AP0120832

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120832

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SARCOLYSIN (50 MG-KG), ENDOXAN (800 MG-KG), DOPAN (10 MG-KH), COLCHAMINE (150 MG-KG), 5,FLUOROURACIL (300 MG-KG), AND 6,MERCAPTOPURINE (500 MG-KH) GIVEN I.P. TO MICE REDUCED THE NO. OF LEUKOCYTES, FUSIFORM CELLS, YOUNG FIBROBLASTS, AND MACROPHAGES AND INCREASED THE NO. OF MATURE FIBROBLASTS IN LOOSE S.C. CONNECTIVE TISSUE.

FACILITY: INST. EKSP. KLIN. ONKLO., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 546.821.541.135

AVDEYEV, A. L., DANILYUK, YU. L., and ROZENBERG, L. A.

"Mechanism of Electrical Aging of Titanium Dioxide"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8,
No 2, 1972, pp 263-267

Abstract: Ionic processes were studied during electrical aging of titanium dioxide. During electrical aging, oxygen is liberated from the specimen, and the primary influence on the change in electrical characteristics is that of the area of increased nonstoichiometry near the cathode. The regularities of aging titanium dioxide are studied on the basis of a model of oxygen vacancies unevenly distributed and redistributed through the specimen under the influence of the electrical field. The duration of the first stage of aging is determined by the time of accumulation of a concentration of oxygen vacancies near the cathode sufficient for the beginning of injection. The rise in current during the second and fourth stages is related to the increase in concentration of oxygen vacancies near the cathode. Redistribution by the end of the second stage of decreasing voltage along the length of the specimen results in a limitation of current in the third stage as a result of interruption of the increase in the concentration of oxygen vacancies near the cathode.

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1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EFFECT OF CONDITIONS FOR THE PREPARATION OF A POLY VINYL ALCOHOL
SOLUTION ON THE PROPERTIES OF POLYVINYL BUTYRAL -U-
AUTHOR-(04)-PIASTRO, O.V., YEZHENKOVA, L.L., TYAZHLO, N.I., ROZENBERG,
M.E.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 13-14
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYVINYL ALCOHOL, AQUEOUS SOLUTION, SAPONIFICATION,
ALKYLATION, POLYMER CROSS LINKING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1690 STEP NO--UR/0191/70/000/002/0013/0014
CIRC ACCESSION NO--AP0112684

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0112684

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THE DISSOLN. CONDITIONS OF POLY(VINYL ALC.) (I) IN H SUB2 O AND THE COOLING OF THE AQ. SOLN. ON THE PROPERTIES OF POLY(VINYL BUTYRAL) (II) WERE STUDIED. REPEATED SAPON. OF I SOLNS., USE OF A COOLING AGENT (TEMP. MINUS 3DEGREES) PRIOR TO ACETALATION OF I WITH PRCHO, AND PROLONGED COOLING INCREASED THE VISCOSITY AND CAUSED FORMATION OF INSOL. II PARTICLES (DUE TO CROSSLINKING). THUS, CROSSLINKING OF DISSOLVED I NEAR THE COOLED SURFACE OF THE REACTOR FACILITATED INTERMOL. ACETALATION WHICH, IN TURN, GAVE INSOL. II PARTICLES.

UNCLASSIFIED

USSR

UDC 801.51

ROZENBERG, N. M.

"Didactic Applications of the Method of Prediction in Estimating the Entropy of Written Texts"

Naukoved., Prognozir. i Informatika. Vyp. I [Scientology, Prediction and Informatics, No. I -- Collection of Works], Kiev, 1970, pp 82-95 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4, V732 by A. D'yachkov).

Translation: Shannon's method of estimating the entropy of printed texts consists of the following. A person who knows the language in which an unfamiliar phrase is written is instructed to reproduce the text by guessing the sequence of letters making up the phrase in order. After each guess, the person is simply told whether or not he has correctly guessed the letter, and the guessing process continues until the unknown text has been fully reproduced. Based on the guessing statistics, various estimates are made up concerning the entropy of the written text. This work notes the possibility of didactic application of this experiment for quantitative comparison of the linguistic culture and language sense of students. The results of experiments are described.

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USSR

UDC 616.24-003.668.4-036.12-085.357.453-008.92

NIKITINA, L. S., and ROZENBERG, P. A., Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, Moscow

"Effect of Glucocorticoids on Some Indices of Mineral Metabolism in Chronic Berylliosis Patients"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, Sep 70, pp 31-34

Abstract: Blood and urine magnesium and calcium levels were determined in 22 patients with chronic berylliosis before and 20-30 days after treatment with prednisolone (15 mg daily, total 175 to 250 mg). One group of patients had not previously taken any glucocorticoids, while another group had taken them for 1-1/2 to 7 years. Before treatment, the first group exhibited a marked decrease in, and increased urinary excretion of plasma magnesium, together with a high serum calcium concentration and low calcium excretion. The second group exhibited the same changes in the electrolytes before treatment as the first group, but they were less pronounced. The administration of prednisolone brought these indices up to the control values in both groups and normalized the magnesium-calcium balance. The condition of all of the patients also improved as indicated by a decrease in dyspnea, cyanosis, and inflammation of the lungs. The therapeutic effect of small doses of glucocorticoids is due to their triggering 1/2

USSR

NIKITINA, L. S., Gigiyana Truda i Professional'nyye Zabolevaniya, No 9, Sep 70,
pp 31-34

the adaptive-compensatory mechanisms which restore the homeostasis disrupted by
berylliosis.

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USSR

UDC 616.24-003.66-092.9-07:616.24-006.939.6-074

GEL'FON, I. A., ROZENBERG, P. A., and FEDOROVA, V. I., Institute of Labor Hygiene and Occupational Diseases, Academy of Medical Sciences USSR

"The Content of Scleroproteins and Silicon Dioxide in Lung Tissue of Rats With Experimental Silicosis and the Effect of UHF on These Indices"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 6, 1970, pp 43-45

Abstract: In rats with experimental silicosis, the elastic content of the lungs was substantially higher than in controls within a month of exposure to quartz dust. The increase in collagen was less pronounced at this time. Thereafter the elastin content gradually increased, but at a slower rate than collagen. Collagen content increased sharply after eight months. While the collagen level was rising, the dry weight of the lungs was increasing. UHF irradiation of the animals exposed to quartz dust markedly delayed the development of the silicotic process, slowed the weight increase of the lungs, and decreased the amount of collagen and elastin present, whereas UHF irradiation of healthy rats had no effect on the dry weight of the lungs or on their content of scleroproteins. The effect of UHF was more pronounced when used early and repeatedly. This inhibitory effect

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USSR

GEL'FON, I. A., et al, Gigiyena Truda i Professional'nyye Zabolovaniya, No 6, 1970, pp 43-45

of UHF is ascribed to the decrease in formation of scleroproteins resulting from the smaller accumulation in the lungs of the ascorbic acid required for their synthesis, proliferation of fibroblasts, and from the increased excretion of silica from the lungs.

USSR

LOGAK, L. G., ROZENBERG, T. I., KUZNETSOV-FETISOV, L. I.

"Study of the Mechanism of Adsorption of Nitrogen Dioxide on Silica Gel by IR Spectroscopy. Report II. Kinetics of Adsorption of Nitrogen Dioxide on Synthetic Mordenite at Low Adsorbate Pressures"

Tr. Kazan. Khim.-tekhnol. In-ta [Works of Kazan Institute of Chemical Technology], No 46, 1971, pp 131-135 (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1388 from the Resume).

Translation: The effective diffusion coefficients D of nitrogen dioxide during its adsorption by H-mordenites are determined at low adsorbate pressures. It is established that D increases with increasing adsorption. It is demonstrated that diffusion is activated, and that high values of activation energy indicate high bond strength of the first portions of adsorbate with the surface of the adsorbent.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CAMPIMETRY METHOD OF DETERMINING THE FIXATION CHARACTER -U-

AUTHOR--(03)-KLYUKA, I.V., ROZENBERG, V.A., YAKIMOVICH, T.S.

COUNTRY OF INFO--USSR

SOURCE--OFTALMOL ZH 25(2): 91-93. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EYE DISEASE, VISUAL PRECEPTION, MEDICAL APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605014/F02 STEP NO--UR/0601/70/025/002/0091/0093

CIRC ACCESSION NO--AP0140527

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC76

CIRC ACCESSION NO--AP0140527

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

ABSTRACT. A NEW METHOD IS SUGGESTED FOR LOCALIZATION OF A FALSE MACULA WHICH INCLUDES THE STUDY OF FIXATION CHARACTER ON A CAMPIMETER. THE TRIAL OF THE METHOD SHOWED IT TO BE SIMPLE AND ACCESSIBLE FOR ITS CLINICAL USE. A CLINICAL TRIAL OF THE CAMPIMETRIC METHOD OF LOCALIZATION OF FALSE MACULA WAS PERFORMED ON A NEW DEVICE PLEOPTOCAMPIMETER. A COMPARATIVE EVALUATION OF THESE CAMPIMETRIC AND OPHTHALMOSCOPIC METHODS USED FOR THE DETERMINATION OF FIXATION CHARACTER WAS PERFORMED IN 55 PATIENTS WHO SUFFERED FROM AMBLYOPIA. FOVEAL AND PARAFOVEAL FIXATION IS REVEALED MORE FREQUENTLY WHEN STUDIED WITH THE CAMPIMETRIC METHOD RATHER THAN WITH THE OPHTHALMOMETRIC ONE. THIS IS CONNECTED WITH THE BREAK OF NON STABLE FOVEAL OR PARAFOVEAL FIXATION DUE TO A BRIGHT LIGHT FROM A BIG OPHTHALMOSCOPE WHICH BLINDS THE EYE. THE CAMPIMETRIC METHOD FOR DETERMINATION OF FIXATION CHARACTER IS CONSIDERED UNDER MORE EXPRESSED PHYSIOLOGIC CONDITIONS TO ALLOW REVEALING LOCALIZATION OF FIXATION IN AN AMBLYOPIC EYE. THE DETERMINATION OF FIXATION PERFORMED IN GRADES MAKES IT POSSIBLE TO REGISTER THE FINDINGS OF THE INVESTIGATION AND TO OBSERVE THE DYNAMICS OF THE TREATMENT APPLIED. FACILITY: V. P. FILATOV ODESSA RES. INST. EYE DIS. TISSUE THER., ODESSA, USSR.

UNCLASSIFIED

USSR

UDC: 621.391.2:621.396.96

ROZENBERG, V. I.

"Radar Characteristics of Rain in the Submillimeter Range"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2443-2450

Abstract: The author investigates the specific effective areas of scattering η (m^{-1}) and coefficients of attenuation of radio waves γ_0 (DB/km) in rains of intensities (I) from 0.1 to 100 mm/hr at temperatures from 0 to 40°C and wavelengths from 0.3 to 1 mm. The size distribution of raindrops was taken as $n(d) = 0.08 \exp(-Bd) \text{ cm}^{-4}$, where $B = 41I - 0.21 \text{ cm}^{-1}$, the diameter of the drops varying from 0.05 to 0.51 cm with regard to rain intensity. The radar characteristics of rain, mist, and rain mixed with mist were strictly calculated as a function of temperature, dielectric constants, wavelength and the drop size distribution. It was found that η and γ_0 are weakly dependent on temperature, changing by only about 25% from 0 to 40°C. The masking effect of rain on submillimeter radar operation decreases by a factor of 2.2 with a reduction of wavelength from 1.0 to 0.3 mm when the rain intensity is 0.1 mm/hr, with a corresponding decrease by a factor of 1.5 for the same wavelength reduction when the rain intensity is 100 mm/hr. The attenuating effect of rain on radar operation remains practically constant for all wavelengths and rain intensities. The results are compared with data in the literature.

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1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ISOTOPIC EXCHANGE OF HYDROGEN IN SUBSTITUTED BENZYL MERCURY
CHLORIDES -U-
AUTHOR--(03)-BUNDEL, YU.G., ROZENBERG, V.I., REUTOV, O.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 918-20
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--ISOTOPE EXCHANGE, HYDROGEN, BENZENE DERIVATIVE, ORGANIMERCURY
COMPOUND, DEUTERIUM COMPOUND, CONJUGATE BOND SYSTEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1011 STEP NO--UR/0062/70/000/004/0918/0920
CIRC ACCESSION NO--AP0134723
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134723

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. H₂O EXCHANGE WAS REPORTED FOR ARCH
SUB2 H₂CL (TEMP. SHOWN IN PARENTHESES) AND OCL IN DRY DIOXANE (RATE
CONSTS. SHOWN AS K TIMES 10 PRIME2, MIN PRIME NEGATIVE1): PH 1.4
(120DEGREES); 0.4 (100DEGREES); O,MEC SUB6 H SUB4 1 (100DEGREES); P,MEC
SUB6 H SUB4 0.88 (100DEGREES); M,MEC SUB6 H SUB4 10 (100DEGREES); 3,5,ME
SUB2 C SUB6 H SUB3 1.31 (20DEGREES); 2,6,ME SUB2 C SUB6 H SUB3, 0.5
(120DEGREES); AND 2,4,5,ME SUB3 C SUB6 H SUB2 0.6 (120DEGREES). THE
EFFECT OF SUBSTITUENTS ON THE RATE OF H₂O EXCHANGE WAS CORRELATED WITH
THE EFFECT ON THE RATE OF DEMETALATION. THIS INDICATED A SIMILARITY
BETWEEN THESE REACTIONS WHICH INCLUDE A TRANSFER OF THE REACTION CENTER
FROM THE ADJACENT C ATOM INTO THE AROMATIC RING. THE H₂O EXCHANGE IN
THE 2,4,6,TRIMETHYLBENZYL MEMBER, SHOWN ABOVE, PROBABLY FOLLOWS A
MECHANISM DIFFERENT FROM THOSE OF THE OTHER ANALOGS AND THE EXCHANGE
OCCURS AT THE H POSITION RELATIVE TO THE HG.GROUPING, INDEPENDENTLY OF
ANY CONJUGATION EFFECT IN THE C,HG BOND, WHICH DOES TAKE PART IN THE
REACTION OF OTHER MEMBERS OF THE CLASS. FACILITY: MOSK. GOS.
UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DIFFRACTION AND SCATTERING OF ELECTROMAGNETIC WAVES ON AN
INHOMOGENEOUS SPHERE -U-
AUTHOR--ROZENBERG, V.I. *R*

COUNTRY OF INFO--USSR

SOURCE--IZV VUZ RADIOFIZIKA, VOL. 13, NO. 3, 1970, P. 431-445

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE DIFFRACTION, ELECTROMAGNETIC WAVE
DISPERSION, ELECTRIC DIPOLE, SPHERICAL SHELL STRUCTURE, RADAR CROSS
SECTION, SCATTERING CROSS SECTION, COMPUTER CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1992/0073

STEP NO--UR/0141/70/013/003/0431/0445

CIRC ACCESSION NO--AP0111267

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111267

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLUTION OF THE PROBLEM CONCERNING THE DIFFRACTION AND SCATTERING OF ELECTROMAGNETIC WAVES, EMITTED BY AN ELEMENTARY ELECTRIC DIPOLE ARBITRARILY ORIENTED IN SPACE (MEDIUM ONE), ON A SPHERE (MEDIUM TWO) WITH A NONCONCENTRIC SPHERICAL INCLUSION (MEDIUM THREE). THE SECONDARY ELECTROMAGNETIC FIELDS IN ALL THREE MEDIA ARE DETERMINED, AND EXPRESSIONS ARE DERIVED FOR THE CASE OF A PLANE WAVE. RADAR AND TOTAL SCATTERING AND ATTENUATION CROSS SECTIONS ARE DETERMINED, TOGETHER WITH SCATTERING INTENSITY AND PATTERNS. EXAMPLES OF NUMERICAL SOLUTION BY COMPUTER ARE GIVEN. FACILITY: Leningradskii Institut VODNOGO TRANSPORTA, Leningrad, USSR.

UNCLASSIFIED

1/3. 024
TITLE—SCATTERING OF CENTIMETER RADIATION BY A LAYERED HAILSTONE -U-
AUTHOR—ROZENBERG, V.I.
COUNTRY OF INFO—USSR
SOURCE—MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA,
VOL VI, NO 2, 1970, PP 168-177
DATE PUBLISHED—70
SUBJECT AREAS—ATMOSPHERIC SCIENCES, NAVIGATION, PHYSICS
TOPIC TAGS—HAIL, METEOROLOGIC RADAR, ICE, DIELECTRIC PROPERTY, CENTIMETER
WAVE
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—1991/0711
CIRC ACCESSION NO—AP0110447
STEP NO—UR/0352/70/006/002/0168/0177
UNCLASSIFIED

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CIRC ACCESSION NO--AP0110447

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADAR CHARACTERISTICS OF A HAILSTONE WITH DIFFERENT DIELECTRIC PROPERTIES, EXAMINED IN THE FORM OF A HOMOGENEOUS ICE SPHERE AT DIFFERENT TEMPERATURES, HAVE BEEN STUDIED QUITE THOROUGHLY IN THE CENTIMETER RANGE. HOWEVER, SIMILAR STUDIES OF A LAYERED ICE SPHERE, A MORE NATURAL MODEL OF A HAILSTONE, EVIDENTLY HAVE NOT BEEN MADE. ACCORDINGLY, THIS PAPER GIVES THE RESULTS OF COMPUTER COMPUTATIONS OF THE DIMENSIONLESS EFFECTIVE AREA OF RADAR BACKSCATTERING SIGMA SUBO OF RADIO WAVES BY A SPHERE WITH A CONCENTRIC SPHERICAL INCLUSION. THE FOLLOWING NOTATIONS ARE USED: P_{SUB1} IS DENSITY OF THE NUCLEUS (SPHERICAL INCLUSION) IN G TIMES CM PRIME NEGATIVE3; P_{SUB2} IS DENSITY OF THE OUTER SHELL IN G TIMES CM PRIME NEGATIVE3 OF THE NUCLEUS IN CM; H IS THICKNESS OF THE SHELL IN CM; B IS PARTICLE RADIUS IN CM, EQUAL TO A PLUS H ; P IS DENSITY OF A HOMOGENEOUS SPHERE IN G TIMES CM PRIME NEGATIVE3 OF THE RADIUS B ; V EQUALS $2 \pi B - \lambda$; λ IS THE LENGTH OF THE RADIATED WAVELENGTH IN THE LOWER PART OF THE CENTIMETER RANGE. PART 1 DEALS WITH A LAYERED HAILSTONE WITH A SHELL DENSITY LESS THAN DENSITY OF THE NUCLEUS. THE CASE P_2 SMALLER THAN P_{SUB1} WAS CONSIDERED FOR THE FOLLOWING PAIRS OF DENSITIES: P_{SUB1} EQUALS 0.915, P_{SUB2} EQUALS 0.600; P_{SUB1} EQUALS 9.916, P_{SUB2} EQUALS 0.380; P_{SUB1} EQUALS 0.600; P_{SUB2} EQUALS 0.380 AND FTHE THE A-B RATIOS: 0.00, 0.05, 0.10; 0.25; 0.50; 0.80; 0.90; 0.96; 1.00. TABLE 1 GIVES THE VALUES OF DIMENSIONLESS BACKSCATTERING FOR H EQUALS 0.00B 0.04B, 0.10 B FOR ALL THREE PAIRS OF DENSITIES.

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110447

ABSTRACT/EXTRACT--IT IS SHOWN THAT FOR ν SMALLER THAN OR EQUAL TO 1 SOFTENING OF THE HAILSTONE FROM THE OUTSIDE, THAT IS, APPEARANCE ON ITS SURFACE OF A LAYER WITH h SMALLER THAN OR EQUAL TO 0.18, SOFTER THAN THE NUCLEUS, HAS VIRTUALLY NO EFFECT ON DIMENSIONLESS BACKSCATTERING. TABLE 2 GIVES BACKSCATTERING VALUES FOR LARGE SHELL THICKNESSES h FROM 0.75 TO 1.008. THE ANALYSIS SHOWS THAT FOR ALL THE CONSIDERED PAIRS OF DENSITIES OF A TWO LAYER HAILSTONE AND h LARGER THAN OR EQUAL TO 0.75 THIS HAILSTONE CAN BE CONSIDERED HOMOGENEOUS WITH A DENSITY EQUAL TO THE SHELL DENSITY. PART 2 DEALS WITH A HAILSTONE WITH A SHELL DENSITY GREATER THAN DENSITY OF THE NUCLEUS. TABLE 3 GIVES BACKSCATTERING VALUES FOR 0.00, 0.04, 0.10 8 FOR THREE OTHER DENSITY PAIRS. THESE DATA SHOW THAT FOR ν SMALLER THAN OR EQUAL TO 1 THE APPEARANCE OF A HARDER LAYER ON THE HAILSTONE WITH A THICKNESS NOT GREATER THAN 0.18 HAS VIRTUALLY NO EFFECT ON BACKSCATTERING. WITH h SMALLER THAN OR EQUAL TO 0.18 AND ν SMALLER THAN OR EQUAL TO 1 A LAYERED HAILSTONE CAN BE REGARDED AS HOMOGENEOUS WITH ρ EQUALS ρ_{SUB1} . TABLE 4 FIVES BACKSCATTERING VALUES FOR GREAT SHELL THICKNESSES h FROM 0.75 TO 1.008. THE SAME CONCLUSION APPLIES AS FOR THE CASE ρ_{SUB1} EQUALS ρ_{SUB2} , THAT IS, WHEN h LARGER THAN OR EQUAL TO 0.758 A LAYERED HAILSTONE CAN BE REGARDED AS HOMOGENEOUS WITH A DENSITY EQUAL TO DENSITY OF THE SHELL.

FACILITY: LENINGRAD INSTITUTE OF WATER TRANSPORT.

UNCLASSIFIED

1/2 027
TITLE--SHIP RADIOLOCATION AND METEOROLOGY -U- UNCLASSIFIED PROCESSING DATE--02OCT70
AUTHOR--(02)-KRASYUK, N.P., POZENBERG, V.I.
COUNTRY OF INFO--USSR
SOURCE--SHIP RADIOLOCATION AND METEOROLOGY (KORABEL'NAYA RADIOLOKATSIYA I
METEOROLOGIYA) LENINGRAD. SUDOSTROYENIYE. 1970. 327 PP
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MECH., IND., CIVIL AND
MARINE ENGR, NAVIGATION
TOPIC TAGS--SHIP NAVIGATION, METEOROLOGIC INSTRUMENT, HYDROMETEOROLOGY,
SEA RETURN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1991/0582 STEP NO--UR/0000/70/000/000/0001/0327
CIRC ACCESSION NO--AM0110372
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AM0110372

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION 3. CHAPTER I
ELECTROMAGNETIC PARAMETERS AND THE STRUCTURE OF HYDROMETEO FORMATIONS
9. II RADIOLOCATION CHARACTERISTICS OF INDIVIDUAL PARTICLES OF
HYDROMETEORS 48. III THE WEAKENING INFLUENCE OF THE ATMOSPHERE WITH
VARIOUS HYDROMETEO FORMATIONS ON THE RADIO LOCATION SIGNALS 80. IV
RADIOLOCATION AREAS OF VARIOUS HYDROMETEO FORMATIONS AND THE
CHARACTERISTIC FEATURES OF THE SIGNALS DISPERSED BY THEM 102. V THE
FORM OF THE SEA SURFACE 140. VI THE SOLUTION OF THE PROBLEM OF
RADIOWAVE DISSIPATION ON A STATISTICALLY UNEVEN SURFACE OF THE SEA 155.
VII RADIOLOCATION PROPERTIES OF THE SEA SURFACE 176. VIII
RADIOLOCATION CHARACTERISTICS OF OBJECTS OF DETECTION 192. IX THE
EVALUATION OF THE INFLUENCE OF HYDROMETEO FORMATIONS AND AGITATION OF
THE SEA ON THE DISTANCE OF THE EFFECT OF SHIP RADIOLOCATION STATIONS
207. ADDENDA 236. LITERATURE 321. INVESTIGATED IS THE
RADIOLOCATION DISPERSION AND WEAKENING OF RADIO WAVES OF THE CENTIMETER
AND MILLIMETER RANGES BY HYDROMETEO FORMATIONS OF VARIOUS TYPES, AND
ALSO THE DISPERSION OF RADIO WAVES BY THE SURFACE OF THE SEA. THE BOOK
IS DESIGNED FOR ENGINEERS DESIGNING AND OPERATING SHIP RADIOLOCATION
SYSTEMS.

UNCLASSIFIED

USSR

UDC 669.5'71:539.214

KAYBYSHEV, O. A., KAZACHKOV, I. V., ROZENBERG, V. M., Ufa Aviation Institute
Imeni Ordzhonikidze

"Change in Structure and Peculiarities of Crystallographic Slipping During
Superplastic Deformation of the Alloy Zn Plus 22% Al"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp
1235-1241.

Abstract: The influence of structure on the mechanical properties of the alloy Zn plus 22% Al is studied under superplastic flow conditions. As the grain size increases, the maximum value of the high-speed stress sensitivity factor for flow and plasticity is shifted to lower deformation rates. Analysis of the microstructure shows that the growth of grains resulting from deformation increases with decreasing deformation rate. The correlation is experimentally shown between the mechanical properties of alloys under superplastic flow conditions and texture formation in the beta phase as a function of grain size and deformation rate.

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Miscellaneous

USSR

UDC 669.35'26'296:621.78

REVINA, N. I., NOVIKOV, A. I., NIKOLAYEV, A. K., and
ROZENBERG, V. M., State Scientific Research and Planning
Institute of Alloys and Nonferrous Metal Processing

"Investigation of the Properties of Low Alloys of Cu - Cr - Zr
System"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy,
Tsvetnaya Metallurgiya, No 5, 1973, pp 106-110

Abstract: A study was made of the properties of alloys of the
Cu - Cr - Zr system with different correlation of alloying com-
ponents at their total content of 0.4 mass%. Test results on
wire (1.5 mm in diam.) and thin-plate (0.15 mm thick) specimens
are discussed by reference to diagrams showing the change of
mechanical properties after different treatments, the annealing
effect at different temperatures, and the testing temperature
effect on strength and plasticity. Anomalous property changes
at Cr and Zr concentrations corresponding to the formation of
ZrCr₂ were not observed. The highest strengthening after strain-

USSR

REVINA, N. I., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 6, 1973, pp 106-110

-hardening and aging was attained in Cu — Cr alloys with up to 0.1 wt% Zr. The ultimate strength of Cu alloy with 0.33 % Cr and 0.07 % Zr, after strain-hardening and aging, was 60 kg/mm² at not less than 90 % of Cu electroconductivity. The plasticity of ternary alloys remained high in the whole temperature interval of tests. Four figures, one table, six bibliographic references.

2/2

- 60 -

Miscellaneous

USSR

UDC: 669.539.376

ROZENBERG, V. M.

"Principles of Heat Resistance of Metal Materials"

Osnovy Zharoprochnosti Metallicheskih Materialov [English Version Above],
Moscow, Metallurgiya Press, 1973, 328 pp.

Translation of Annotation: The physical phenomena responsible for the process of creep, long-term rupture and stress relaxation of pure metals, solid solutions and multiphase alloys are studied. Data are presented on the influence of the primary physical factors -- interatomic interactions and structure (crystalline, submicrostructure, grain size, dispersion of inclusions) on the strength and creep resistance at high temperatures.

The book is designed for specialists in the area of metals science and metal physics, working in the area of the study and utilization of heat-resistant materials. It may also be useful to students and graduate students at metallurgical and machine building schools. 195 figures, 14 tables, 264 biblio. refs.

1/5

USSR

Rozenberg, V. M., Osnovy Zharoprochnosti Metallicheskih Materialov, Moscow, Metallurgiya Press, 1973, 328 pp.

Foreword

The directives of the 24th CPSU Congress called for the development and production of new alloys, including heat-resistant alloys.

Heat resistance refers to the ability of structural materials to withstand mechanical loads without significant deformations and without rupture at temperatures amounting to approximately 40% of the melting point and higher.

Heat resistance is characterized by the creep limit (the stress which causes a predetermined amount of deformation or deformation rate following a certain period of exposure to a given temperature) or the long-term strength (the maximum mechanical stress which a material can withstand without rupture at a given temperature, test time and in a given atmosphere). Frequently, heat resistance is characterized by the time to rupture at fixed stresses and temperatures, or by the hot hardness.

In this book, in accordance with the definition of heat resistance used, creep (its kinetics; the dependence of rate on temperature and stress; possible mechanisms of deformation at high temperatures), stress relaxation and rupture processes, the various forms of rupture, as well as its relationship to creep are described. The basic physical factors determining the creep resistance and long-term strength of metal materials are studied: interatomic interactions

USSR

Rozenberg, V. M., Osnovy Zharoprochnosti Metallicheskih Materialov, Moscow, Metallurgiya Press, 1973, 328 pp.

and their structure. Physical properties characterizing the forces of the interatomic interaction, the relationship between composition and properties of alloys, and hardening mechanisms upon formation of solid solutions are described. Data are presented on the influence of crystalline structure, packing defect energy, grain boundary substructure, as well as heterophase properties on heat resistance.

The authors express their deep gratitude to Professor I. I. Novikov, the editor of the book. His comments and discussion of a number of problems were quite useful.

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Rosenberg, V. M., Osnovy Zharoprochnosti Metallicheskikh Materialov, Moscow, Metallurgiya Press, 1973, 328 pp.

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USSR

Rozenberg, V. M., Osnovy Zharoprochnosti Metallicheskih Materialov, Moscow, Metallurgiya Press, 1973, 328 pp.

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USSR

UDC 669.14.018.44.620.17

MOROZOV, YU. A., SIDEL'KOVSKIY, M. P., and ROZENBERG, V. M., Volgograd Scientific Research, Planning and Design Institute of Machinery Manufacturing Technology

"Heat Resistance of Chromium-Nickel and Chromium-Nickel-Molybdenum Grades of Steel with Boron Admixtures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 6, 1973, pp 2-4

Abstract: Results are given from testing the Kh23N13, Kh23N18, Kh17N13M3T, and the Kh23N28M3D3T grades of steel with small admixtures of boron (up to 0.005 percent) for stress-rupture strength at 550-700°C. The results show that below uniform strength temperatures (during transcrystalline breakdown) the stress-rupture strength of the Cr-Ni and Cr-Ni-Mo grades of steel increases continuously with increased boron admixture up to 0.005 percent. Maximum stress-rupture is reached at a boron concentration of 0.001-0.0018 percent at below uniform strength temperatures. It is also shown that small admixtures of boron raise the strength of grain boundaries, delay the diffusion process associated with the exclusion of excess phase along the boundaries and in the grain volume during creep, and additional strengthening of grain boundaries occurs at boron concentrations of 0.004-0.005 percent due to dispersed borides.

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USSR

UDC 669.35'295'6'26:621.315.5(088.8)

FEDOROV, V. N., ROZENBERG, V. M., MUKHIN, N. I., GAS'KOVA, V. L., KOZHEVNIKOV, V. I., MATVEYEV, Yu. A., and POKROVSKAYA, G. N., State Scientific Research and Planning Institute of Alloys and Treatment of Nonferrous Metals

"Copper Base Alloy"

USSR Authors' Certificate No 263157, Cl. 40 b, 9/00, (C22c), filed 19 Nov 68, published 29 May 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I849 P by A. ZIL'BERMAN)

Translation: An alloy is suggested which differs from known alloys in its lowered Ti and Sn content and which is characterized by the following composition (in %): Ti 0.03-0.15, Sn 0.1-0.25, Cr 0.05-0.6 and the remainder Cu. After hardening, cold deformation due to drawing, and tempering, the alloy has σ_B 60 kg/sq mm, δ 4%, and conductivity 70% that of Cu. The alloy can be successfully employed as a current-carrying conductor.

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1/2 014 UNCLASSIFIED *R* PROCESSING DATE--27NOV70
TITLE--COPPER BASE ALLOY -U-

AUTHOR--(05)-FEDOROV, V.N., ROZENBERG, V.M., MUKHIN, N.I., GASKOVA, V.L.,
KOZHEVNIKOV, V.I.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,157
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER BASE ALLOY, METALLURGIC PATENT, TITANIUM CONTAINING
ALLOY, TIN CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/1057

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

CIRC ACCESSION NO--AA0130092

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130092

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO RAISE THE COND. OF A CU BASED
ALLOY WITHOUT LOWERING ITS STRENGTH, IT HAS THE FOLLOWING COMPN.: TI
0.03-0.15, SN 0.1-0.25, CR 0.05-0.6 PERCENT, AND CU THE REMAINDER.
FACILITY: STATE SCIENTIFIC RESEARCH AND DESIGN INSTITUTE OF ALLOYS AND
PROCESSING OF NONFERROUS METALS.

UNCLASSIFIED

USSR

UNC 669.3.939.4

GORLENKO, N. P., RAKHISHVILI, A. G., and ROZENBERG, V. M., Giprotsetmetobrabotka, Moscow

"Effect of Deformation Temperature and Grain Size on the Work Hardening of a Copper-Aluminum Alloy During Prerecrystallization Annealing"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 5, May 70, pp 1093-1099

Abstract: A copper-aluminum alloy (15 at % Al), characterized by low energy of packing defects ($\gamma = 2-4 \text{ erg/cm}^2$), was used in a study of the effect of grain size and deformation temperature on the work hardening immediately during deformation and after annealing. The alloy, which was smelted in a vacuum furnace, was subjected to hot and cold rolling. The difference in grain size (60 and 200 micron) was obtained after rolling deformation of the strip to a thickness of 0.5 mm and annealing at 650 and 250°C. The temperature of deformation was 20 and -195°C, and the degree of deformation 50%. The results obtained showed that the decrease in grain size from 200 to 60 micron had no effect on the plastic limit of the alloy deformed at 20°C, but increased it considerably after annealing in the 250-275°C temperature range. Lowering of the rolling temperature from 20 to -195°C increased the plastic limit of the alloy in the deformed state, particularly after prerecrystallization annealing. The range of annealing temperatures, which corresponds to a maximum increase of the plastic limit, was reduced to 220-240°C.

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USSR

UDC 389.0.083:519.24

ROZENBERG, V. Ya.

"Some Optimization Problems of Complex Statistical Measurements"

Moscow, Metrologiya, No 4, 1972, pp 11--41

Abstract: The solution of optimization problems of complex statistical measurements is found by way of a consecutive use of the concepts of the contemporary theory of optimum control. For that, the whole measuring technique must be analyzed as a "great measuring system" and a reasonable criterion of the effectiveness and a mathematical model, considering all substantial factors, of such system have to be introduced. The analysis of this model will indicate which of its factors have to be influenced in the process of optimization. An attempt is undertaken to substantiate and to analyze a probable variant of such mathematical model of a great measuring system and to get on this basis numerical estimates of the effectiveness of measures for its optimization. The block diagram of the model is shown, the physical meaning of its elements, the principle of organizing a thesaurus, ideal and real systems

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USSR

ROZENBERG, V. Ya., Metrologiya, No 4, 1972, pp 11-41

describing a process, the quality of a system from the metrological viewpoint, and its optimization qualities are discussed. Numerical values of parameters of the model, the quantitative rating of the reliability of results, which with a single term of a functional characterizes the identicalness of the chosen model with the investigated object, are analyzed. The model can also serve as a basis for the quality evaluation of a wide class of industrial products encompassing the concept "system". Two illustr., thirty seven formulas, twenty seven biblio. refs.

2/2

USSR

UDC 615.916.1669.7917.015.25

OKONISHNIKOVA, I. YE., ROZENBERG, YE. YE., and VORONTSOVA, A. S., Institute of Labor Hygiene and Occupational Diseases, Sverdlovsk

"Prophylactic Effect of Succimer in Chronic Experimental Intoxication With Metallic Mercury Vapors"

Moscow, Gigiyena truda i professionalnyye zabolevaniya, No 3, Mar 71, pp 28-31

Abstract: The newly synthesized mercury antidote succimer dithiol is highly specific, harmless for the body, and convenient to use. It was studied in cases of acute mercuric chloride poisoning of animals. Its effectiveness in prophylaxis and under conditions of prolonged exposure to low concentrations of metallic mercury vapor were studied. White rats (24) were subjected to the daily action of metallic mercury vapor in a concentration of 0.15 ± 0.01 mg/m³ (seven hours per day, five times each week for a period of three months). Half of the group of animals received succimer before and after the exposure in a dose of 100 mg/kg. A third group of 12 rats served as controls. No apparent pathological changes were observed in animals exposed to these relatively low Hg concentrations, but intoxication phenomena were observed, which can rapidly progress to more pronounced signs of acute intoxication

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USSR

OKONISHNIKOVA, I. YE., *Gigiyena truda i professionalnyye zabolevaniya*,
No 3, Mar 71, pp 28-31

when the Hg vapor concentration is increased for a short period (2 hours at 0.76 mg/m³ on the 35th day of the experiment). Regular treatment with succimer inhibited development of symptoms of chronic intoxication as well as signs of acute accidental poisoning. The normal blood catalase activity was retained, the content of free SH groups in whole blood, blood serum, kidneys and liver were protected, and there was no sharp weight loss in animals to whom succimer had been given. It is recommended that succimer administration be introduced as a prophylactic measure in mercury industry plants.

2/2

AA0044805

Rozenblit, A.B.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243946 CONTACT PICKUP FOR ELECTRIC CONDUCTIVITY OF LIQUIDS, comprising an insulating tube (1), current electrodes (2), with the outer electrodes joined together and earthed, and four potential

electrodes (3). Measurement transformers (Tp1, Tp2) are connected to the electrodes (3). Measurement transformers (Tp1, Tp2) are connected to the electrodes (3); their secondary windings are connected in series.

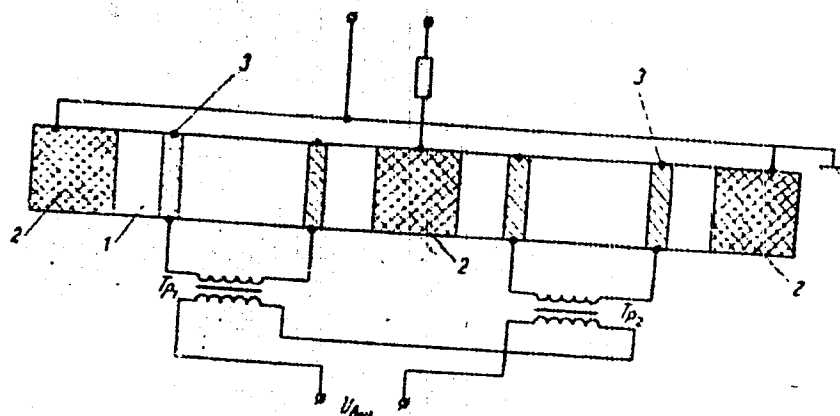
If resistances in the pickup sections between the electrodes (3) are equal, differences in currents flowing through these sections practically do not affect the output voltage (Uvykh), obtained by addition of voltages collected from the electrodes and appearing at the transformers (Tp1, Tp2) secondary windings. As the outer current electrodes are joined together, a parasitic shunting resistance has no effect on the output voltage.

23.4.65 as 1004754/26-25. ROZENBLIT, A.B. et al.
(9.10.69) Bul 17/14.5.69, Class 421. Int. Cl. G 01n.

19771643

AA0044805

AUTHORS: Rozenblit, A. B., Raysov, O. A.,
Zozulya, B. I.



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13771644

USSR

UDC: 681.3.325

ROZENBLAT, M. A., FEDIN, G. V., "Order of Lenin" Institute of Control Problems (Automation and Remote Control)

"A Magnetic Adaptive Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzyy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329672, Division E, filed 5 May 70, published 9 Feb 72, p 225

Translation: This Author's Certificate introduces a magnetic adaptive element which contains a three-aperture transfluxor with control winding in the large aperture, and with suppression, read and output windings in the small apertures. The element also contains two toroidal shaping cores with coupling, adaptation and ready windings. The ready windings are connected in series with the read windings of the transfluxor. As a distinguishing feature of the patent, the number of supply sources is reduced and the element is simplified by adding a compensation core with ready windings connected in series with the ready windings of the transfluxor and in opposition with each other, a compensation winding connected in series with the coupling windings of the shaping cores, and an output winding which is connected in opposition relative to the output winding of the transfluxor. The

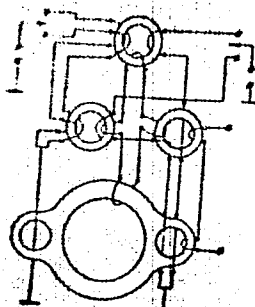
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USSR

ROZENBLAT, M. A., FEDIN, G. V., USSR Author's Certificate No 329672

read windings of the transfluxor are connected in opposition with each other, and each is connected in series with one of the ready windings of the compensation core. Each of the shaping windings contains two adaptation windings connected in opposition, like adaptation windings of the cores being connected in series. The windings are connected together at the output of the second shaping core, and the suppression winding of the transfluxor is connected by one end to the tiepoint between the windings.



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UDC 681.325.65

USSR

ROZENBLAT, M. A., SEMENENKO, V. A., and FEDIN, G. V.

"Magnetic Element With Adaptable Transmission Factor"

USSR Author's Certificate No 276158, Filed 14/05/69, Published 8/10/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B187P)

Translation: The element with adaptable transmission factor suggested relates to the area of automation and computer technology and can be used in those cases in which a binary variable X must be multiplied by the value of a coefficient K , which in the process of adaptation may take on any required value within the limits $-1 < K < +1$, after which it remains unchanged. There are well-known elements (E) with adaptable transfer coefficients which are based on 2 3-hole transfluxors (T), performing the function of recording transfer factor K , and 2 toroidal magnetic cores, forming control voltage pulses with fixed volt-second area in order to provide the required change in residual magnetic flux in the T and, consequently, the value of the transmission factor of the E . The purpose of this invention is to simplify the E and increase its reliability.

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USSR

ROZENBLAT, M. A., et al., USSR Author's Certificate No 276158, Filed 14/05/69, Published 8/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Tele-mekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B187P)

In the E suggested, this is achieved by series connection of the windings for preparation of the toroidal cores and the read windings of the T. When the input binary variable reaches the E, this makes it possible to commutate only one circuit consisting of the series-connected windings mentioned above, by feeding or blocking monopolar pulses of input variable X. Furthermore, it is convenient using this element to perform reading with asymmetrical current pulses, allowing simpler 2-hole T to be used in the E. 1 fig.

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USSR

UDC 621.375.147.3

BOYARCHENKOV, M. A., KERENIKOV, F. I., RAYEV, V. K., and ROZENBLAT, M. A.

Magnitnyye Reshayushchiye Elementy (Magnetic Decision Elements), Moscow, "Sovetskoye Radio," 1971, 280 pp. Annotation p 2, Table of Contents pp 278-279

Translation of Annotation and Table of Contents: The book is devoted to a systematic consideration of the theory, construction principles, and methods for the practical realization of magnetic decision elements used for data processing in analog form in automatic control systems. Along with elements designed to perform the typical functions of summation, multiplication, integration, etc., the book also considers memory elements for analog quantities, memory integrators, sensitive measuring amplifiers for data input into an analog computer, etc. Methods are given for stabilization of the characteristics of zero drift reduction, for increasing the precision and improving the dynamic characteristics of decision elements, as well as the principal parameters of elements which have been realized in practice.

The book is intended for engineers and scientists engaged in the creation and use of automation and computer equipment, as well as for students of the corresponding specialties.

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USSR

BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow,
"Sovetskoye Radio," 1971

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USSR

BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow, "Sovetskoye Radio," 1971

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USSR

BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow, "Sovetskoye Radio," 1971

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USSR

BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow, "Sovetskoye Radio," 1971

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USSR

BOYARCHENKOV, M. A., et al., Magnitnyye Reshayushchiye Elementy, Moscow, "Sovetskoye Radio," 1971

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USSR

UDC 669.3 536.425

ROZENBERG, V. M., TEPLITSKIY, M. D., and FRIDMAN, A. A., State Scientific Research and Planning Institute of Alloys and Nonferrous Metal Processing, Moscow

"Structure and Properties of Aging Copper-Nickel-Base Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 326-331

Abstract: The structure and properties of four complexly alloyed copper alloys (Cu-Ni-Mn-Cr-Al) were experimentally investigated. A stratification of the solid solution into two isomorphic phases with a phase-centered cubic lattice takes place on aging, and a periodic structure develops. In two of the alloys, there is a simultaneous separating out of particles of the third phase. These separations do not contain Mn. The mechanical properties and electric resistances of the alloys after hardening are discussed by reference to tabulated data and diagrams. The observed high degree of hardening in these compositions is explained by the correlation of the periodic structure with the third phase. Four figures, three tables, ten bibliographic references.

1/1

ROZENBLAT, V.V.

PHYSIOLOGY

APPLICATION OF BIOTELEMETRY IN PHYSIOLOGY OF LABOR AND SPORTS

V. V. Rozenblat, L. S. Dombrovskiy

Biotelemetry in the Physiology of Labor

pp 136-165

SP JPRS 55354
06 MAR 72

The physiology of labor is one of the basic fields of applied physiology. Efficient construction of labor activity, which plays the most important role in the life of man and movement, his primary social function, is without doubt a detailed study of the laws controlling the course of the physiological processes during work and under the effect of work. Recognition of these laws is important from several points of view.

First, it provides a physiological basis for scientific organization of production — from selection of the working movements to regulation of labor and rest conditions. The physiology of labor is closely connected with the technological process; the organization of production and economics, and biomedical competence in a number of areas turns out to be necessary for the engineer and the economist.

Secondly, studies of functional shifts give an idea not only of the nature of the work performed but also of the conditions of the production environment. In this respect, the given division of physiology is closely connected with the hygiene of labor, and physiological procedures are important tools for the hygienist in his studies.

Thirdly, physiological observations permit judgment of the nature of the course of certain pathological processes and deviations under the conditions of the professional activity. Therefore, studies of the physiology of labor provide the solution of a number of problems of professional pathology and industrial disease findings; that is, they are closely interrelated with clinical physiology, and the methods of functional diagnosis are of great assistance to the clinical doctor.

On the one hand, studies of the physiology of labor have theoretical significance (the study of the general laws of the course of various functions during labor), and on the other hand, they solve practical problems with respect to improving labor processes at specific production facilities.

USSR

UDC 621.373

ROZENBLYUM, G. D., SHIRMAN, M. V.

"Low Frequency Measuring Generators"

Obmen opytom v radioprom-sti (Exchange of Experience in the Radio Industry),
vyp. 5, Moscow, 1970, pp 79-82 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract
No 9A169)

Translation: This article contains a detailed description of measuring low-frequency generators of the following types: GZ-47, GZ-48, GZ-49, GZ-51 and GZ-54. The basic characteristics of these generators are presented in the table. Certain generators are distinguished by high accuracy with respect to frequency, and others are distinguished by very good shape of the curve, and so on. A new low-frequency generator is mentioned (the type is not named) mastery of which is planned for the near future.

1/1

USSR

BOGOLYUBOV, I. N., ROZENBLYUM, I. Ya.

"Decomposition of Trinary Logic Functions in Threshold Basis"

Mnogoustoych. Elementy i ikh Primeneniye [Multistable Elements and Their Applications -- Collection of Works], Moscow, Sov. Radio Press, 1971, pp 94-97 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V446 by L. Sholomov).

Translation: A method is suggested for decomposition of an arbitrary three-valued function into threshold functions, which is reduced to solution of a system of inequalities. Due to its cumbersomeness, a simpler iterative method is described, based on representation of arbitrary function f , which takes on values of -1 and $+1$, as $f = f_0(f', f'')$, where f_0 and f' are threshold functions, while f'' is a certain function with values of -1 and $+1$, fixed in a smaller number of sets than function f .

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Acc. Nr:

AP0046111

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

U R O 3 6 5

92800y Chemical nickel-molybdenum coating from an ammonium citrate solution. Rozenblum, R. G.; Burakov, M. B.; D'vakov, A. A.; Burakova, E. A.; Efimova, M. M. (Sverdlovsk Nauch.-Issled. Inst. Khim. Mashinostr., Sverdlovsk, USSR). *Zashch. Metal.* 1970, 6(1), 76-8 (Russ). Ni-Mo or Ni-Mo-P were deposited from solns. contg. Na citrate 47, and NH_4Cl 30 g/l.; the pH was 8-9. Best results were obtained with solns. contg. NiCl_2 and NaH_2PO_4 20 g/l. and solns. contg. 10 and 20 g/l. of the 2 salts, resp. The amt. of Mo in the deposit increased with its content in the plating soln. and with a decrease of Ni in the same soln. The max. concn. of Mo in the deposit was 8-10%. The deposits contg. P did not crack even if they were 50 μ thick, whereas Ni-Mo deposits cracked when they were appreciably thinner. M. Hoseh

MT

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REEL/FRAME

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Acc. Nr:

AP0046112

Abstracting Service:
CHEMICAL ABST.

Ref. Code:

5/70 24R0365

92799e Spontaneous decomposition of solutions for chemical nickel plating. ~~Rosenblum R. G.; D'yakov A. A. (Sverdlovsk. Nauch.-Issled. Inst. Khim. Mashinostr., Sverdlovsk. USSR). Zashch. Metal. 1970, 6(1), 72-6 (Russ).~~ The decompn. of Ni plating solns. is accelerated by an increase in the concn. of hypophosphate ions and a decrease in the concn. of Ni and acetate ions. The presence of a catalytic surface, such as the object to be plated, accelerates decompn. as does the removal of O from the soln. Lowering the temp. retards decompn. The decompn. process has an induction period, apparently necessary for the formation of a catalytic surface. M. Hoseh

REEL/FRAME

19781189

USSR

BARENBAUM, F. B., ROZENBOYM, S. Sh.

"One Problem of Temporary Optimal Distribution of Resources in Construction"

Ekonomika i mat. metody [Economics and Mathematical Methods], 1973, 9, No 2, pp 339-342 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V574 by Yu. Finkel'shteyn)

Translation: The problem studied is important under conditions of functioning of the production of construction. One possible means for solution is presented on the example of the distribution of the available machinery in a general construction organization.

Suppose m is the number of machines, n is the number of construction projects being serviced; $t_j^H, t_j^K, j=1, 2, \dots, n$ are the moments of beginning and ending of the performance of mechanized operations at object j respectively; $t_j = (t_j^H, t_j^K)$; $\tau_i, i=1, \dots, m$ is the time required to move machine i ; t_{ij}^H, t_{ij}^K are the beginning and end of the j repair cycle of machine i respectively; a_{ij} is the productivity of machine i on project j ; Q_j is the volume of work at project j ; c_{ij} are the corrected expenditures for the

USSR

BARENBAUM, F. B., ROZENBOYM, S. Sh., *Ekonomika i mat. metody*, 1973, 9, No 2, pp 339-342

performance of work by machine i at project j . The Boolean variable below is introduced:

$$x_{ij} = \begin{cases} 1, & \text{if machine } i \text{ is used on project } j, \\ 0, & \text{if not.} \end{cases}$$

The following problem is produced:

$$z = \sum_{i=1}^m \sum_{j=1}^n c_{ij} x_{ij} \rightarrow \min, \quad (1)$$

$$\sum_{i=1}^m x_{ij} = 1, \quad j = 1, \dots, n, \quad (2)$$

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BARENBAUM, F. B., ROZENBOYM, S. Sh., Ekonomika i mat. metody, 1973, 9,
No 2, pp 339-342

$$x_{ij} + x_{ik} \leq 1, i, k (j, k \in \{1, \dots, n\}, j \neq k, t_{ij} \cap t_{ik} \neq \emptyset), \quad (3)$$

$$i=1, \dots, m,$$

$$x_{ij} > 0, i=1, \dots, m, j=1, \dots, n, \quad (4)$$

$$x_{ij} - \text{целое}, i=1, \dots, m, j=1, \dots, n. \quad (5)$$

A special algorithm in branches and bounds with a unidirectional branching rule is suggested for the solution of problem (1)-(5). A program is written for the Ural-2 computer, allowing the problem to be solved with $m \leq 50$, $n \leq 75$, which in practice satisfies the requirements of most general construction trusts.

USSR

UDC: 629.12.011.7

ARKHANGORODSKIY, A. G., ROZENDENT, B. Ya., SIMANOVICH, A. I., Kaliningrad
Technical Institute of the Fishing Industry and Fisheries

"Side for a Boat Hull"

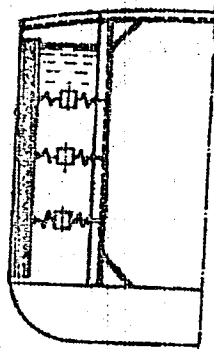
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 13, May 72, Author's Certificate No 335146, Division B, filed 20 Apr 68,
published 11 Apr 72, pp 61-62

Translation: This Author's Certificate introduces: 1. A side for a boat hull which contains outer hull plates enclosing a space with elastic baffles which is partially filled with liquid. As a distinguishing feature of the patent, the impact resistance of the siding is improved by arranging the elastic barriers horizontally and making them with bypass channels joining sections of the liquid-filled space which are separated by the baffles, and by using sandwich type hull plating with an elastic filler. 2. A modification of this design distinguished by the fact that each bypass channel is made with a chamber which has apertures on the ends. This chamber accommodates a floating piston with a central open aperture, the upper part of the floating piston being tapered and coupled to the upper end of the chamber.

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USSR

ARKHANGORODSKIY, A. G. et al., USSR Author's Certificate No 335146



2/2

USSR

UDC 538.113:541.67:546.221

PILIPENKO, A. T., MEL'NIKOVA, V. N., and ROZENFEL'D, A. AL., Kiev State University imeni T. G. Shevchenko

"Investigation of Paramagnetic Shifts in the PMR Spectra of Isoquinoline Coordinated with Nickel Diallyldithiophosphate"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 18, No 10, Oct 73, pp 2692-2695

Abstract: Paramagnetic shifts of isoquinoline in its complex with nickel diallyldithiophosphate $[NiDADTP]$ have been investigated by the dilution method in large excess of the ligand. By the method of isomolar series the composition of the isoquinoline- $NiDADTP$ complex has been established as 1:2, its configuration being that of a distorted octahedron. The data on paramagnetic shifts have been used to calculate spin densities at the hydrogen atoms in isoquinoline. An assumption has been made that the dislocation of spin density occurs principally along the amine σ -bonds.

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USSR

UDC 543.535.24.546.221

PILIPENKO, A. T., and ROZENFEL'D, A. L., Kiev State University imeni T. H. Shevchenko

"Study of the Interaction of Thiophosphoric Acid Derivatives With Metals"

Kiev, Ukrainskiy Khimicheskii Zhurnal, Vol 36, No 11, Nov 70, pp 1,151-1,154

Abstract: Qualitative reactions were carried out on 30 cations with five dithio- and trithiophosphoric acid derivatives. The compounds obtained were extracted with organic solvents. It was shown that the cations of platinum and other heavy metals react selectively with above reagents in acid medium. On the basis of experimental data obtained it is possible to select conditions for qualitative detection, separation and photometric determination of individual cations.

1/1

ROZENFEL'D, D. B.

SO:JPRS 55015
25 JAN 1972

UDC: 614.4(47-21):658.381.015.2

AVERAGE TIME SPENT BY THE STAFF OF EPIDEMIOLOGICAL DEPARTMENTS OF SANITARY AND
EPIDEMIOLOGICAL STATIONS ON PERFORMING EXTRAMURAL EPIDEMIC CONTROL MEASURES IN
MEDICAL DISTRICTS OF URBAN POLYCLINICS

(PAPUC HENYA)
[Article by D.B. Rozenfel'd, candidate of medical sciences, Z.F. Samozubova, L.N.
Petrizkova, I.V. Stepanov, G. Kravchenko, All-Union Scientific Research
Institute of Social Hygiene and Public Health Organization Imeni N.A. Semashko,
Moscow, Sovetskoye Zdravookhraneniye, Russian, No 12, 1971, submitted 20 May
1971, pp 30-36]

The continuous perfection of forms and methods of epidemic control work
and optimum planning thereof depend largely on scientific substantiation of
the demands of the people with regard to various forms of extramural medical
care related to infectious or suspected infectious pathology. One of the
special aspects of this important problem is to determine the required scope
and nature of extramural measures performed by epidemiologists and their assist-
ants at SES (sanitary and epidemiological stations). Determination of these
data combined with investigation of annual mean work time spent on performing
the necessary measures by epidemiological specialists is a mandatory prerequi-
site for scientifically substantiated estimates pertaining to manpower and
resources of the epidemic control service.

Previously we published a method for scientific investigations on the
subject of determination of the Scope and Nature of Extramural Medical Care
for Urban Population as Related to Cases of Infectious and Suspected Infectious
Disease. We conducted in 1968-1970 at the All-Union Scientific Research Institute
of Social Hygiene and Public Health Organization Imeni N.A. Semashko. In the
present report we submit the results of investigations of work time spent by
epidemiologists and their assistants on performing different epidemic control
measures and work thereof. This study was conducted at several SES in Odessa
and Kiev, staffed by epidemiologists and assistants in accordance with the
prevailing established staff quotas. The set of measures related to services
to patients in the polyclinic districts. The chief method used was timing.
Intermediate medical personnel, mainly medical fieldworkers with a tenure of at
least three years, conducted the time studies.

D.B. Rozenfel'd, et al., Sov. Zdravookhraneniye, No 12, 1966, p 13.

Therapy

USSR

UDC 616-006.81-033.2-085.849.19

LAGUNOVA, I. G., VISHNEVSKIY, A. A., Jr., LIKHOVETSKAYA, I. L., ROZENFELD, E. B., and RAZYGRIN, B. A., Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR, and Moscow Scientific Research Institute of Roentgenology and Radiography

"Possibility of Treating Melanoma Metastases With Laser Radiation"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 5, 1971, pp 50-53

Abstract: In a 22-year-old female with multiple metastatic melanomas that did not respond to X-irradiation or chemotherapy, neodymium laser radiation resulted in the rapid destruction of 52 of 58 tumors (90%). During the following 4 months recurrences occurred in only 3 nodes. There were eight radiation sessions extending over a period of 6 weeks, with 10 to 20 tumors treated each time. The patient's condition remained satisfactory throughout. The eschar produced by the radiation fell off spontaneously 14 to 25 days later, revealing a pink soft scar at the tumor site which fell off after 1 to 2 months. The color of the underlying tissue was the same as that of the surrounding skin. Neither combination of X- and laser rays nor multiple-field irradiation produced as good immediate results as did laser radiation alone.

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USSR

UDC 621.38:61

3

LAGUNOVA, I. G., LIKHOVETSKAYA, L. L., VISHNEVSKIY, A. A., ROZENFEL'D, E. B.,
RAZYGRIN, B. A., VANYUKOV, M. P., and MALYSHEV, B. N.

"Irradiation of Metastases of Melanoma By Pulsed Laser"

V. sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 203
(Use of Lasers in Contemporary Technology and Medicine. Parts 2-3 -- Collec-
tion of Works), Leningrad, 1971, p 102 (from RZh Elektronika i yeye Primeneniye,
No 2, Feb 72, Abstract No 2A508)

Translation: Melanomas are first among primary malignant tumors which metastasize
to the skin. Use of laser emission in such cases is advisable in view of the
possibility of simultaneous irradiation of several dozen tumor sites. Type
GOS-500 and GOS-1000 pulsed neodymium lasers operating in a free pulse
generation modes were used for irradiation. The output energy of the pulse
fluctuated from 100 to 500 joules. The total density of the incident energy
at the metastatic tumor varied from 1,000 to 5,000 joules/cm². Summary.

1/1

USSR

UDC 629.7.036.3:536.46

BORISOV, O. Ya., ROZENFEL'D, E. I., SMOLENSKIY, V. G.

"Study of the Effect of Acoustical Oscillations on a Turbulent Limited Flame"

Teoriya i Praktika Szhiganiya Gaza [Theory and Practice of Combustion of Gas -- Collection of Works], No 5, Leningrad, Nedra Press, 1972, pp 42-53
(Translated from Referativnyy Zhurnal, Aviatsionnye i Raketnye Dvigateli, No 12, 1972, Abstract No 12.34.15, from the Resume).

Translation: It is shown that the imposition of acoustical oscillations of high intensity on a turbulent limited flame during combustion of preliminarily prepared mixtures increases the length of the combustion zone. At the same time, the imposition of acoustical oscillations on a turbulent diffusion flame significantly intensifies the process of combustion in the volume of a furnace due to improvement of the mixing process. 7 Figures; 17 Biblio. Refs.

USSR

UDC: 534+536.46

BORISOV, Yu. Ya., ROZENFEL'D, E. I., SMOLENSKIY, V. G., Moscow

"Influence of Accoustic Oscillations on a Gas Flame in a Limited Space"

Novosibirsk, Fizika Goreniya i Vzryva, No 3, 1971, pp 404-412.

Abstract: This article studies the effects of an accoustic field on a turbulent flame formed under the conditions of limited furnace volume, by analysis of the concentration, temperature and accoustic fields and the characteristics of turbulence in the volume of the furnace. Natural gas was burned in cylindrical, water-cooled furnaces. The application of a high-intensity accoustical field to a flame during burning of a prepared mixture greatly increases the length of the cold core in the flame. The application of an accoustical field to a diffusion flame shortens the cold core and intensifies the process of burning within the volume of the furnace.

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USSR

UDC 536.24

LUK'YANOV, A. T., ROZENFEL'D, G. O., YUMASHEVA, M. G.

"Heat Transfer of Concrete Blocks Under Forced Convection"

V sb. Prikl. i teor. fizika. Vyp. 3 (Applied and Theoretical Physics. No. 3 -- Collection of Works), Alma-Ata, 1972, pp 218-221 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B913)

Translation: Computational formulas for determining the coefficient of heat transfer of bodies under various conditions of utilization are obtained on the basis of similarity theory. Tables of the relationship between the coefficient of heat transfer and the temperature and velocity of the air flow are given to facilitate practical calculations. 5 ref. Authors' abstract.

USSR

UDC 620.193:609

ROZENFELD, I. L., Professor, Doctor of Chemical Sciences, Editor-in-Chief

"New Methods of Investigating the Corrosion of Metals"

Moscow, Novyye Metody Issledovaniya Korrozii Metallov, Izd-vo Nauka, 1973, 220 pp

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Izd-vo Nauka, 1973, 220 pp

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Izd-vo Nauka, 1973, 220 pp

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Formed by the Corrosion of Aluminum in High-Temperature
Water

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USSR

UDC 620.193.01

AKIMOV, A. G. and ROZENFEL'D, I. L., Institute of Physical Chemistry,
Academy of Sciences USSR

"Electrochemical Behavior of Oxides on Titanium-Aluminum and Titanium-
Niobium Alloys"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 33-36

Abstract: The electrochemical behavior of oxides on titanium-aluminum and titanium-niobium alloys was studied using alkaline solutions. The data produced show that the rate of the anodic reactions and the capability of Ti-Nb and Ti-Al alloys to go into the passive state depend essentially on the properties and structure of the surface oxides.

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USSR

UDC: 620.193.2

ROZENFEL'D, I. L., LOMAKINA, S. V., OL'KHOVNIKOV, Yu. P., Institute of Physical Chemistry, Academy of Sciences of the USSR

"Influence of Alloying Elements on the Protective Properties of Films Formed on Aluminum Alloys During Corrosion in High-Temperature Water"

Moscow, Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 338-342

Abstract: The paper gives the results of an investigation of the protective properties of films which develop during corrosion of some binary aluminum alloys in water. The properties of the films and the mechanism of the process were determined from the electrode impedance, the thickness of the barrier layer and the loss tangent. The study specimens were pure aluminum (99.99%) and binary alloys with Cu, Fe, Cr, Ni, Ti and Zr in water at 200°C. It was found that all alloying elements without exception improve the protective properties of films formed on aluminum under these conditions. The effect is especially strong in the case of nickel. The results of experiments show that the main reason for increased corrosion resistance of alloyed aluminum is the change in properties of the hydroxide films formed during corrosion in high-temperature water.

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.. 17 ..

USSR

UDC 620.194

SHUSTOVA, Z. F., KUZNETSOV, G. G., ROZENFEL'D, I. I., and FRIDMAN, V. S., Academy of Sciences USSR, Institute of Physical Chemistry

"The Tendency of Type EP-65 Steel to Corrosion Cracking"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 183-187.

Abstract: The authors studied the tendency of specimens of EP-65 steel and welded joints of the steel to corrosion cracking, as well as methods of corrosion protection of this metal. EP-65 steel is a Martensitic steel based on 12% chromium with Ni, W, Mo and V. The tests were performed by periodic submersion in sea water, exposure to an atmospheric salt fog and exposure to a moist atmosphere without salt. The welded joints were found to be more inclined to corrosion cracking than the base metal. The main factor influencing the corrosion cracking of welded joints is the heat treatment used after welding, not the method of welding. Welded joints hardened in air from 1050° then tempered at 300° show corrosion cracking resistance almost as good as the base metal. The best protection for the metals and welded joints consists of a narrow strip of zinc coating on the welded joint, plus one base coat and three coats of enamel over the entire surface of the object.

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USSR

UDC 620.194

SHUSTOVA, Z. F., KUZNETSOV, G. G., ROZENFELD, I. L., and FRIDMAN, V. S., Academy of Sciences USSR, Institute of Physical Chemistry

"The Tendency of Type EP-65 Steel to Corrosion Cracking"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 183-187.

Abstract: The authors studied the tendency of specimens of EP-65 steel and welded joints of the steel to corrosion cracking, as well as methods of corrosion protection of this metal. EP-65 steel is a Martensitic steel based on 12% chromium with Ni, W, Mo and V. The tests were performed by periodic submersion in sea water, exposure to an atmospheric salt fog and exposure to a moist atmosphere without salt. The welded joints were found to be more inclined to corrosion cracking than the base metal. The main factor influencing the corrosion cracking of welded joints is the heat treatment used after welding, not the method of welding. Welded joints hardened in air from 1050° then tempered at 300° show corrosion cracking resistance almost as good as the base metal. The best protection for the metals and welded joints consists of a narrow strip of zinc coating on the welded joint, plus one base coat and three coats of enamel over the entire surface of the object.

1/1

- 14 -

USSR

UDC 669.14.013.8

SHUSTOVA, Z. F., SINYAVINA, R. A., YEMEL'YANOVA, V. A., ROZENFEL'D, I. I.,
KUZNETSOV, G. G., RAYMOND, E. D., and NEFEDOV, V. P.

"Inclination toward Stress Corrosion Cracking of 1Kh16N4B (EP-56) High-Strength
Stainless Steel"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 696-700

Abstract: This article contains the results of a study of the effect of heat treatment conditions on the inclination of welded joints of 1Kh16N4B steel to stress corrosion cracking. This steel is a high-strength steel of the martensitic class heat-treated by quenching from 950-1,050° and annealing at 300 or 600°. The stress-rupture strength of the steel is ≥ 120 kg/cm² in the former case and ≥ 100 kg/cm² in the latter case. It was established earlier that neither the basic metal nor the welded joints of this steel in the fully heat-treated state were inclined to stress corrosion cracking. In the present investigation the inclination toward stress corrosion cracking was evaluated by the time of occurrence of cracks in the welded joint in a saline mist at room temperature.

From the tabulated data it is noted that unannealed samples and samples annealed at 300° exhibit an inclination toward stress corrosion cracking.

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USSR

SHUSTOVA, Z. F., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 696-700

Welded joints annealed at 600° are not inclined to such cracking. Pictures are presented showing the microstructure of a welded joint made of 1Kh16N4B steel and the hardness distribution in the welded joint. Comparison of metallographic and corrosion studies shows that the section near the weld subjected to heating in the temperature range of $475-550^{\circ}$ is distinguished by lower corrosion resistance. It is possible to decrease the tendency toward corrosion cracking of 1Kh16N4B steel joints not only by high temperature annealing (600°) but also by high temperature quenching of the steel before welding. The tendency of the welded joints toward corrosion cracking was found to depend on the structural state of the basic metal before welding. A table is presented showing the effect of slow cooling and induced heating on the stress corrosion cracking of 1Kh16N4B thick sheet steel in a saline mist atmosphere.

It is concluded that welded joints of 1Kh16N4B steel made of material with a strength of 100 kg/mm^2 and annealed at 300 and 600° are not inclined to stress corrosion. Slow cooling of the steel during quenching increases the tendency of the unannealed and low-temperature (300°) annealed welded joints to stress corrosion cracking. Heating 1Kh16N4B steel subjected to high tempera-

2/3

USSR

SHUSTOVA, Z. F., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 696-700

ture annealing in the 475-550° range can cause a tendency toward corrosion under stress. When quenching with slow cooling the inclination toward cracking is exhibited after a short delay (5 minutes) at 475-550°. In the case of air quenching this inclination is exhibited after a longer period (2 hours).

3/3

USSR

UDC 669.715'5'721'3:620.193:620.192.46

VAL'KOV, V. D., SINYAVSKIY, V. S., YELAGIN, V. I., ALESHKINA, Ye. V.,
DZYUBENKO, M. I., and ROZENFEL'D, I. L.

"Study of the Corrosion Cracking of Al-Zn-Mg-Cu Alloys"

V sb. Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 75-83 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1796 by authors)

Translation: A study was made of the resistance to corrosion cracking of Al-Zn-Mg-Cu alloy sheet as a function of chemical composition, heat-treatment procedures, and production process. Under low-temperature aging procedures (140°, 16 hr; 100°, 4 hr + 160°, 8 hr) the addition of Cr to a greater extent than Zr increases resistance to corrosion cracking. The employment of a two-stage aging procedure with high temperature in the second stage (100°, 4 hr + 180°, 4-6 hr) makes it possible to obtain high resistance to corrosion cracking for alloys doped with Zr. Additions of Ti and Mn have no favorable effect on resistance to corrosion cracking. It rises with a decline in the degree of recrystallization of sheet. The production of a fibrous recrystallized structure is promoted by additions of Cr and, to a greater degree, Zr, 1/2

USSR

VAL'KOV, V. D., et al, Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 75-83 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1796 by authors)

as well as by a number of technological factors: high cooling rates during casting, manufacture of sheet from extruded strips, rolling after hardening (up ~50%). Four illustrations. One table. Bibliography of 26 titles.

2/2

- 23 -

Titanium

R

UDC: 621.794.44

ROZENFELD, I. L., MARKIN, Yu. A., and ALEXSEYeva, Ye. I.

"Etching High-Strength Titanium Alloys Without Hydrogenation"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 410-415

Abstract: A review of earlier research shows that etching of titanium alloys extensively used in electrolytes comprising various combinations of hydrofluoric, sulfuric, hydrochloric, and nitric acids and salts containing fluorine ions is attended by the undesirable effect of hydrogenation. This study concerns the kinetics of the cathodic process in electrolytes containing HNO_3 and HF and the determination of etching potential regions which will eliminate hydrogen depolarization and, consequently, hydrogenation, and will also insure an adequate etching rate. The constructed ternary diagrams for the systems HNO_3 - HF - H_2O reflect the etching rate, stationary potentials, and the hydrogenation of the VT-15 alloy as functions of the component ratio. A correlation of the results of two independent methods shows that the data of electrochemical studies may serve as a valid basis for selecting electrolytes for etching titanium alloys without hydrogenation. An electrolyte composition (30-32 wt.% HNO_3 +9-16 wt.% HF) providing an adequate etching rate of the VT-15 alloy, good surface quality, and freedom from hydrogenation has been determined. Etching VT-14, VT-15, and VT-16 high-strength titanium alloys in an electrolyte containing 30 wt.% HNO_3 +16 wt.% HF at room temperature involves no hydrogenation.

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GROMOVA, A. I., GERASIMOV, V. V., VRALEV, N. YA., ROZENFEL'D, I. L., and
PERSIANISEVA, V. P.

"Protection of Perlitic Steels Against Corrosion in the Water of Atomic Power
Installations"

Moscow, Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 227-231

Abstract: The low stability of perlitic steels at 20-80°C in water saturated with air limits their use in atomic power engineering. This study describes a test in which steel specimens completely immersed in water saturated with air and containing 1 g/l hydrazine or 10% dicyclohexylamine at 20 and 80°C were found to corrode steadily, the corrosion rate being almost two orders of magnitude lower than that in water without inhibiting additions, where the steel had developed pits. Dicyclohexylamine (10%) was found to be more effective than hydrazine for the incomplete immersion of perlitic steel along the water line and above the water. The 10% solution of dicyclohexylamine is radiation-resistant within the reactor spectrum up to the integral dose of 10^{15} n/cm² (for thermal neutrons). Tables in the original article show the corrosion of perlitic steels at complete immersion in desalted water saturated with air under static conditions, corrosion

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GROMOVA, A. I., et al., Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 227-231

rates of steel at complete immersion in desalted water with hydrazine additions, and corrosion rates of steel in desalted water with various additions, including dicyclohexylamine, hydrazine, octadecylamine, and hexamethylenesamine.

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1/2 023
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ABSTRACT. THE MECHANISM OF CORROSION
PROCESSES, LOCAL CORROSION PROCESSES, PASSIVITY OF METALS, CORROSION
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FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

Corrosion

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ROZENFELD, I.L., Institute of Physical Chemistry, Moscow Academy of Sciences. USSR
"Problems of Metal Corrosion"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44 No 4, Apr 70, pp 945-955

Abstract: Corrosion processes fall into the category of the most complex heterogenous chemical reactions which can be determined through research in thermodynamics of nonequilibrium processes, electrochemical kinetics, physical metallurgy, physical chemistry of surface phenomena, electrochemistry of semiconductors, etc. The author reviews research conducted in recent years in the mechanism of corrosion processes under various conditions, reaction overvoltage and its rate as a function of most diverse factors, oxygen depolarization on moving objects, anomalous anodic dissolution of metals, corrosive and electrochemical behavior of aluminum-base intermetallic compounds, localized corrosion processes, intergranular corrosion, tendency of di-phase austenitic-ferritic steels to intergranular corrosion, electrochemical mechanism of corrosion cracking, beneficial effect of boron on austenitic steels, adsorption theory of the passivity of metals, redox reactions and anodic protection. The review also covers corrosion inhibitors, relationships between the structure of organic compounds and their protective properties, polymer coatings as corrosion inhibitors as well as corrosion-resistant alloys.

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USSR

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ROZENFEL'D, I. L., VASHKOV, O. I., BALOVNEVA, R. S., USSR Academy of Sciences,
Institute of Physical Chemistry

"Some Characteristic Features of the Cathode Behavior of Titanium in Neutral
Environments"

Moscow, Zashchita Metallov, Vol 8, No 6, 1972, pp 701-703

Abstract: A study was made of the cathode process on a VT-1 titanium electrode in a neutral solution simulating sea water (0.5 normal NaCl). The polarization curves were taken using the P-5827 potentiostat. In the range of potentials more positive than -0.35 volts, a trend is observed toward a noticeable increase in resistance with a decrease in frequency at the same time as the variation in capacitance is insignificant; for potentials more negative than -0.35 volts the resistance exhibits low dependence on the frequency, and the dependence of the capacitance on frequency increases noticeably. In the range of potentials more positive than -0.35 to -0.40 volts, the conductivity of the TiO_2 oxide layer is low and the electrode reveals attributes characteristic of the metal coated with a thin layer of dielectric. For potentials more negative than -0.35 to -0.40 volts titanium behaves as an electrode the electrochemical behavior of which is determined by the potential drop in a double layer (the electrode impedance is close to Faraday). The anomalous behavior of the time dependence of $1/2$

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ROZENFEL'D, I. L., et al., Zashchita Metallov, Vol 8, No 6, 1972, pp 701-703

the current of the St.3 steel and titanium couple and the couple St.3 and copper couple is compared. The difference in time dependencies of the currents of the couples is explained by the fact that the St.3-copper couple always operates in the diffusion mode while the current of the St.3-titanium couple is determined by the reactivity of the titanium surface which depends on the potential. When the titanium potential in the couple is more positive than -0.35 volts, the cathode process on its surface is inhibited and the couple current is correspondingly low. When the steel potential and, consequently, the titanium potential, is shifted to the negative side (more negative than -0.35 volts) the titanium surface "opens up" to the cathode process, and the couple current increases to a value close to the limiting diffusion current.

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UDC 621.575:536.24.001.5

ROZENFEL'D, L. M., PANIYEV, G. A., KUZ'MITSKIY, Yu. V., and PARKHOMENKO, F. P., Institute of Thermal Physics, Siberian Branch, Academy of Sciences USSR

"Experimental Investigation of Absorption and Desorption of Water Vapors by a Solution of Lithium Bromide"

Moscow, Kholodil'naya Tekhnika, No 10, Oct 72, pp 31-35

Abstract: This work was devoted to an investigation of mass-transfer units with a developed phase--mass-transfer unit contact surface using spraying type mass-transfer units. A schematic and picture of the unit are given for investigating the adiabatic-isobaric processes of absorption and desorption of water vapors by a solution of lithium bromide. Tests were conducted in a steady-state mode of operation of the experimental unit at constant internal and external parameters and observation of thermal balance.

Graphs were plotted for the change of relative saturation of solution and change of temperature of the dispersed liquid flow along the absorber height and the change of relative vaporization of the solution and change of temperature of the dispersed flow of liquid along the generator height. From 1/2

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ROZENFEL'D. L. M., et al., Kholodil'naya Tekhnika, No 10, Oct 72, pp 31-35

these graphs an analysis was made which made possible the conclusion that the most intensive process of absorption occurs directly behind the sprayer. The conducted tests show the mass-transfer to have a high efficiency of the studied processes and permitted to establish the characteristic features of absorption and desorption in sprayer type units. 5 figures, 1 table, 5 bibliographical references.

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Equipment / Machinery

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UDC: 621.313.322-81:66.045.5

ROZENFELD, L. M., SERDAKOV, G. S., CHEKHOVICH, V. Yu., and
FILIPPOV, I. F.

"Experimental Rack for Investigating Low-Temperature Vaporization
Cooling for Turbogenerator Piping"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--
Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 50-57

Abstract: This article represents part of the continuing search for new systems of cooling turbogenerators. A description is here given of an important stage in cryogenic cooling of the electrical windings in the generator by direct Freon vaporization in the form of an experimental rack for investigating this type of cooling. It consists of a measuring section, a double system of cooling, a power supply block, blocks for readoff, recording, and writeout devices, automation and protection systems, and a control panel. A drawing for the overall system is given together with a photograph of the rack and the measuring block. A diagram for the structure of the heating system and the temperature sensors plus a schematic of the power supply block are also presented. The experiments performed with the aid of the device are described; they can determine the temperature distribution of

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UDC: 621.313.322-81: 66.045.5

ROZENFEL'D, L. M., et al, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 50-57

on the conductor wall surfaces and the current of the working fluid inside the channel, the hydraulic resistance distribution over the length, and other factors. The authors are associated with the Institute of Thermal Physics, Novosibirsk.

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