

2/2 049

CIRC ACCESSION NO--AP0108236
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT. STUDY OF THE UPWARD PROPAGATION OF SHORT ACOUSTIC WAVES FROM A HARMONIC SOURCE IN AN INHOMOGENEOUS ATMOSPHERE, TAKING INTO ACCOUNT TERMS OF THE ORDER OF THE SQUARE OF THE MACH NUMBER. IN THE CASE OF LARGE REYNOLDS NUMBERS A SHOCK WAVE FORMS AT A CERTAIN HEIGHT, AND THEN THE WAVE PROFILE ACQUIRES A QUASI TRIANGULAR SHAPE WITH A CONSTANT AMPLITUDE DETERMINED BY THE DENSITY STRATIFICATION OF THE ATMOSPHERE. AN EXPRESSION IS OBTAINED FOR THE WIDTH OF THE SHOCK WAVEFRONT, AS WELL AS EXPRESSIONS FOR THE ENERGY AND RATE OF ATMOSPHERIC HEATING. THESE EXPRESSIONS ARE USED FOR NUMERICAL ESTIMATES OF THE RATE OF ATMOSPHERIC HEATING DUE TO THE ACTION OF CERTAIN NATURAL SOURCES (EARTHQUAKES).

UNCLASSIFIED

Acc. Nr.: APO042362

R

Ref. Code: UR0263

JPRS 50162

Heat Propagation in Rarefied and Inhomogeneous Atmospheres

(Abstract: "Heat Propagation in Rarefield and Inhomogeneous Atmospheres," by G. S. Golitsyn and N. N. Romangya, Institute of Physics of the Atmosphere; Moscow, Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 107-113)

A study was made of the one-dimensional problem of heat propagation in a rarefied atmosphere with exponential and power-law density distributions. The behavior of Green's function is examined and a number of boundary-value problems and problems with initial conditions are examined. The investigated problems are of significance for the upper atmosphere if the horizontal dimensions of the region of the atmosphere heated by some source are great in comparison with altitude above the earth so that the lateral escape of heat can be neglected, that is, if a one-dimensional formulation of the problem in which all the parameters are dependent only on altitude z is admissible. For the earth's atmosphere this approach is admissible beginning at altitudes ~ 120 km, where diffusion stratification begins and where the role of molecular transfer processes begins to predominate in comparison with turbulent transfer. The altitude $z = z_0 = 200$ km can be used as a reference level. Above this level the temperature varies little with altitude and scale height is ~ 50 km. In this case

Reel/Frame
19760308

12

AP0042362

the thermal diffusivity coefficient λ_0 is $\sim 3 \cdot 10^9$ cm²/sec. The time scale corresponding to dimensionless time $\tau = 1$ in the exponential model in this case is $\tau = H^2/\lambda_0 = 8 \cdot 10^3$ sec = 2 hours. Thus, if some heat release occurs at the 200-km level, during a time of about 2 hours the higher layers will adapt to the new temperature regime. However, if the source is at higher levels the assimilation process will transpire still more rapidly. In the case of a power-law density decrease with altitude, the heat assimilation time will be greater. The analysis shows that in a quite rarefied atmosphere with a density decreasing with altitude the regime of the upper layers of the atmosphere, subjected to any heat source, will tend to an isothermal source, as is actually observed in nature.

19760309

di

USSR

R

UDC 666.22:539.551

NEMILOV, S. V., KRYLOVA, L. A., ROMANOVA, N. V., ZHUKOVA, A. N., ALEKSEYEVA, R. A.,
NOVIKOVA, M. P., BESPAL'KO, Z. P., and TYNYANKINA, A. N.

"Viscosity of Optical Glasses"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70, pp 1218-1225

Abstract: The viscosity η of 120 grades of glass ($\eta = 10^2 - 10^{13}$ poises) in relation to the temperature was determined. The results are listed in tables showing values of $\lg \eta$ for various temperatures t . The values included in the tables were obtained in part by interpolation and extrapolation of experimental values to cover the complete $\eta = 10^1 - 10^{16}$ poises range ($t = 312-2010^\circ$). Determinations at $10^4 - 10^{13}$ poises were carried out by the method of pressing in described earlier, those at $10^1 - 10^4$ poises by means of GOI automatic rotational viscosimeters. Measurements of η carried out by the first method on glass No 710 of the USA National Bureau of Standards led to results which coincided with those reported by A. Napolitano and E. G. Hawkins, J. Res. Nat. Bur. Stand., A. Phys. p. Ch., 68A, 439, 1964. The rotational viscosimeters were calibrated at $10^2 - 10^4$ poises on the basis of values reported for glass No 710. Data obtained for B_2O_3 by means of these viscosimeters agreed with those reported in the literature. A glass with the composition SiO_2 69.60, B_2O_3 11.09, Al_2O_3 2.00, As_2O_3 0.10, K_2O 0.65, CaO 1.37, 1/2

USSR

NEMILOV, S. V., et al., Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70,
pp 1218-1225

MgO 0.80, K₂O 4.16, Na₂O 10.23 mole % was formulated, measurements on which
in the 10² - 10¹³ poises (t = 600-1300°) range led to results that were readily
reproducible.

2/2

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--POLYMERIZATION OF METHYL METHACRYLATE IN AN EMULSION FORMED BY THE POTASSIUM SALT OF POLY, N, VINYL SUCCINAMIC ACID -U-
AUTHOR--(03)--NIKOLAYEV, A.F., BELOGORODSKAYA, K.V., ROMANOVA, O.S.

COUNTRY OF INFO--USSR

SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 866-70

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, METHYL METHACRYLATE, EMULSION, REDOX REACTION, ORGANIC POTASSIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3004/1949

STEP NO--UR/0080/70/043/004/0866/0870

CIRC ACCESSION NO--AP0132210

UNCLASSIFIED

019
CIRC ACCESSION NO--AP0132210
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NGV70

ABSTRACT. EMULSION POLYMN. OF ME
METHACRYLATE AT 50-70DEGREES IN THE PRESENCE OF THE TITLE EMULSIFIER (I)
SHOWED THAT I REACTED WITH THE PROPAGATING RADICALS AND INHIBITED
POLYMN. I TOOK PART IN A REDOX REACTION WITH K SUB2 S SUB2 O SUB8 AND
ENHANCED ITS DECCMPN., BUT AFTER A 20 HR INDUCTION PERIOD GAVE POLY(ME
METHACRYLATE) IN 20PERCENT YIELD.
INST. IM. LENSOVETA, LENINGRAD, USSR. FACILITY: LENINGRAD. TEKHNOL.

UNCLASSIFIED

USSR

UDC: 621.319.4

KOVALEV, K. S., ZHIKHAREV, Yu. V., VINOGRADOV, V. V., YEVSEYEVA, I. A.,
ROMANOVA, P. A., PAVLUSHINA, G. M.

"Some Singularities of Heat Treatment in the Production of Capacitor Foil
From Tantalum"

Nauchn. tr. N.-i. i proyekt. in-t redkomet. prom-sti (Scientific Works of the
Scientific Research and Design Institute of the Rare Metals Industry), 1971,
32, pp 71-76 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V329)

Translation: An investigation is made into the heat treatment of thin foils
in connection with solution of the problem of making high-quality capacitor
foil from tantalum. Three illustrations, one table, bibliography of three
titles. Resumé.

1/1

USSR

GAIBOV, T. D., ROMANOVA, P. M., and AYVAZYAN, L. A.

"Biological Toxicity of Diaminoethoxy-dimethyl Sulfide"

Uch. zap. Azerb. un-t. Ser. Khim. n. (Scientific Notes of Azerbaydzhan University: Chemical Sciences Series), 1970, No 2, pp 69-70 (from RSSR-Biologicheskaya Khimiya, No 2, 25 Jan 71, Abstract No 2F2117 by M. SH.)

Translation: β , β' -Diaminoethoxy-dimethyl sulfide injected subcutaneously into rabbits (0.2-1.0%) did not alter Hb concentration, erythrocyte count or indicators of erythrocyte sedimentation rate.

1/1

172 031

TITLE--SPECTRAL ANALYSIS OF THE CURRENT THROUGH A PARTIALLY OPEN VARACTOR
-U- PROCESSING DATE--11DEC70

AUTHOR--RCMANGVA, R.M.

R

COUNTRY OF INFO--USSR

SOURCE--MCSLW, RADIOTEKHNIKA, NO 4, 1970, PP 36-44

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--VARACTOR DIODE, ELECTRIC CURRENT, PN JUNCTION, LOW FREQUENCY,
SIGNAL ANALYSIS, MATHEMATIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605008/807 STEP NO--UR/0108/70/000/004/0036/0044

CIRC ACCESSION NO--AP0139942

UNCLASSIFIED

2/2 031

CIRC ACCESSION NO--AP0139942
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT. THIS ARTICLE CONTAINS AN INVESTIGATION OF THE FREQUENCY CHARACTERISTICS OF P-N JUNCTIONS, AND A METHOD OF EXPERIMENTAL ANALYSIS IS PROPOSED FOR THEM. A PROCEDURE IS GIVEN FOR CALCULATING THE CURRENT SPECTRUM THROUGH A PARTIALLY OPEN VARACTOR IF ITS STATIC VOLTAMPERE AND LOW SIGNAL FREQUENCY CHARACTERISTICS ARE KNOWN. DATA ARE TABULATED AND THE CHARACTERISTICS PLOTTED FOR VARIOUS DIGGES. IT IS POINTED OUT THAT CALCULATION OF THE HARMONIC COMPONENTS OF THE CURRENT THROUGH THE PARTIALLY OPEN VARACTOR WITH A VOLTAGE U APPLIED DIRECTLY TO THE P-N JUNCTION SHOULD BE CARRIED OUT BY FORMULA: $I_{PRIMEV SUBM}$ EQUALS I_{SUBM} R_{PRIME} ($1M$ OMEGA TAU SUBP) WHERE R_{PRIME} (1 OMEGA TAU SUBP) IS THE COMPLEX FREQUENCY CHARACTERISTIC. THE VALUE OF MAGNITUDE OF R_{PRIME} ($1M$ OMEGA TAU SUBP) IN THE ABOVE FORMULA INCREASES WITH AN INCREASE IN M ; THEREFORE, $I_{PRIMEV SUBM}$ AS A FUNCTION OF M DIFFERS FROM I_{SUBM} AS A FUNCTION OF M . THIS DIFFERENCE IS PLOTTED ON A GRAPH. FOR THE FREQUENCIES OMEGA USED IN PRACTICE, THE INEQUALITY I_{SUBO} SMALLER THAN MAGNITUDE OF $I_{PRIMEV SUBM}$ IS VALID AT THE SAME TIME AS FOR AN INERTIALESS JUNCTION I_{SUBO} GREATER THAN OR EQUAL TO MAGNITUDE OF I_{SUBM} WHICH IS SIGNIFICANT FOR FREQUENCY MULTIPLIERS. WHEN USING A VARACTOR AS A MULTIPLIER IN THE PARTIAL TRIGGERING MODE, THE VOLTAGE U AFTER THE JUNCTION MUST BE CALCULATED BY THE FORMULA SHOWN ON MICROFICHE. WHEN CALCULATING CURRENTS BY FORMULA (1) IT IS NECESSARY TO USE VALUES OF R_{PRIME} WHICH ARE EASILY DETERMINED EXPERIMENTALLY. FACILITY: THE SCIENTIFIC AND TECHNICAL SOCIETY OF RADIO ENGINEERING, ELECTRONICS AND COMMUNICATIONS.

UNCLASSIFIED

Semiconductors and Transistors

USSR

UDC 621.374.4

ROMANOVA, R. M., Active Member of the Scientific and Technical Society of Radio Engineering, Electronics and Communications

"Spectral Analysis of the Current Through a Partially Open Varactor"

Moscow, Radiotekhnika, No 4, 1970, pp 36-44

Abstract: This article contains an investigation of the frequency characteristics of various models of p-n junctions, and a method of experimental analysis is proposed for them. A procedure is given for calculating the current spectrum through a partially open varactor if its static voltampere and low-signal frequency characteristics are known. Data are tabulated and the characteristics plotted for various diodes.

It is pointed out that calculation of the harmonic components of the current through the partially open varactor with a voltage U applied directly to the p-n junction should be carried out by the formula:

$$i_m^v = I_m R'(i m \omega_p) \tag{1}$$

where $R'(i m \omega_p)$ is the complex frequency characteristic. The value of $|R'(i m \omega_p)|$ in the above formula increases with an increase in m; therefore, i_m^v as a function of m is a function of $m^{1/2}$.

USSR

ROMANOVA, R. M., Radiotekhnika, No 4, 1970, pp 36-44

of n differs from I_m as a function of m . This difference is plotted on a graph. For the frequencies ω used in practice, the inequality $I_0 \ll |I_m^V|$ is valid at the same time as for an inertialess junction $I_0 \geq |I_m|$ which is significant for frequency multipliers. When using a varactor as a multiplier in the partial triggering mode, the voltage U after the junction must be calculated by the formula:

$$U_{p-n} = U_1 \cos \omega t - \sum_m I_m^V Z_m e^{im\omega t} = U_1 \cos \omega t - \sum_{m=-\infty}^{\infty} U_m e^{im\omega t},$$

where $Z_m = im\omega L_v + \frac{1}{im\omega C_2} + r_{\text{measured}} + r_s$; $U_m = I_m^V Z_m$.

When calculating currents by formula (1) it is necessary to use values of $|R'|$ which are easily determined experimentally.

USSR

UDC 669-157:669.15-194.56

UVAROV, A. I., ROMANOVA, R. R., UKSUSNIKOV, A. N., and BUYNOV, N. N., Institute of Physics of Metals, Ukrainian National Center of the Academy of Sciences USSR

"Influence of Low-Temperature Aging Before High-Temperature Aging on the Mechanical Properties and the Structure of 40Kh4G18F Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 735-741

Abstract: The mechanical properties and the structure of 40Kh4G18F steel were experimentally investigated after different methods of heat treatment. The results are discussed by reference to diagrams showing the dependences of ultimate strength, yield limit, relative elongation, and relative narrowing at 650° and 700° at different aging conditions, and on the basis of isochronal hardness curves, hardness curves by isothermal aging at 700°, and electron microphotograph after aging. The processing according to the scheme hardening - low-temperature aging - high-temperature aging was found to give rise to a substantial increase in strength of 40Kh4G18F steel and, in certain cases, also in plasticity, if compared with only one high-temperature aging; the dispersion of separations was also increasing. A preliminary low-temperature aging before high-temperature aging influences effectively the increase of mechanical properties of steel, in which in aging the primary nuclei of the

1/2

USSR

UVAROV, A. I., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4,
Oct 73, pp 735-741

hardening phase possess an equiaxial form and are capable of growing in aging.
The results make possible a selection of more optimum processing methods of
40Kh4G18F steel. Six figures, five bibliographic references.

2/2

R.R.

EFFECT OF VARIOUS COMBINATIONS OF AGING AND DEFORMATION ON THE STRUCTURE AND MECHANICAL PROPERTIES OF E1417B ALLOY

N. N. Buznov, A. I. Uvarov, A. N. Ushakov, R. R. Romanov, R. A. Karabanyan, and M. G. Gordin, Institute of the Physics of Metals, USSR Academy of Sciences, submitted for publication June 1971; final version, 18 February 1972

UDC 620.17:539.25

The effect of deformation performed after low-temperature aging before high-temperature aging on the structure and mechanical properties of alloy E1417B was studied. Experiments are reported on the possibility of decreasing deformation recovery in this alloy by means of moderate aging before high-temperature and high-temperature treatment according to the following scheme: hardening-temperature aging leads to an essential increase in high-temperature deformation in comparison with aging without

temperature aging [1] the conclusion made earlier [2] that preliminary low-temperature aging before high-temperature aging must be effective in precipitating the mechanical properties of alloys of the nitronic type. Growth at low-temperature aging and are capable of a noticeable their larger quantity is preserved in subsequent high-temperature aging. Such double aging provides a large dispersivity of the precipitation and high strength properties in comparison with the dispersivity and strength of the alloy aged at an increased temperature. However, the minimum on isothermic curves of hardness in high-temperature aging testifies that a

*divided Shavita T...
The following 58010
to what 131 from 58010
N. N. Buznov, R. R. Romanov
M. G. Gordin, 18 Feb 1972*

considerable part of the G, P, zones [1] or the metastable nuclei [1] during recovery are dissolved or change their composition even in a case of prolonged preliminary low-temperature aging [4, 5]. According to data in reference [6], in E1437B alloy in recovery 34% of the precipitation phase is dissolved.

We may assume that if we prevent recovery in the transition from with more dispersed precipitations and greater strength, then we will obtain in the metastable coherent or partially coherent deformation on the G, P, zones and for example, the G, P, zones may be dissolved, and part stabilized moderate deformations, the effect of the solution of the nuclei is manifested insignificant in comparison with the effect of the solution of the nuclei may be increased if the stability of the nuclei, we may prevent or decrease recovery if the alloys are strained after low-temperature aging before high-temperature aging. Aside from this, recovery may be decreased by deformation of the apparatus of new nuclei due to the ones dissolved during deformation.

In this work we set ourselves the problem of studying the effect of deformation between low-temperature and high-temperature aging on the structure and mechanical properties of alloy E1437B.

The structure of the alloy was investigated by the fine-foil electron-microscopic method. Measurements of hardness according to Vickers points, elongation, and measurements of the ultimate strength and yield of annealing at 1080°C and compression. Heat treatment of the alloy consisted of aging of 670--850°C for eight hours and cooling in the air. In the interval variations of heat treatment the specimens were cooled at a rate of 100°C per basically by 20%.

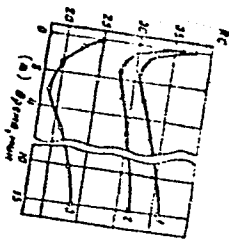


Figure 1.

Hardness of alloy E1437B in isothermal aging at 850°C: (1) after preliminary aging at 700°C for ten hours and straining by 20%; (2) after preliminary straining by 20% and aging at 700°C for ten hours; (3) after aging at 700°C for ten hours. (a) time, min.

USSR

UDC 669.027:669.018.059.573

BOINOV, N.N., KARAKENTIAN, R.A., ~~ROMANOVA, R.R.~~ BULYCHEV, D.K., and REDONOV, K.P., Institute of Metal Physics, Academy of Sciences USSR

"Distribution of Strain in Metals and Alloys After Hydroextrusion"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 2, Feb 71, pp 304-310

Abstract: By electron microscopy and measurements of hardness it was shown that strain distribution in different metals and alloys, deformed by hydroextrusion, is substantially different and that for each material there should exist an optimum magnitude of friction on the surface of contact between the die and sample which provides a uniform distribution of strain along the transverse cross section of a hydroextruded part. The dislocation structure of tungsten and VM1 molybdenum, deformed to different degrees by a two-stage hydroextrusion process, was studied. Increase in the strain rate for tungsten and use of dcuble extrusion for VM1 molybdenum produces a cellular structure with exceptionally small cells (down to 0.3 microns. This is particularly true when a very high rate of deformation is applied (100,000 mm/sec). 4 figures, 1 table, 14 bibliographical references.

1/1

adapted to a medium with a high U content, accumulation of U in the medium (Czapek is medium containing varying amounts of uranyl acetate) was accompanied by an increase in the rate of growth. The opposite was true for strains of the

USSR

UDC 564.515

KOMANOVA, R. R., SUYKOV, N. S., and PUSHIN, V. G., Institute of Physics of Metals of the Academy of Sciences USSR

"Effect of Natural Aging and Plastic Deformation on Artificial Aging of the Al-Zn-Mg Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 13, No 5, May 71, pp 1053-1057

Abstract: The effect of deformation carried out between natural and artificial aging on the structure and hardness of the Al-Zn-Mg alloy (wt %): 4.7 Zn; 1.87 Mg; 0.62 Nb; 0.17 Zr, 0.26 Fe; 0.13 Si; 0.05 Cu; the rest Al) was electron-microscopically investigated by the method of thin metal foils and hardness measurements. The investigation results are discussed by reference to electron-microphotographs of the alloy and the hardness dependence on the aging time at 180°C. It was found that preliminary natural aging with subsequent deformation increases the hardness of the artificially aged alloy and increases considerably the extent of dispersion hardening in comparison with similar processes. The results are illustrated by microphotographs of the alloy and the dependence of the hardness on the aging time. The paper contains 10 illustrations, twenty biblio. refs.

1/1 APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710005-2

"APPROVED FOR RELEASE: 08/09/2001

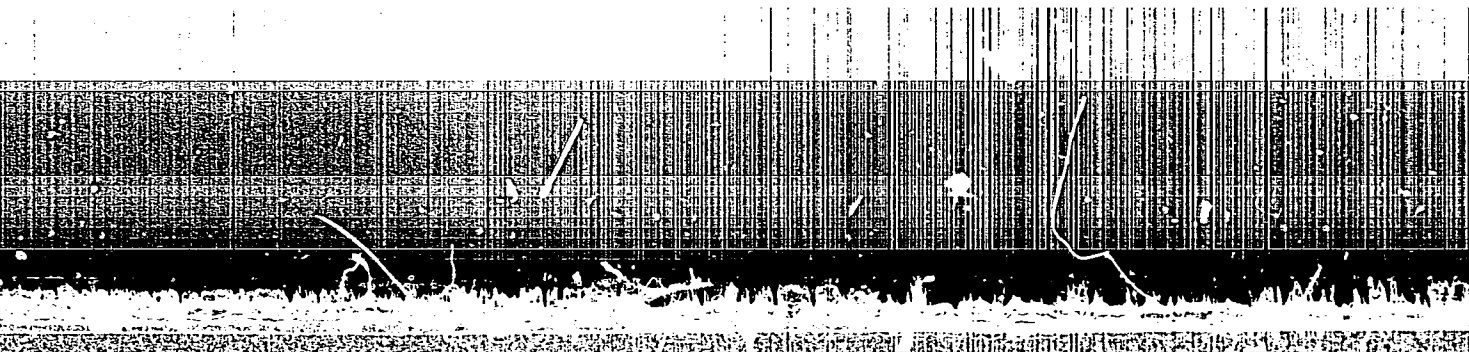
CIA-RDP86-00513R002202710005-2

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710005-2"

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710005-2



APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710005-2"

Semiconductors and Transistors

UDC 621.374.4

USSR

ROMANOVA, R. M., Active Member of the Scientific and Technical Society of Radio Engineering, Electronics and Communications

"Spectral Analysis of the Current Through a Partially Open Varactor"

Moscow, Radiotekhnika, No 4, 1970, pp 36-44

Abstract: This article contains an investigation of the frequency characteristics of various models of p-n junctions, and a method of experimental analysis is proposed for them. A procedure is given for calculating the current spectrum through a partially open varactor if its static voltampere and low-signal frequency characteristics are known. Data are tabulated and the characteristics plotted for various diodes.

It is pointed out that calculation of the harmonic components of the current through the partially open varactor with a voltage U applied directly to the p-n junction should be carried out by the formula:

$$i_m^v = I_{sa} R'(i\omega_m \tau_p) \tag{1}$$

where $R'(i\omega_m \tau_p)$ is the complex frequency characteristic. The value of $|R'(i\omega_m \tau_p)|$ in the above formula increases with an increase in m; therefore, i_m^v as a function of m is a function of $m^{1/2}$

USSR

ROMANOVA, R. M., Radiotekhnika, No 4, 1970, pp 36-44

of m differs from I_m as a function of m . This difference is plotted on a graph. For the frequencies ω used in practice, the inequality $I_0 \ll |I_m^V|$ is valid at the same time as for an inertialess junction $I_0 \geq |I_m|$ which is significant for frequency multipliers. When using a varactor as a multiplier in the partial triggering mode, the voltage U after the junction must be calculated by the formula:

$$U_{p-n} = U_1 \cos \omega t - \sum_m I_m^V Z_m e^{im\omega t} = U_1 \cos \omega t - \sum_{m=-\infty}^{\infty} U_m e^{im\omega t},$$

where $Z_m = im\omega L_V + \frac{1}{im\omega C_2} + r_{measured} + r_s; U_m = I_m^V Z_m$.

When calculating currents by formula (1) it is necessary to use values of $|R'|$ which are easily determined experimentally.

USSR

UDC 669-157:669.15-194.56

UVAROV, A. I., ROMANOVA, R. B., UKSUSNIKOVA, A. N., and BUTYNOV, N. N., Inst. of Physics of Metals, Ukrainian National Center of the Academy of Sciences USSR
"Influence of Low-Temperature Aging Before High-Temperature Aging on the Mechanical Properties and the Structure of 40Kh4G18F Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 735-741
Abstract: The mechanical properties and the structure of 40Kh4G18F steel were experimentally investigated after different methods of heat treatment. The results are discussed by reference to diagrams showing the dependences of ultimate strength, yield limit, relative elongation, and relative narrowing of 650 and 700 °C curves, hardness curves, and diagrams showing the dependences of aging after aging. The processing aging at 700 °C and electrolit increase in strength of 40Kh4G18F steel and, in certain cases, to a degree, if compared with only one high-temperature aging. A preliminary low-temperature aging was also increasing. A preliminary low-temperature aging of steel, in which the primary nuclei of the

USSR

UDC 669-157:669.15-194.56

UVAROV, A. I., ROMANOVA, R. R., UKSUSNIKOV, A. N., and BUYNOV, N. N., Institute of Physics of Metals, Ukrainian National Center of the Academy of Sciences USSR

"Influence of Low-Temperature Aging Before High-Temperature Aging on the Mechanical Properties and the Structure of 40Kh4G18F Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 735-741

Abstract: The mechanical properties and the structure of 40Kh4G18F steel were experimentally investigated after different methods of heat treatment. The results are discussed by reference to diagrams showing the dependences of ultimate strength, yield limit, relative elongation, and relative narrowing at 650° and 700° at different aging conditions, and on the basis of isochronal hardness curves, hardness curves by isothermal aging at 700°, and electron microphotograph after aging. The processing according to the scheme hardening - low-temperature aging - high-temperature aging was found to give rise to a substantial increase in strength of 40Kh4G18F steel and, in certain cases, also in plasticity, if compared with only one high-temperature aging; the dispersion of separations was also increasing. A preliminary low-temperature aging before high-temperature aging influences effectively the increase of mechanical properties of steel, in which in aging the primary nuclei of the

1/2

- 23 -

USSR

UVAROV, A. I., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4,
Oct 73, pp 735-741

hardening phase possess an equiaxial form and are capable of growing in aging.
The results make possible a selection of more optimum processing methods of
40Kh4G18F steel. Six figures, five bibliographic references.

2/2

ROMANOVA, R.R.

EFFECT OF VARIOUS COMBINATIONS OF AGING AND DEFORMATION ON THE STRUCTURE AND MECHANICAL PROPERTIES OF E147B ALLOY

N. N. Durnov, A. I. Usov, A. N. Uzunov, R. R. Romanova, R. A. Karpenyan, and M. G. Gaidukov, Institute of the Physics of Metals, Ural Scientific Center of the USSR Academy of Sciences, submitted to press 16 June 1971; final version, 18 February 1972 pages 1251-1258

UDC 629.17.539.25

*Richard Smolitskii
M. L. Leningrad, 5/10/58
50 000 531 from Sigala
McEller & McClelland
141 5th St, 1972*

①

The effect of deformation performed after low-temperature aging before high-temperature aging on the structure and mechanical properties of alloy E147B was studied. Experimental data concerning the possibility of decreasing or preventing recovery in this alloy by means of moderate deformation between low-temperature and high-temperature treatments were obtained. It was established that the use of treatment according to the following scheme: hardening-low-temperature aging-deformation (straining)-high-temperature aging leads to an essential increase of the mechanical properties in comparison with aging without deformation.

In reference [1] the conclusion made earlier [2] that preliminary low-temperature aging before high-temperature aging must be effective in increasing the mechanical properties of alloys of the aluminum type was experimentally confirmed. In these alloys the initial nuclei of a noticeable precipitation phase have an equiaxial form and are capable of a noticeable growth at low-temperature aging. Also, prolonged aging at low temperature increases the stability of the nuclei (or the Guinier-Preston zone) and their larger quantity is preserved in subsequent high-temperature aging. Such double aging provides a large dispersivity of the precipitations and high strength properties in comparison with the dispersion of the minimum on isothermic curves of hardness in high-temperature aging testles that a

considerable part of the G. P. zones [1] or the nucleation out [2] during recovery are dissolved or change their composition even in a case of prolonged preliminary low-temperature aging [4, 5]. According to data in reference [6], in E1437B alloy in recovery 34% of the precipitative phase is dissolved.

We may assume that if we prevent recovery in the transition from low-temperature aging to high-temperature aging, then we will obtain alloys with more dispersed precipitations and greater strength. According to reference [7-9], the effect of plastic deformation on the G. P. zones and the metastable coherent or partially coherent precipitations is manifested in the fact that part of the nuclei may be dissolved, and part stabilized. For example, the G. P. zones may shift to metastable precipitation. At moderate deformations, the effect of the solution of the nuclei may be insignificant in comparison with the effect of stabilization. Having increased the stability of the nuclei, we may prevent or decrease recovery if the alloys are subjected after low-temperature aging to high-temperature aging. Aside from this, recovery may be decreased because of the appearance of new nuclei due to the ones dissolved during deformation.

In this work we set ourselves the problem of studying the effect of deformation between low-temperature and high-temperature aging on the structure and mechanical properties of alloy E1437B.

The structure of the alloy was investigated by the fine-film electron-microscopic method. Measurements of hardness according to Vickers were performed, also measurements of the ultimate strength and yield points, elongation and compression. Heat treatment of the alloy consisted of annealing at 1090°C for eight hours and cooling in the air. In the interval of aging of 600--850° the specimens were cooled at a rate of 100° per minute. The aging was accomplished at 700 and 850°. After different variations of heat treatment the specimens were strained by rolling, basically by 40%.

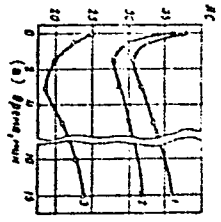


Figure 1. Hardness of alloy E1437B in isothermal aging at 850°. (1) after preliminary aging at 700° for ten hours and straining by 20%; (2) after preliminary straining by 20% and aging at 700° for ten hours; (3) after aging at 700° for ten hours. (a) time, min.

USSR

UDC 669.017:669.018:559.570

BUYNOV, N.N., KARAKHANYAN, R.A., ROMANOVA, R.R., BULYCHEV, D.M., and RODIONOV, K.P., Institute of Metal Physics, Academy of Sciences USSR

"Distribution of Strain in Metals and Alloys After Hydroextrusion"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 2, Feb 71, pp 304-310

Abstract: By electron microscopy and measurements of hardness it was shown that strain distribution in different metals and alloys, deformed by hydroextrusion, is substantially different and that for each material there should exist an optimum magnitude of friction on the surface of contact between the die and sample which provides a uniform distribution of strain along the transverse cross section of a hydroextruded part. The dislocation structure of tungsten and VMI molybdenum, deformed to different degrees by a two-stage hydroextrusion process, was studied. Increase in the strain rate for tungsten and use of double extrusion for VMI molybdenum produces a cellular structure with exceptionally small cells (down to 0.3 microns. This is particularly true when a very high rate of deformation is applied (100,000 mm/sec). 4 figures, 1 table, 14 bibliographical references.

1/1

- 88 -

USSR

UDC 584.535

ROMANOVA, R. R., BUYNOV, N. N., and PUSHIN, V. G., Institute of Physics of Metals of the Academy of Sciences USSR

"Effect of Natural Aging and Plastic Deformation on Artificial Aging of the Al-Zn-Mg Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 13, No 5, May 71, pp 1053-1057

Abstract: The effect of deformation carried out between natural and artificial aging on the structure and hardness of the Al-Zn-Mn alloy (wt %): 4.7 Zn; 1.87 Mg; 0.62 Mn; 0.17 Zr. 0.26 Fe; 0.13 Si; 0.05 Cu; the rest Al) was electron-microscopically investigated by the method of thin metal foils and hardness measurements. The investigation results are discussed by reference to electron-microphotographs of the alloy and the hardness dependence on the aging time at 180°C. It was found that preliminary natural aging with subsequent deformation increases the hardness of the artificially aged alloy and increases considerably the extent of dispersion separations in comparison with similar processing but without deformation between natural and artificial aging. The experimental results are explained on the basis of concepts about the effect of deformation on Guinier-Preston zones. Four illustr., twenty biblio. refs.

1/1

- 1 -

R

UDC 577.4:576.851.5

USSR

LETUNOVA, S. V., KOVAL'SKIY, V. V., and ROMANOVA, S. N., Biogeochemical Laboratory, Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR

"Geochemical Ecology of Microorganisms Under Conditions of Different Uranium Content in Mud"

Moscow, Zhurnal Obshchey Biologii, Vol 31, No 1, 1970, pp 111-120

Abstract: Strains of *Bac. megatherium*, *Bac. mesentericus*, *Bacterium* sp., and *Mycobacterium* sp. were isolated from the mud of Lake Issyk-Kul' with a high U content (1.5×10^{-3} percent) and from the mud of a lake in the vicinity of Moscow with a low U content (5.0×10^{-5} percent). The microorganisms were grown on culture media with a varying U content. Strains from Lake Issyk-Kul' and from the Moscow lake accumulated U during growth. For Issyk-Kul' strains adapted to a medium with a high U content, accumulation of U in the medium (Czapek is medium containing varying amounts of uranyl acetate) was accompanied by an increase in the rate of growth. The opposite was true for strains of the same genus isolated from the mud of the Moscow lake; with an increased accumulation of U in the cells, the rate of growth decreased.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTROKINETIC POTENTIAL OF A POLYACRYLONITRILE FIBER MODIFIED WITH
HYDRAZINE HYDRATE -U-
AUTHOR--(05)-ANDROSOV, V.F., ANDREYEVA, K.I., BONDARENKO, V.S., ZHARKOVA,
M.A., ROMANOVA, T.A.
COUNTRY OF INFO--USSR R
SOURCE--KHIM. VOLOKNA 1970, (2), 28-30
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYACRYLONITRILE FIBER, HYDRAZINE HYDRATE, PHYSICAL CHEMISTRY
PROPERTY, TRANSITION TEMPERATURE, ELECTRIC POTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0043

STEP NO--UR/0183/70/000/002/0028/0030

CIRC ACCESSION NO--AP0132338

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 018

CIRC ACCESSION NO--AP0132338
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. POLYACRYLONITRILE (I) FIBERS,
TREATED WITH AQ. N SUB2 H SUB4 H SUB2 O SOLN., FOLLOWED BY HEAT
TREATMENT UNDER N, ACQUIRED NEW PHYSICOHEM. PROPERTIES. THE
ELECTROKINETIC POTENTIAL (ZETA) AND GLASS TRANSITION TEMP. OF THE
MODIFIED I FIBERS WERE PROPORTIONAL TO THE HEAT TREATMENT TEMP. A
METHOD WAS PROPOSED FOR THE DETN. OF THE DEGREE OF CROSSLINKING FROM THE
RELATIVE CHANGE IN ZETA.
USSR.

FACILITY: LITLP IN. KIROVA, LENINGRAD.

UNCLASSIFIED

UDC 678.85.03

USSR

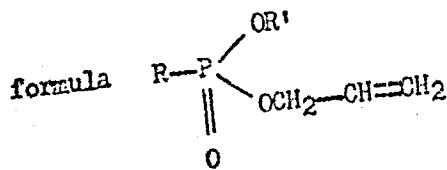
FAIZULLIN, I. N., MAKSUDOVA, T. N., ISUPOVA, A. I., FAYZZULLINA, D. A.,
ROMANOVA, T. I., and KUZNETSOV, YE. V.

"Allyl-Aryl Esters of Phosphorus Acids"

Moscow, *Plasticheskiye Massy*, No 2, Feb 72, pp 60-63

Abstract: A number of organophosphorus polymers are commonly obtained by polymerization of the allyl esters of the phosphorus acids. Since these polymers possess valuable properties, the synthesis of new phosphorus-containing monomers is a matter of practical interest.

Seven allyl-aryl esters of the phosphorus acids, having the general



, were synthesized, and their physico-chemical

1/2

USSR

FAIZULLIN, I. N., et al., *Plasticheskiye Massy*, No 2, Feb 72, pp 60-63

characteristics (boiling point, phosphorus content, etc.) were determined. The esters were obtained from a two-stage reaction: 1) dichloroanhydride of phenylphosphoric acid with the corresponding alcohol, and 2) the corresponding acid chlorides of the esters with allyl alcohol in the presence of triethylamine in an ether medium.

2/2

USSR

UDC 614.86:001

ROMANOVA, T. P., Chair of Social Hygiene and Organization of Public Health Service, Kazan Medical Institute imeni S. V. Kurashov

"Study of Automotive Traumatism From the Aspect of Social Hygiene"

Moscow, Zdravookhraneniye Rossiyskoy Federatsii, No 2, 1971, pp 28-30

Abstract: A study was conducted of 2,386 automotive accidents which occurred in Saransk in 1966-1968. In the overall structure of injuries, automotive trauma holds the second place (21%) among hospitalized cases and the fifth place (5.3%) among nonhospitalized cases. Between 1960 and 1969, the number of serious car accidents increased 2%, while the number of deaths resulting from car accidents decreased 32%, as compared with the total number of inhabitants the number of serious accidents did not change appreciably as compared with the total number of motor transportation units. The number of men involved in car accidents was 3.2 times greater than the number of women. Accidents were most frequent during summer months and during evening and night hours. Among hospitalized victims, 31.9% had multiple injuries, 31.7% had head injuries, and 20.4% had lower extremity injuries. Of the latter, 63% suffered simple fractures of the shin bone or less frequently of the thigh bone, while 22% suffered compound fractures

1/2

USSR

ROMANOVA, T. P., Zdravookhraneniye Rossiyskoy Federatsii, No 2, 1971, pp 28-30

(mainly of the shin bone). Over 50% of the fatality victims died at the site of the accident, 7% died en route to the hospital, 11% in the emergency room, and 31% while hospitalized. The most frequent causes of accidents were violations of traffic regulations by drivers and by pedestrians, especially children, and intoxication of drivers (35.2%) and pedestrians (16.2%). Other frequent causes included fatigue (driving more than 8 hours per day) and emotion stress (personal and occupational difficulties). Drivers under the age of 25 had 1.7 times more accidents than older drivers. Emergency stations are understaffed and do not always offer the best first aid. This problem is now being investigated by the Municipal Executive Committee.

2/2

- 74 -

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202710005-2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202710005-2"

1/2 018 UNCLASSIFIED PROCESSING DATE--0408190
 TITLE--ELECTROKINETIC POTENTIAL OF A POLYACRYLONITRILE FIBER MODIFIED WITH
 HYDRAZINE HYDRATE -U-
 AUTHOR--(05)--ANDROSOV, V.F., ANDREYEVA, K.I., BORDARENKO, V.S., ZHAROV,
 N.A., ROMANOVA, T.A.
 COUNTRY OF INFO--USSR *R*
 SOURCE--KHIM. VOLOKNA 1970, (2), 28-30
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYACRYLONITRILE FIBER, HYDRAZINE HYDRATE, PHYSICAL CHEMISTRY
PROPERTY, TRANSITION TEMPERATURE, ELECTRIC POTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3095/0043

STEP NO--08/0185/70/002/002/0028/0030

CIRC ACCESSION NO--A70132338

UNCLASSIFIED

UDC 678.85.03

USSR

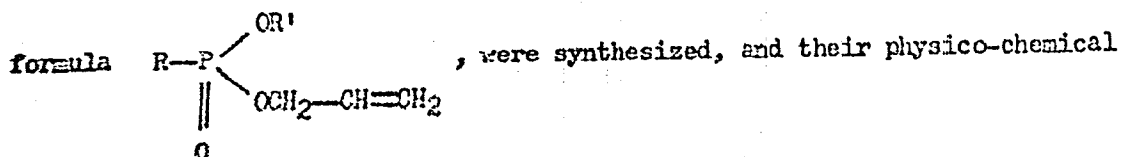
FAIZULLIN, I. N., MAKSUDOVA, T. M., ISUPOVA, A. I., FAYZZULLINA, D. A.,
ROMANOVA, T. I., and KUZNETSOV, YE. V.

"Allyl-Aryl Esters of Phosphorus Acids"

Moscow, *Plasticheskiye Massy*, No 2, Feb 72, pp 60-63

Abstract: A number of organophosphorus polymers are commonly obtained by polymerisation of the allyl esters of the phosphorus acids. Since these polymers possess valuable properties, the synthesis of new phosphorus-containing monomers is a matter of practical interest.

Seven allyl-aryl esters of the phosphorus acids, having the general



1/2

USSR-

FAIZULLIN, I. N., et al., *Plasticheskiye Massy*, No 2, Feb 72, pp 60-63

characteristics (boiling point, phosphorus content, etc.) were determined. The esters were obtained from a two-stage reaction: 1) dichloroanhydride of phenylphosphoric acid with the corresponding alcohol, and 2) the corresponding acid chlorides of the esters with allyl alcohol in the presence of triethylamine in an other medium.

2/2

USSR

UDC 614.86:001

ROMANOVA, T. P., Chair of Social Hygiene and Organization of Public Health Service, Kazan Medical Institute imeni S. V. Kurashov

"Study of Automotive Traumatism From the Aspect of Social Hygiene"

Moscow, Zdravookhraneniye Rossiyskoy Federatsii, No 2, 1971, pp 28-30

Abstract: A study was conducted of 2,386 automotive accidents which occurred in Saransk in 1966-1968. In the overall structure of injuries, automotive trauma holds the second place (21%) among hospitalized cases and the fifth place (5.3%) among nonhospitalized cases. Between 1960 and 1969, the number of serious car accidents increased 2%, while the number of deaths resulting from car accidents decreased 32%, as compared with the total number of inhabitants the number of serious accidents did not change appreciably as compared with the total number of motor transportation units. The number of men involved in car accidents was 3.2 times greater than the number of women. Accidents were most frequent during summer months and during evening and night hours. Among hospitalized victims, 31.9% had multiple injuries, 31.7% had head injuries, and 20.4% had lower extremity injuries. Of the latter, 63% suffered simple fractures of the shin bone or less frequently of the thigh bone, while 22% suffered compound fractures

1/2

USSR

ROMANOVA, T. P., Zdravookhraneniye Rossiyskoy Federatsii, No 2, 1971, pp 28-30

(mainly of the shin bone). Over 50% of the fatality victims died at the site of the accident, 7% died en route to the hospital, 11% in the emergency room, and 31% while hospitalized. The most frequent causes of accidents were violations of traffic regulations by drivers and by pedestrians, especially children, and intoxication of drivers (35.2%) and pedestrians (16.2%). Other frequent causes included fatigue (driving more than 8 hours per day) and emotion stress (personal and occupational difficulties). Drivers under the age of 25 had 1.7 times more accidents than older drivers. Emergency stations are understaffed and do not always offer the best first aid. This problem is now being investigated by the Municipal Executive Committee.

2/2

- 74 -

Acc. Nr. **AP0053887** - Abstracting Service:
- CHEMICAL ABST. 6-70

Ref. Code:
4R0028

R

117300a Reaction of vanadium bromide with hydrogen, oxygen, and water vapor. Amirova, S. A.; Rupcheva, V. A.; Romanova, T. V. (USSR). *Zh. Neorg. Khim.* 1970, 15(2), 330-4 (Russ). Dehydration of $VBr_3 \cdot 6H_2O$ is accompanied by the hydrolysis of VBr_3 with the intermediate reaction products being $VOBr_2$ and $VOBr$. In H atm. VBr_3 was reduced to VBr_2 . The latter was stable up to 1000°. VBr_2 and VBr_3 were oxidized with O at 345° to V_2O_5 . VBr_2 reacted with steam at 180° and VBr_3 at 420° to form V_2O_5 .

HMJR
pc

REEL/FRA
19830964

18

Acc. Nr:
A0053886Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code:

UR 0038

117295c Thermochemical transformations of chromium and manganese bromides. Rupcheva, V. A.; Romanova, T. V.; Amirova, S. A. (USSR). *Zh. Neorg. Khim.* 1970, 15(2), 314-9 (Russ). Reactions of $\text{CrBr}_2 \cdot 6\text{H}_2\text{O}$ and $\text{MnBr}_2 \cdot 4\text{H}_2\text{O}$ in N₂ oxidizing, or reducing atms. at elevated temps. were detd. by thermogravimetry and anal. of reaction products chem. or by x-ray diffraction. In inert atm. the reactions proceeded according to:

$$\begin{array}{l} \xrightarrow[400^\circ]{120^\circ} \text{CrBr}_2 \cdot 6\text{H}_2\text{O}_{(s)} \longrightarrow \text{CrBr}_2 \cdot 5\text{H}_2\text{O}_{(l)} \xrightarrow[190^\circ]{} \text{CrBr}_2 \cdot 4\text{H}_2\text{O} \\ \xrightarrow[87^\circ]{850^\circ} \text{CrBr}_2 + \text{Cr}_2\text{O}_3 \longrightarrow \text{CrBr}_2 + \text{Cr}_2\text{O}_3; \text{ and } \text{MnBr}_2 \cdot 4\text{H}_2\text{O}_{(l)} \\ \xrightarrow[87^\circ]{145^\circ} \text{MnBr}_2 \cdot 4\text{H}_2\text{O}_{(l)} \longrightarrow \text{MnBr}_2 \cdot \text{H}_2\text{O} \xrightarrow[160^\circ]{} \text{MnBr}_2 \xrightarrow[678^\circ]{} \text{MnBr}_2 \\ \Delta H \text{ of oxidn. of } \text{CrBr}_2 \text{ and } \text{CrBr}_2 \text{ to } \text{Cr}_2\text{O}_3 \text{ is } -55,400 \text{ and } \\ -66,600 \text{ cal/mole, resp., and that of } \text{MnBr}_2 \text{ to } \text{Mn}_2\text{O}_3 \text{ or } \text{Mn}_2\text{O}_4 \\ \text{is } -28,070 \text{ and } -32,300 \text{ cal/mole, resp. Anhyd. } \text{CrBr}_2 \text{ and } \\ \text{CrBr}_2 \text{ reacted with steam to form } \text{Cr}_2\text{O}_3 \text{ and } \Delta H \text{ of these reactions} \\ \text{is } 16,900 \text{ and } 10,500 \text{ cal/mole, resp. Reaction of } \text{MnBr}_2 \text{ with} \\ \text{steam gave } \text{MnO} \text{ and } \text{Mn}_2\text{O}_4, \text{ with } \Delta H \text{ } 35,800 \text{ and } 39,400 \text{ cal/} \\ \text{mole, resp. } \text{CrBr}_2, \text{ CrBr}_2, \text{ and } \text{MnBr}_2 \text{ were reduced by H to } \text{Cr-} \\ \text{Br}_2, \text{ Cr, and Mn, resp., and } \Delta H \text{ of these reactions are } 8340, \\ 56,580 \text{ and } 72,800 \text{ cal/mole, resp.} \end{array}$$

HMJR -

REEL/FRAME

19830963

USSR

UDC 632.95

SHAPOVALOVA, G. K., ROMANOVA, V. V., MARCHENKO, L. F., GUNAR, M.I.
SHUMYATSKAYA, T. N., MIKHALYUTINA, YE. B., SHVETSOVA-SHILOVSKAYA,
M. D... and MEL'NIKOV, N. N.

"Insecticide"

USSR Authors' Certificate No 244800, filed 9 Feb 68, published 15
Jan 70, (from RZh-Khimiya, No 20 (II), 25 Oct 70, Abstract No
20 N547P by S. LYUBARSKAYA)

Translation: The authors suggest as insecticides compounds of the
formula (RO)(R'O)P(X)(OR'') (I; R and R' = Me, Et; R'' = acetyl-,
halogen- or alkyl-substituted phenyl or naphthyl; X = O or S),
which are obtained by the interaction of dialkyl chlorophosphates
or thiophosphates with the corresponding phenols or naphthols or
phenolates in MeCN with K₂CO₃ at 75-80° or in an inert solvent at
90-110°. The following are obtained: I (R = R', R'' = substituted
phenyl; given are R, substituents in the phenyl ring, X, boiling
point in °C/mm, d₄²⁰, n_D²⁰): Me, 2-Ac, S, 120-6/0.14, 1.2465,
1.5372; Et, 2-Ac, S, 110-4/0.09, 1.1911, 1.5271; Et, 3-Me, S,
120-4/0.1, 1.1378, 1.5260; Me, 4-Ac, O, 124-30/0.08, 1.2539, 1.5070;
Et, 4-Ac, O, 130-3/0.1, 1.1846, 1.4970; Me, 4-Ac, S, 120-3/0.08,
1.2648, 1.5445; Et, 4-Ac, S, 127-30/0.08, 1.1822, 1.5280; Me,
1/3

USSR

SHAPOVALOVA, G. K., et al., USSR Authors' Certificate No 244800

2-Ac-4-Cl, S, 136-43/0.15, 1.3519, 1.5510; Et, 2-Ac-4-Cl, S, 126-30/0.13, 1.2531, 1.5295; Et, 2-Ac-4-Cl, S, 125-7/0.1, 1.2542, 1.5325; Me, 2-Ac-6-Cl, 0.127-9/0.11, 1.3555, 1.5118; Me, 4-Ac-2Cl, 0.152-3/0.15, 1.3556, 1.5218; Et, 4-Ac-2-Cl, 0, 159-61/0.12, 1.2699, 1.5094; Me, 4-Ac-2-Cl, S, 135-43/0.18, 1.3463, 1.5538; Me, 2-Ac-4-Me, S, 133-8/0.15, 1.2340, 1.5405; Me, 2-Ac-5-Me, S, 152-8/0.17, 1.1864, 1.5388; Me, 4-Ac-2-Me, S, 153-6/0.18, 1.2400, 1.5465; Et, 4-Ac-3-Me, 0, 150-1/0.2, 1.1740, 1.5015; Me, 4-Ac-3-Me, S, 155-61/0.22, 1.2404, 1.5442; Et, 4-Ac-3-Me, S, 152-4/0.2, 1.1656, 1.5290; Me, 2-Ac-4-Me₂, S, 130-2/0.05, 1.1927, 1.5380; Et, 2-Ac-4, 5-Me₂, S, 135-40/0.05, 1.1312, 1.5200; Et, 2-EtCO, 0, 130-2/0.1, 1.2565, 1.4930; Me, 4-EtCO, 0, 149-52/0.08, 1.2273, 1.5070; Me, 4-EtCO, S, 142-7/0.1, 1.2264, 1.5420; I (R = Me, R' = Et, X = S; R'' = substituted phenyl; given here are substituents in the phenyl nucleus, boiling point in °C/mm, d₄²⁰, n_D²⁰): 4-Ac, 121-4/0.1, 1.2338, 1.5368; 2-Ac, 120-4/0.18, 1.2245, 1.5318; 4-Ac-2,5-Me₂, 156-8/0.05, 1.1896, 1.5375; 4-EtCO, 148-52/0.1, 1.195, 1.5321; I (R'' = 2-acetylnaphthyl; given here are R, R', X, boiling point in °C/mm, d₄²⁰, n_D²⁰): Me, Me, 0, 156-7/0.18, 1.3548, 1.5630; Et, Et, 0, 155-60/0.1, 1.2177, 1.5465; Me, Et, S, 170-3/0.2,

2/3

USSR

SHAPOVALOVA, G. K., et al., USSR Authors' Certificate No 244800

1.2396, 1.5850; Et, Et, S, 159-62/0.14, 1.2003, 1.5740. I's are approximately as active as chlorophos against Musca domestica, Galandra orycae and Porthetria dispar and have low toxicity for warm-blooded animals.

3/3

- 90 -

USSR

UDC 591.32:531.5

SIMAKOV, Yu. G., AGAFONOV, V. A., VOLKOVA, O. V., ROMANOVA, Ye. A., and SHITOV, G. D., Chair of Histology and Embryology, Pediatric Faculty, Second Moscow State Medical Institute imeni N. I. Pirogov, Moscow

"Pre-Implantation Development of Mouse Embryos Under Conditions of Changed Gravitation"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Vol. 64, No 3, Mar 73, pp 5-12

Abstract: Female mice were placed 11-13 hrs after mating into a centrifuge in which an additional gravitational force of 1 G was exerted on them in the dorso-ventral direction. Under the conditions of increased gravitation, a delayed appearance of fetuses transferred from the oviducts into the horns of the uterus was not observed. Morphological changes in the development of the fetuses began to be apparent on the 4th day of pregnancy; they comprised retarded development and disturbances in cleavage. These changes coincided with the beginning of a drop in the content of bound lipids and a rise in the content of PAS-positive substances in the endometrium. At the time of implantation, after 4 days of the action of gravitational overload, the majority of fetuses were unable to penetrate into the muscosa of the uterus, because the blastocytes had not lost their zone pellucida or had undergone

1/2

USSR

SIMAKOV, Yu. G., et al., Arkhiv Anatomii, Gistologii i Embriologii, Vol 64, No 3, Mar 73, pp 5-12

abnormal cleavage with the lysis of some blastomers. There were no signs of implantation on the 6th day. On the 12-13th day of the action of the additional gravitational force, the mice were no longer pregnant, because their uterus was thinned out as in mice in a state of diestrus. Under the effect of the gravitational overload, gestation was interrupted already in the pre-implantation stage.

2/2

- 44 -

USSR

UDC 669.14.018.298:621.791.053:620.18

SHTRIKMAN, M. M., KAPRANOVA, I. P., and ROMANOVA, Ye. T.

"Structure and Properties of Weld Metal of N18K9M5T Steel With an Aging Martensite Structure"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 18-22

Abstract: The effect of argon-arc welding of N18K9M5T steel on the structure and mechanical properties of the weld metal was studied. Plates 15 mm thick and cylindrical samples 100 mm in diameter with 20-mm walls were welded manually and automatically using tungsten electrodes. Three methods of welding were tried: (1) heating of the weld metal to 250-350°C after each passage; (2) continuous welding with interruptions between each weld layer in order that each layer be cooled to 200°C and not lower; (3) cooling of each weld layer to room temperature. The results indicated that cooling of each layer to room temperature causes aging of lower metal layers and decreases the impact toughness of the weld. Welding without cooling of each layer below 200-220°C eliminates the aging of the weld metal, produces stable metal structure, improves mechanical properties, and produces high impact toughness. Hardening of the weld metal at 920°C for 1 hr with subsequent cooling in air equalizes the structure of the weld metal and increases the

1/2

- 25 -

USSR

SHTRIKMAN, M. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 18-22

impact toughness. The impact toughness of samples welded manually was higher than that of samples welded automatically. This was probably due to a lesser number of microdefects in the weld.

2/2

1/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--DETERMINATION OF THE SEDIMENTATION STABILITY OF DISPERSE SYSTEMS

-U-

AUTHOR--(02)--ROMANOVA, Z.T., BARAMBOYM, N.K.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNY ZHURNAL, 1970, VOL 32, NR 3, PP 461-464

DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--POLYVINYL CHLORIDE, CHEMICAL STABILITY, AQUEOUS SOLUTION, CHEMISTRY LABORATORY APPARATUS, OPTIC PROPERTY, TEST METHOD

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/2163

STEP NO--UR/0069/70/032/003/0461/0464

CIRC ACCESSION NO--AP0125746

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125746

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

ABSTRACT. AN AUTOMATIC DEVICE FOR

DETERMINATION OF THE STABILITY OF DISPERSE SYSTEMS HAS BEEN DESIGNED.

THE DEVICE IS BASED ON CONTINUOUS MEASUREMENT OF THE OPTICAL DENSITY OF

A DISPERSION COLUMN. AN ESTIMATE IS GIVEN OF THE STABILITY OF AQUEOUS

POLYVINYL CHLORIDE DISPERSIONS AND THEIR MIXTURES. FACILITY:

MOSKOVSKIY TEKHNOLOGICHESKIY INSTITUT LEGKOY PROMYSHLENNOSTI.

UNCLASSIFIED

USSR

UDC 621.762.1.01:669.18.95

PORTNOY, K. I., GOROBETS, B. R., ROMANOVICH, I. V., and BABICH, E. N.,
All-Union Scientific Research Institute of Aviation Materials

"Relation of Precipitation-Hardened Nickel Heat Resistance to Structure
Parameters"

Kiev, Poroshkovaya Metallurgiya, No 1, Jan 74, pp 96-100

Abstract: In conjunction with the fact that precipitation-hardened nickel alloys VDU-1 and VDU-2 have a different level of heat resistance despite identical conditions of heat treating, a study was conducted on the structure of these alloys subjected to the same treatment, which differed in dispersity of the hardening phase in the amount of 2.5 vol %. Experiments confirmed a linear relationship of long-time strength to inverse magnitude of mean interparticle distance. It was also determined that there is a linear relationship between long-time strength to relative volume percentage of "coarse" dispersed particles. These results confirmed the hypothesis that the rise in strength increases with temperature due to the unchanged shear modulus with increased temperature and that the number of active slip systems is decreased with increased temperature, which in turn is the result
1/2

USSR

PORTNOY, K. I., et al., Poroshkovaya Metallurgiya, No 1, Jan 74, pp 96-100

of the role of be dispersed hardening particles which hinder the movement of mobile dislocations. Four figures, one table, nine bibliographic references.

2/2

- 33 -

USSR

UDC: 669.71

PORTNOY, K. I., BABICH, B. N., ROMANOVICH, I. V., ROMASHOV, V. M., Moscow

"The Growth of Particles of Hardening Phases in Processes Producing Dispersion Hardened Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of Materials Processing], No 6, Nov-Dec 73, pp 99-103.

Abstract: X-ray and electron microscope methods are used to determine the mean diameter of particles of the hardening phase in an alloy of nickel with three vol. % hafnium dioxide during stages of its production from an initial powder mixture of oxides to a compact deformed bar. The greatest growth of the mean particle diameter of the hardening phase is observed during the operations of sintering and hot extrusion. The main reason for enlargement of particles in processes involved in producing the dispersion hardened alloy is the unevenness of the distribution, allowing direct contact between particles. The electron microscope method is recommended for determination of the mean diameters of hardening-phase particles in a dispersion hardened alloy, since it gives more reliable information than the x-ray method.

1/1

USSR

UDC 669.71

LEVINSKIY, YU. V., CHUBAROV, V. M., ROMANOVICH, I. V., and DVOYCHENKOVA, L. V.

"Interaction of Tungsten and Molybdenum Wires With Nickel in the Composite Material"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 113-119

Abstract: Composite samples were prepared by hot pressing of nickel powder (carbonyl nickel) with either tungsten or molybdenum wire at 1000°C for 1-2 min. Samples prepared in this way were subjected to annealing in vacuum ($\sim 1 \cdot 10^{-4}$ mm Hg) at 1100-1250°C up to 100 hours. No interaction was detected between W or Mo wires with Ni powder immediately after pressing. However, a wide interaction zone produced by diffusion processes was present in all samples after annealing. In the case of tungsten the diffusion zone contained a solid solution of W in Ni, and in the case of Mo, a solid solution of Mo and Ni and an intermetallide layer. However, if wires were not carefully cleaned from the graphite lubricant, the contact zone contained up to three layers of complex carbides. The x-ray spectral analysis of the concentration of W and Mo in carbide layers and their microhardness indicated that their number and composition depends on heat treatment and on the extent of graphite impurity on the wires. The maximum concentration of W and Mo in the solid

1/2

▲ USSR

LEVINSKIY, YU. V., et al., Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 113-119

solution layer within the contact zone was ~ 38 and $\sim 36\%$, respectively, regardless of the presence or absence of carbide layers. The diffusion coefficient of W in Ni at 1100 and 1200°C was $(6.0 \pm 1.0) \cdot 10^{-12}$ and $(3.1 \pm 0.5) \cdot 10^{-11}$, respectively. For Mo it was $(3.1 \pm 0.95) \cdot 10^{-11}$, $(5.7 \pm 1.0) \cdot 10^{-11}$, and $(9.4 \pm 1.5) \cdot 10^{-11}$ at 1100, 1200, and 1250°C, respectively. Diffusion of Ni in W and Mo was negligible because of very low solubility of Ni in these metals.

2/2

12

USSR

UDC: 621.785:661.65

ROMASHOV, V. M., TIMOFEYeva, N. I., FROLOVA, K. I., and ROMANOVICH, I. V.,
Moscow

"Interaction of Nickel With Samarium Hexaboride and Boron"

Kiev, Poroshkovaya Metallurgiya, No. 9, Sep 70, pp 80-86

Abstract: This study involved 99.7% pure carbonyl nickel powder and samarium hexaboride. The latter was obtained by the reaction $2\text{Sm}_2\text{O}_3 + 30\text{B} + 4\text{SmB}_6 + 3\text{B}_2\text{C}_2$. Alloys of both powders were subjected to x-ray diffraction and microstructure analyses, microhardness measurements of phase components, and quantitative analyses of both nickel and samarium. The interaction of nickel with samarium hexaboride indicates a dissociation of the latter to form SmB_4 . Depending on the nickel and hexaboride ratio in the initial mixtures, nickel borides are formed. Data on thermal and x-ray structure analyses of nickel and samarium hexaboride alloys, given in

1/2

USSR

ROMASHOV, V. M., et al, Poroshkovaya Metallurgiya, No. 9, Sep 70, pp 80-86
tables in the original article, suggest that the melting temperature of
nickel boride is higher than that indicated by earlier researchers. An
equilibrium diagram in the high boride domain of the Ni-Sn-B ternary system
is proposed.

2/2

USSR

UDC 621.762:669.245

1

BABICH, B. N., BERESTEN', N. Ye., LYUKEVICH, V. I., ROMANOVICH, I. V.,
TIMOFEYEVA, N. I.

"Influence of Distribution of Hardening Phase Particles in Powders on Thermal Stability of Dispersion-Hardened Nickel"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 25-30.

Abstract: This article studies the structural stability and strength properties of compositions produced of powders made by various methods providing near-identical hardening phase particle dimensions but different distributions of these particles in the matrix. It was found that achievement in initial powders of the most even possible distribution of ultrafine particles of the hardening phase assures thermal stability of dispersion-hardened nickel. The level of high-temperature properties of dispersion-hardened nickel depends on the presence of a certain quantity of oriented recrystallization areas in the structure with total absence of equiaxial grains. Unevenness of particle distribution of the hardening phase particles in the initial powders causes an increase in the mean particle size when the compact material is produced and a change in the nature of recrystallization, with the formation of equiaxial grains. The tests were based on nickel powder with 2% hafnium dioxide. The powders were produced by carbonate precipitation of nitrate solutions and evaporation concentration. Following hot extrusion

1/2

USSR

UDC 621.762:669.245

BABICH, B. N., BERESTEN', N. Ye., LYUKEVICH, V. I., ROMANOVICH, I. V.,
TIMOFEYEVA, N. I., Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972,
pp 25-30.

and cold drawing, the batch with poorer distribution showed intensive particle growth, probably as a result of accumulation of particles into conglomerates.

2/2

- 37 -

Superalloys

USSR

UDC 546.77'21+546.78'21+546.623'21+
+546.832'21+546.74'21

TIMOFEYEVA, Ye. N., KUSTOV, Yu. A., BERESTEN', N. Ye., ROMANOVICH, I. V.

"Interaction of MoO_3 and WO_3 with NiO , Al_2O_3 , HfO_2 and ZrO_2 in Metal Ceramic
Production of Nickel Alloys"

Moscow, Neorganicheskiye Materialy, Vol 8, No 10, Oct 72, p 1,872.

Abstract: This work presents the results of a study of the interaction of molybdenum and tungsten trioxides with the oxides of nickel, aluminum, hafnium and zirconium. The initial products used were mixtures of oxide powders with particle dimensions less than 0.1μ . The powders were heated in air at 400, 600, 800 and $1,000^\circ\text{C}$ for 25 hours to establish the degree of sublimation and nature of interaction, then were subjected to reducing annealing in hydrogen at $800-1,000^\circ\text{C}$ for two hours. X-ray analysis showed a phase identical to the known compound $\text{M}'\text{MO}_4$. Nickel tungstenate and molybdate fuse incongruently. They apparently practically do not dissociate in air right up to the melting point. The presence of the oxides of high temperature modifications of aluminum, hafnium and zirconium does not reduce the rate or degree of sublimation of molybdenum trioxide and tungsten tri-
1/2

USSR

UDC 546.77'21+546.78'21+546.623'21+546.832'21+
+546.74'21

TIMOFEYEVA, Ye. N., KUSTOV, Yu. A., BERESTEN', N. Ye., ROMANOVICH, I. V.,
Moscow, Neorganicheskiye Materialy, Vol 8, No 10, Oct 72, p 1,872.

oxide. The presence of nickel molybdate or tungstenate does not influence the kinetics of reduction; the entire quantity of alloying elements enters the solid solution in the stage of reduction of the mixture of oxides.

Combustion

USSR

UDC 541.126.4:546.21+541.525:542.978

AZATYAN, V. V. and ROMANOVICH, L. B., Institute of Chemical Physics, Academy of Sciences USSR

"Reactions of O Atoms and OH Radicals With An Inhibitor in the Ignition Limits Method"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, 1971, pp 941-946

Abstract: The ignition limits method is a familiar technique in studying reaction kinetics of atomic hydrogen with various compounds. When rate constants are calculated it is assumed that of all the active centers of chains only atomic hydrogen reacts with the additive (RH) molecules: $H + RH = H_2 + R$ (5). But reactions of O atoms and OH radicals with the inhibitor: $O + RH = OH + R$ (6), $OH + RH = H_2O + R$ (7) are not taken into account when determining the rate constants of hydrogen atom reactions. Still, in bulk reactions of O atoms, reaction (6) represents 13-30% at maximum additive concentrations and mean experimental temperatures. Therefore results that omit reactions (6) and (7) are often distorted. The mechanism of the reaction of O and H atoms and OH radicals in the presence of ethane suggests the importance of reactions (6) and (7). Experiments were conducted using ethane in a mixture of H_2 and O_2

1/2

USSR

AZATYAN, V. V. and ROMANOVICH, L. B., *Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya*, No 5, 1971, pp 941-946

where the ethane content was varied from 0.37 to 0.58%, and the H_2 content -- from 48.1-75.2%. The ratio $[C_2H_6]/[H_2]$ in all mixtures was $7.7 \cdot 10^{-3}$. The experiments were conducted in the 567-665° range. The lower limits of ignition of H_2/O_2 mixtures with different ethane content were plotted. The rate constants of the reaction $H + C_2H_6 = H_2 + C_2H_5$, determined by the proposed method, is $7.9 \cdot 10^{13} \exp(-9600 RT) \text{ cm}^3 \cdot \text{M}^{-1} \cdot \text{sec}^{-1}$. It was possible to account for reactions of all types of active centers of chains with the inhibitor when studying the kinetics of reactions of H atoms by the ignition limits method.

2/2

- 4 -

USSR

UDC 518:512.83

FEDCHUN, L. V., and ROMANOVICH, S. S.

"Inversion of a 200-Rank Matrix on the M-220 Computer"

Kiev, Kibernet. tekhnika -- Sbornik (Cybernetic Equipment -- Collection of Works), No 9, 1971, pp 118-120 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B906, by I. Shelikhova)

Translation: The authors describe an algorithm constructed on the basis of the optimal exclusion method that permits inverting nondegenerate matrices up to rank 200 inclusively on the M-220 computer, using magnetic drum and magnetic tape (the program was stored in the MOZU-1 [magnetic internal storage-1]). Matrices, both direct and inverse, are divided into cells: that is, square matrices of order ℓ that are multiples of order n of the system's matrix. A necessary condition for the realizability of the process is the nonsingularity of the diagonal cells of the direct matrix. The computational process consists of N steps, where $N = n/\ell$ is the number of cellular rows of the matrix. The time required for the inversion of a 200-rank matrix, including computation of the coefficients of the direct matrix, is approximately 50 minutes.

1/1

USSR

UDC: 518.5:681.3.06

ROMANOVICH, S. S., FEDCHUN, L. V.

"Calculation of the Density of a Simple Layer of Charges on a Conducting Surface of Axisymmetric Shape"

V sb. Mat. obespecheniye avtomatizir. sistem proyektir. elektro- i radio-
tekhn. ustroystv (Software for Automating Systems for Design of Electronic
and Radio Equipment), vyp. 2, Kiev, 1970, pp 202-223 (from RZh-Kibernetika,
No 11, Nov 71, Abstract No 11V851)

Translation: The paper describes an algorithm and program for calculating the density of a simple layer of charges on a conducting surface of axisymmetric shape. The program is presented in M-20 computer codes. V. Mikheyev.

1/1

USSR

UDC: 518.5:681.3.06

ROMANOVICH, S. S.

"Calculation of Saturated Magnetic Circuits With Axial Symmetry"

V sb. Mat. obespecheniye avtomatizir. sistem proyektir. elektro- i radio-
tekhn. ustroystv (Mathematical Provisioning of Automated Systems for
Design of Electrical and Radio Equipment--collection of works), vyp. 2,
Kiev, 1970, pp 74-201 (from RZh-Kibernetika, No 7, Jul 71, Abstract No
7V775)

Translation: The author outlines an algorithm and program for calculating a three-dimensional magnetic axisymmetric field. It is assumed that the magnetic medium is isotropic, and hysteresis is disregarded. The algorithm is based on a net-point and finite-difference method used for boundary-value problem solution in field theory. The program is given in M-20 digital computer codes. Bibliography of 15 titles. V. Mikheyev.

1/1 .

USSR

UDC 619:616.988.43.085.37

KALMYKOV, V. A., NURIYEV, G. G., ROMANOVICH, T. N., and KHAYERTYNOV, S. Kh.,
Kazan' Veterinary Institute, Kazan'

"Use of a Transplantable Line of Cattle Embryo Kidney Cells for the Preparation of a Vaccine Against Foot-and-Mouth Disease"

Moscow, Veterinariya, No 5, May 73, pp 62-64

Abstract: Foot-and-mouth disease virus of strain A22 550 and of an epizootic A strain was cultured on a monolayer culture of transplantable cattle embryo kidney cells (CEKC). The virus that had been cultured on CEKC was inactivated with hydroxylamine, whereupon the virus suspension was freed of the excess hydroxylamine by dialysis. An experimental vaccine was prepared by combining 70% of the inactivated virus suspension with 25% of a 6% $Al(OH)_3$ suspension, 0.1% quinosol, and 5% glycerin. Saponin (0.05%) or vitamin B12 was added as an adjuvant. The activity of the vaccine was estimated on the basis of the antigenic effect on rats, the index of resistance for mice 4-5 days old, and the protective dose for adult mice. The effect of the number of passages on CEKC on the activity of the vaccine was determined. The antigenic activity of the vaccine derived from the epizootic strain was the

1/2

USSR

KALMYKOV, V. A., et al., Veterinariya, No 5, May 73, pp 62-64

same as that of the vaccine prepared for the strain A22 550, but the index of resistance produced by it was somewhat lower. The vaccine to which vitamin B₁₂ had been added was somewhat more active than that prepared with saponin.

2/2

1/2 019

UNCLASSIFIED

PROCESSING DATE--30GCT70
CARDIAC DISEASE -U-

TITLE--CLINICAL TRIALS OF CHLGRACIZIN IN ISCHEMIC
AUTHOR--(05)--LEVINA, TS.A., ROMANOVSKAYA, A.I., DMITRIYEVA, I.I.,
KONOVALENKO, A.V., SIVOKONEVA, N.A.

R

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 69-72

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, ATHEROSCLEROSIS, ARTERY, DRUG TESTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1685

STEP NO--UR/0475/70/000/004/0069/0072

CIRC ACCESSION NO--AP0129055

UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AP0129055
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. CHLORACIZIN WAS EMPLOYED IN 70 PATIENTS WITH CHRONIC CORONARY INSUFFICIENCY AND IT WAS FOUND THAT THIS DRUG IS ONE OF THE METHODS OF CHOICE IN THE TREATMENT OF ISCHEMIC CARDIAC DISEASE, DUE TO ATHEROSCLEROSIS OF THE CORONARY ARTERIES.
FACILITY: ODESSKOBU MEDITSINSKOBU INSTITUTA.

UNCLASSIFIED

USSR

BUMISTROV, S. I., ROMANOVSKAYA, L. G., Dnepropetrovsk Institute of Chemical Technology

"A Method for Preparing Arensulfonyl-N-(2-bromethyl)-arylamides"

USSR Author's Certificate No 250133, class 12c, 23/03 (C 07c), filed 22 Apr 68, published 15 Jan 70 (from RZh-Khimiya, No 21 (II), 10 Nov 70, Abstract No 21 N591 by I. A. Mel'nikova)

Translation: Physiologically active compounds with the general formula $R'SO_2N(R)CH_2CH_2Br$ (I) ($R(SO_2$ = residue of the aromatic sulfo acid, R = residue of the aromatic amine) are obtained by reaction of arensulfonylarylamide salts with $BrCH_2CH_2Br$ (II) in the presence of quaternary salts. For example, to 100 ml of II stirred and boiled are added 41.7 g of n-toluolsulfonyl-n-anisidine in 150 ml of water (several drops at a time over a period of 1 1/2 - 2 hours) with 6.8 g of NaOH and 10 g of $(Et_3)(PhCH_2)NCl$. The mixture is boiled for 6 hours, the organic layer washed with weak NaOH solution and water, the excess II distilled off with water vapor.

1/2

USSR

BUMISTROV, S. I., et al, USSR Author's Certificate No 250133, class 12c, 23/03 (G 07c), filed 22 Apr 68, published 15 Jan 70 (from RZh-Khimiya, No 21 (II), 10 Nov 70, Abstract No 21 N591 by I. A. Mel'nikova)

forming 44 g of I ($R' = n\text{-MeC}_6\text{H}_4$, $R = n\text{-MeOC}_6\text{H}_4$), yield 78%, melting point 80 - 10. I is prepared in a similar fashion (R' , R , yield in %, melting point in °C are given): Ph, $n\text{-MeOC}_6\text{H}_4$, 95, 77-8; $n\text{-ClC}_6\text{H}_4$, $n\text{-MeOC}_6\text{H}_4$, 92, 93-5; $n\text{-MeC}_6\text{H}_4$, $n\text{-EtC}_6\text{H}_4$, 95, 103-5.

2/2

Acc. Nr: AP0034716

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15,
Nr 2, pp 40-44

THE EMPLOYMENT OF TRITIUM OXIDE FOR THE STUDY OF THE DYNAMICS
OF WATER METABOLISM IN ACUTE CEREBROCRANIAL INJURY

Sanikidze, V. D.; Bogdanov, K. M.; Romanovskaya, L. L.

Summary

A disturbance of the water metabolism in rabbits with an acute injury of the brain complicated by edema occurs during the first hours after trauma, this being testified by disordered discharge of tritium oxide from the blood channel into the intercellular water. During the subsequent days the process stabilizes and differs insignificantly from the dynamics of the water metabolism in controls.

D.H.

41

REEL/FRAME

19711422

02

USSR

DUBOVITSKAYA, R. K., KULAKOVSKAYA, V. P., ~~ROMANOVSKAYA, I. M.~~ SAVCHENKO, T. A.,
STOLYAROV, G. K., FEDOROV, A. T., FEL'DMAN, L. S.

Sistema Avtomaticheskoy Obrabotki Danykh na Baze Yazyka KOBOL (Automated Data Processing System Based on COBOL), Moscow, Statistika Press, 1971, 280 pp

Translation of Foreword [pp 3-4]: In the improvement of the efficiency of national production, the most important role belongs to further introduction of computers into the sphere of economics. Progress in this area is determined to a great extent by the presence of automatic data processing systems for economics information based on algorithmic languages available to a broad circle of people dealing in the given area.

The automatic data processing system described in this book for the Minsk-22M computer (SAOD) is based on a Russian version of COBOL (Common Business Oriented Language), the business information processing language which is widespread abroad. The given system was developed at the Minsk design office of the plant imeni S. Ordzhonikidze with the participation of the mathematics institute of the Belorussian SSR Academy of Sciences, and it is the first system using COBOL for series-produced Soviet computers in the development of the language and translator of the system the materials from the working group of algorithmic economic data processing languages (GAYAPEI) of the Commission on Multifaceted

1/3

USSR

DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Danykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Cooperation of the Academies of Sciences of the Socialist Countries were used. The book is devoted to a description of the SAOD system and its components from the point of view of the user. The system consists of writing the program in the initial language, preparing the programs and data for computer input, translation and checkout of the working program during computations by the finished working program and also during special system servicing procedures.

Accordingly, the book contains information required by programmers and computer operators, a description of the equipment for preparing the data, and data required by people responsible for organizing the operation of the SAOD system as a whole. In addition, the book can be useful to developers of programming and data processing systems. It is assumed that the reader is acquainted with the principles of automatic programming and the application of computers in data processing problems.

When using the book as a practical guide, the reader should also be acquainted with the following materials on the software system for the Minsk-22 computer:

1. Software for the Minsk-2 (22) computer in the T mode. No 1. Standard

2/3

USSR

DUBOVITSKAYA, R. K., et al., Sistema Avtomaticheskoy Obrabotki Danykh na Baze Yazyka KOBOL, Moscow, Statistika Press, 1971, 280 pp

Programs Library. Minsk, Mathematics Institute of the Belorussian SSR Academy of Sciences, 1968.

2. Software of the Minsk-2 (22) computer in the T mode. No 3. Symbolic coding system. Minsk. Mathematics Institute of the Belorussian SSR Academy of Sciences, 1969.

The authors consider it necessary to note that the success in using SAOD, just as any modern automatic data processing system, depends to a great extent on the clarity of organization of the operations with respect to its utilization within the framework of the general enterprise control system.

In addition to the authors, the following people participated in the development of the system at various stages: V. I. Gorbatshevich, M. L. Gruzdova, V. A. Doroshek, L. A. Kozyabo, M. Ye. Nemenman, L. I. Panchina, V. N. Pionov, M. S. Presman, V. M. Skripnikova, et al.

The authors express their sincere appreciation to all who were of assistance in preparing this paper for publication, and they will be grateful to the readers and users of the SAOD system for comments, remarks, and suggestions.

3/3

TITLE--THE INTERACTION OF THE UNCLASSIFIED PROCESSING DATE--23OCT70
 INSIDE PHAGE PARTICLE -U- ACRIDINE DYES WITH DNA IN SOLUTION AND
 AUTHOR--(04)-GABRILOVICH, I.M., ROMANOVSKAYA, L.N., ZENCHENKO, S.A.,
 REZNIKOV, I.V.
 COUNTRY OF INFO--USSR

R

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 324-330
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOLOGIC STAIN, PHAGE, DNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1999/0398

STEP NO--UR/0463/70/004/003/0324/0330

CIRC ACCESSION NO--AP0122578

UNCLASSIFIED

U16
 CIRC ACCESSION NO--AP0122578 UNCLASSIFIED PROCESSING DATE--23OCT70
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION AND THE
 LUMINESCENCE SPECTRA HAVE BEEN STUDIED OF THE COMPLEXES OF ACRIDINE
 ORANGE, ACRIDINE YELLOW, TRYPFLAVINE AND RIVANOLE WITH THREE SAMPLES OF
 THE NATIVE AND DENATURED DNA OF DIFFERENT BASE COMPOSITION. ACRIDINE
 ORANGE, ACRIDINE YELLOW AND TRYPFLAVINE ARE SHOWN TO INTERACT WITH
 NATIVE AND DENATURED DNA IN A DIFFERENT WAY. ACRIDINE YELLOW AND
 TRYPFLAVINE INTERACT PREFERENTIALLY WITH ADENINE AND THYMINE OF DNA.
 ACRIDINE YELLOW, RIVANOLE AND TRYPFLAVINE ARE CAPABLE TO PENETRATE THE
 PARTICLES OF T2 AND L1 PHAGES AND FORM THE COMPLEXES WITH THE PHAGE DNA,
 WHEREAS ACRIDINE ORANGE PENETRATES ONLY THE L1 PHAGE PARTICLES.
 TRYPFLAVINE INTERACTS BOTH WITH PHAGE DNA AND PHAGE PROTEIN.
 FACILITY: BYELORUSSIAN STATE UNIVERSITY, USSR, MINSK.

UNCLASSIFIED

USSR

UDC 632.95

YEMEL'YANOV, N. P., ROMANOVSKAYA, L. P., Institute of Physical and Organic
Chemistry, Academy of Sciences of the USSR

"A Method of Preparing N-Trichloromethylmercapto 3,6-endoethylenetetrahydro-
phthalimide"

USSR Author's Certificate No 255933, filed 25 Nov 67, published 15 Mar 71
(from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N380)

Translation: N-Trichloromethylmercapto 3,6-endo-ethylenetetrahydrophthalimide
(I) is obtained by the reaction of 3,6-endo-ethylenetetrahydrophthalimide (II)
with CCl_3SOCl (III) in aqueous alkali at $\sim 0^\circ\text{C}$. Eighty grams of 1,3-cyclo-
hexadiene are added to 98 grams of molten maleic anhydride to give 174.5 g of
3,6-endo-ethylenetetrahydrophthalic anhydride (IV) with mp $122-5^\circ\text{C}$. By
bubbling anhydrous NH_3 into melt IV until water evolution stops, II is
synthesized in 94% yield mp $118-20^\circ\text{C}$. 132.75 g of II is added to 750 ml of
a 1 N solution of NaOH; after dissolving, the mixture is cooled to 0°C , 139.5
g of III is rapidly added with stirring, and the mixture is stirred for 2
hours. This yields 164.7 g of I with mp $142-3^\circ\text{C}$ (benzene). Compound I may
find application in agriculture. V. P. Kozyukov.

1/1

USSR

UDC 639.954

ROMANOVSKAYA, O. I., Institute of Biology, Academy of Sciences, Latvian SSR
"A Study of the Effect of the Herbicide Phenazone on the Content of Thiolic
Compounds in Plant Leaves"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 6(287), 1971, pp 17-22

Abstract: A study was made of the effect of the herbicide 1-phenyl-4-amino-5-chloropyridazone-6(phenazone, pyrazone, pyramine) on the content of reduced and oxidized sulfhydryl (thiolic) groups in the leaves of plants sensitive and resistant to the compound. Cabbage, lamb's quarter, and sugar beets were grown in a soil culture and seed boxes, and after they had developed two-to-six real leaves a dose of 6 kilograms per hectare of herbicide in prepared form was injected into the soil. Determination of free reduced and oxidized SH-groups in leaf homogenates was performed by amperometric titration according to a modified Laurinavičius method. The leaves were homogenized in a 0.5 M saccharose phosphate buffer with pH 7.2-7.4 in the presence of an excess of 0.005 M silver nitrate not connected with the SH-groups of the material tested. It was observed that phenazone entering into the foliar cells has no significant effect on the content or correlation

1/2

USSR

ROMANOVSKAYA, O. I., Izvestiya Akademii Nauk Latvyskoy SSR, No 6(287), 1971,
pp 17-22

of reduced and oxidized SH-groups either in the sensitive plants (cabbage and lamb's quarters) or resistant ones (sugar beets). Apparently phenazone does not alter the conditions of the oxidation-reduction pattern in the cells which are regulated by the free SH-groups, or directly block the endogenous physiologically active compounds and enzymes containing SH-groups, particularly the respiratory enzymes.

2/2

-- 50 --

UNCLASSIFIED

PROCESSING DATE--18SEPT70

TITLE--EFFECT OF ORIENTATION ON THE ELECTRICAL STRENGTH OF POLYMER FILMS
-U-
AUTHOR--(05)-ROMANOVSKAYA, D.S., SHCHERBAK, P.N., VOROBYEV, V.P., YARTSEVA,
E.E., SHPAKOVSKAYA, G.B.
COUNTRY OF INFO--USSR

R

SOURCE--VYSOKOMOL. SOEDIN. SER. B 1970, 12(1), 27-31
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--POLYSTYRENE RESIN, COPOLYMER, PLASTIC FILM, ELECTRIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0927

STEP NO--UR/0460/70/012/001/0027/0031

CIRC ACCESSION NO--AP0055625

UNCLASSIFIED

014

CIRC ACCESSION NO--AP0055625
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

STYRENE-ALPHA-METHYLSTYRENE COPOLYMER (II) OR
INDICATED BY THE INCREASE IN THE BIREFRINGENCE SMALLER THAN OR EQUAL TO
5 TIMES 10 PRIME NEGATIVE3, ALSO INCREASES THE ELEC. BREAKDOWN VOLTAGE
(E) 30-50PERCENT. A FURTHER INCREASE IN THE ORIENTATION HAS NO EFFECT
ON THE E OF II AND DECREASES THE E OF I.

UNCLASSIFIED

USSR

UDC 547.963.3

KNORRE, D. G., ROMANOVSKAYA, S. A., and SHUBINA, T. N., Novosibirsk Institute of Organic Chemistry, Siberian Department of the Academy of Sciences USSR

"Synthesis of Biologically Active C-Terminal Gastrin Tetrapeptide in a System In Vitro. I. N'-Hydroxysuccinimide Esters of Trityl- and p-Methoxytrityl-tryptophan and Their Use to Acylate Methionyl-sRNA"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Khimicheskikh Nauk, No 4, Vyp. 2, Mar 72, pp 123-126

Abstract: The article describes a method developed for the synthesis of previously undescribed N'-hydroxysuccinimide esters of trityl- and p-methoxytrityltryptophan from the corresponding acids and studies the ability of these esters to acylate methionyl-sRNA from E. Coli. N-Trityltryptophan and N-p-monomethoxytrityltryptophan were obtained as free acids from their diethylammonium salts by careful acidification of their aqueous-alcoholic solutions. N-Trityltryptophan is obtained at room temperature, N-monomethoxytrityltryptophan at -5° C. The synthesized N'-hydroxysuccinimide esters were used to acylate [¹⁴C]-methionyl-sRNA from E. Coli in a mixture of acetate buffer (pH 5) with dimethyl sulfoxide. The N-trityl- and N-p-monomethoxytrityltryptophanyl-methionyl-sRNA were obtained in ~80% yield.

1/1

UNCLASSIFIED
TITLE--PREPARATION AND SOME PROPERTIES OF
2, (HYDROXYPHENYL), 1, 3, INDANONES -U-
AUTHOR--(02)--NEYLANDS, O., ROMANOVSKIS, P.

PROCESSING DATE--23OCT70

R

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (2), 249-50

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--HYDROXY RADICAL, BENZENE DERIVATIVE, KETONE, PHENOL,
DIMERIZATION, CHEMICAL STABILIZER, POLYAMIDE RESIN, CAPRONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1999/1867

CIRC ACCESSION NO--AP0123655

STEP NO--UR/0464/70/000/002/0249/0250

UNCLASSIFIED

CIRC ACCESSION NO--A0123655
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. DEMETHYLATION OF THE MEO GROUP WITH HI OR HBR IS A CONVENIENT METHOD FOR THE PREPN. OF 2-(OIM AND RHO), HYDROXYPHENYL), 1,3, INDANDIONES (I). THESE COMPOS. ARE ALKALI SOL. SUBSTANCES EASILY OXIDIZED TO THE CORRESPONDING DIMERS WITH FECL SUB3 IN ETOH SOLN., IN 80-90PERCENT YIELDS. AS BISPHENOLS, THE DIMERS ARE ALSO ALKALI SOL. WITHOUT ANY CHEM. CHANGES EXCEPTING THE DIMER OF THE RHO DERIV. THE LATTER COMPD. FORMS A DARK GREEN SOLN. IN ALK. MEDIUM, TURNING RED VERY QUICKLY; ANOTHER MORE STABLE DIMER IS PROBABLY FORMED. THE ISOMERS OF I AND THEIR DIMERS WERE OBTAINED (YIELD AND M.P. OF I; M.P. OF THE CORRESPONDING DIMER GIVEN): O, 99PERCENT, 227DEGREES, 220DEGREES; M, LOW, 145DEGREES, 171-84DEGREES; RHO, 83PERCENT, 172-4DEGREES, 251DEGREES. THE DESCRIBED SUBSTANCES ARE POTENTIAL STABILIZERS FOR THE POLYAMIDE KAPRON. FACILITY: RIZH. POLITEKH. INST., RIGA, USSR.

UNCLASSIFIED

USSR

UDC: 541.128

~~ROMANOVSKIY, R. V.~~, Department of Physical Chemistry, Moscow State University
"The Thermokinetic Method of Studying Adsorption Processes"

Moscow, Vestnik Moskovskogo Universiteta, Ser. II: Khimiya, Vol 13, No 2,
Mar/Apr 72, pp 201-205

Abstract: The author examined calorimetric systems which register thermal power as a function of time in the form of a curve $x(t)$, where x is the output signal. It is shown how such a curve can be used to calculate the rate constants of adsorption and desorption in physical and chemical processes, resulting in determination of the adsorption equilibrium constants. The proposed calorimetric method is highly sensitive and can therefore be used to study adsorption kinetics on a very narrow section of an isotherm where the differential heat and the adsorption equilibrium constant can be assumed to be invariant. This procedure for analyzing experimental curves $x(t)$ will hold for any process which behaves exponentially.

1/1

USSR

Turbine and Engine Design

UDC: 621.165.018

LAVENEERG, V. D., ROMANOVSKIY, G. F., RIBLIN, E. P., and LIBERMAN, M. A.

"Evaluating the Effect of Blade Height of the Flow-Through Section on the Efficiency of Three-Ring Active Stages"

Tr. Nikolayev korablestroit. in-ta (Works of the Nikolayev Ship-Building Institute), 1972, vyp 64, pp 129-132 (from RZh-Turbostroyeniye, No 5, 1973, Abstract No 5.49.33)

Translation: The authors present the results of a theoretical study on the effect of the blade height of the flow-through section on the economy of three-ring, low-consumption turbine stages operating at low velocity ratios. Graphic and analytic relationships are presented which make it possible to estimate the degree of effect of blade height on the coefficient of efficiency of a three-ring turbine in the design stage. Original article: 4 illus., 2 bibl. entries.

1/1

USSR

UDC 621.438-235.5.018.001.24

LEVENBERG, V. D., and ROMANOVSKIY, G. F.

"On An Estimate of the Influence of the Height of the Blades of the Flow Section on the Effectiveness of Two-Rim Active Stages"

Sudostr. i Mor. Sooruzh. Resp. Mezhved. Temat. Nauch.-Tekh. Sb. [Shipbuilding and Marine Installations. Republic Interdepartmental Thematic Scientific Technical Collection], No 16, 1971, pp 32-37 (from Referativnyy Zhurnal, Turbostroyeniye, No 49. Single Issue No 2, 1972, Abstract No 2.49.24)

Translation: Results were derived with which one may evaluate the effect of height of the second blade rim on its efficiency and also of the height of blades of the flow section on the effectiveness of the two-rim active stage. It is demonstrated that the efficiency decrease of the two-rim stage by decreasing l/D is more abrupt in comparison with the one-rim stage. The value of η_1 has to be rated for the two-rim stage depending on $u/\omega r$ in accordance with the value of η_{u01}/η_{u02} , where η_{u02} is the peripheral efficiency of the first row stage. Three illustr., two biblio. refs.

1/1

USSR

UDC 621.438:533.6.001.5

LEVENBERG, V. D., and ROMANOVSKIY, G. P.

"Effect of the Angle of Setting of Stator Blades on the Ventilation Force of a Radial-axial Turbine Stage"

Sudostr. i Mor. Sooruzh. Resp. Mezhd. Temat. Nauch.-Tekh. Sb. Shipbuilding and Marine Installations. Republic Interdepartmental Thematic Scientific Collection 7, No 16, 1971, pp 26-29 (from Referativnyi Zhurnal, Turbotekhnika, No 42, Single Issue No 2, 1972, Abstract No 2.49.80)

Translation : Experimental investigation results are presented of the effect of the blade setting angle of the guiding device on the ventilation force in the radial-axial stage. It is demonstrated that the ventilation force

$N_b^{\epsilon=0}$ depends essentially on the blade setting angle. By setting angles of $\alpha, \gamma = 20$ and 160° for forward and reverse rotations, the dimension $N_b^{\epsilon=0}$ reaches

1/2

USSR

LEVENBERG, V. D. and ROMANOVSKIY, G. F., Sudostr. i Mpr. Sooruzh. Resp.
Mezhved. Temat. Nauch.-Tekh. Sb. No 16, 1971, pp 26-29

its maximum value and exceeds approximately by 2.5 times $\frac{H_b}{H} \varepsilon = 0$
by $\alpha_y = 0$. The obtained data permit to consider the effect of
blade setting angles on the ventilation force by forward and re-
verse rotations of the rotor. Four illustr., three biblio. refs.

2/2

- 133 -

USSR

UDC 51.621.391

ROMANOVSKIY, I. V.

"Cyclic Variations of a Network Graph Model"

V sb. Issled. operatsiy i stat. modelir. (Operations Research and Statistical Modeling--collection of works), First Edition, Leningrad, Leningrad University, 1972, pp 145 - 152 (from RZh Matematika, No 11, Nov 73, abstract No 11 V703)

Translation: The problem considered is that of planning operations which are repeated several times on a single network graph. This type of task occurs in network planning of series production, conveyer lines, etc. It is obvious that the overall time necessary to perform n sequentially arranged network graphs is, in general, not greater than the critical time to produce one object multiplied by n . In this work it is shown that increasing n leads to an approximately linear increase of overall time. The coefficient of linear increase indicates the unit expenditures: i.e., the supplementary time expenditures for the production of one more object in a production cycle. The theory of steady state modes of dynamic programming is used to find these unit expenditures and construct repeating network graphs.

A cyclic variation of the problem of finding the smallest critical path with the possibility of reducing the duration of operations by augmenting their
1/2

USSR

ROMANOVSKIY, I. V., V sb. Issled. operatsiy i stat. modelir, 1972, pp 145-152

financing is considered. A method of solution is suggested, generalizing Kelly's method of solving this problem for the case of a cyclic variance. The basic idea of the method involves sequentially expanding the network in the most promising location until wasted means or possibilities for reducing the duration of operations are completely eliminated or until a new critical path appears in the network.

Abstract by Ye. Levner.

2/2

- 21 -

USSR

UDC 51.621.391

ROMANOVSKIY, I. V., FREYMAN, M. I., and SHARAPOV, V. I.

"The Application of Operations Research Methods to Solve a Problem of Technical Diagnosis"

V sb. Issled. operatsiy i stat. modelir. (Operations Research and Statistical Modeling -- collection of works), First Edition, Leningrad, Leningrad University, 1972, pp 152-159 (from *EZh-Matematika*, No 11, Nov 73, Abstract 11 V670)

Translation: The following problem in technical diagnosis is considered. The system to be diagnosed consists of m arbitrarily connected elements, each of which can be in one of two states: working or not working. The set of all possible states of the system is given, each characterized by an n -dimensional vector. With a probability of p_i the system will be in state i . A finite set of all possible tests τ_j is given, each of which has two possible results -- positive or negative. There is a state table, in which the outcome of each test is shown for any state. The costs of the tests c_j are known. The system diagnosis involves determining its state by performing some series of tests (in the process of diagnosis the system will not change from one state to another). It is required that a diagnosis program be constructed with the minimum average cost.

1/2

USSR

ROMANOVSKIY, I. V., et al., v sb. Issled. operatsiy i stat. modelir., First Edition, Leningrad, Leningrad University, 1972, pp 152-159

The method of branches and bounds is suggested for solving this problem. Two variations of the calculation of the lower bound of the goal function on subsets of solutions are developed. Examples illustrating the operation of the algorithm are given.

2/2

- 66 -

USSR

UDC: 51

ROMANOVSKIY, I. V., SOROKINA, M. G.

"Unilateral Circuit of a Tree of Variants in the Land and Doyg Method"

Zh. vychisl. mat. i mat. fiz., 1973, 13, No 1, pp 221-227 (from RZh-Kibernetika, No 5, May 73, abstract No 5V659 by the authors)

Translation: The paper proposes a computational realization of the Land and Doyg method for solving problems in linear integer programming. The realization is based on a unilateral circuit of a tree of variants. For storing information on the process of solution, a magazine list is used in which each entry corresponds to one of the vertices of the tree and consists of two integers. When solving a series of generated problems in linear programming, the results of the preceding problem are used each time, which makes it possible to restrict storage in the machine memory to a single simplex table.

1/1

- 75 -