

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133793

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FUELS OF OPTIMUM REFINING DEGREE HAD 0.05-0.07PERCENT TOTAL S AS ANTICORROSIVE STABLE COMPS. FUELS FROM WHICH S WAS COMPLETELY REMOVED BY HYDROFINING HAD INCREASED CORROSIVITY, DUE TO FORMATION OF CORROSIVE SOL. OXIDN. PRODUCTS.

UNCLASSIFIED

1/5 041 UNCLASSIFIED PROCESSING DATE--02JCT70
TITLE--ORBITA STATION BEGINS OPERATION IN URAY, TYUMEN' OBLAST -U-

AUTHOR--CHURBIN, F. C

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRAVDA. 10 APRIL 1970, P 6

DATE PUBLISHED--10APR70

SUBJECT AREAS--NAVIGATION, SPACE TECHNOLOGY

TOPIC TAGS--TV SYSTEM, GROUND COMMUNICATION EQUIPMENT, COMMUNICATION
SATELLITE, SPACECRAFT GROUND EQUIPMENT, COMMUNICATION NETWORK/(U)ORBITA
STATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1994/0449

STEP NO--UR/9012/70/000/000/0006/0006

CIRC ACCESSION NO--AN0114722

UNCLASSIFIED

2/3 041

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0114722

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

ABSTRACT. URAY, 9 APRIL. AN "ORBITA" TELEVISION STATION BEGAN OPERATION TODAY IN URAY, A CITY OF PETROLEUM WORKERS. NOW ALMOST 80PERCENT OF THE POPULATION IN THE ENORMOUS TERRITORY OF THIS OBLAST CAN WATCH CENTRAL TELEVISION AND LOCAL TELEVISION BROADCASTS. THESE INCLUDE AMBIPOLAR DIFFUSION IN THE GRAVITY FIELD, MOVEMENT OF PLASMA CAUSED BY MOVEMENT OF THE NEUTRAL ATMOSPHERE, DRIFTS AND CURRENTS CAUSED BY ELECTRIC FIELDS. E. S. KAZIMIROVSKIY GAVE A DETAILED REVIEW OF EXISTING METHODS FOR MEASURING IONOSPHERIC MOVEMENTS AND DISCUSSED THE THEORETICAL AND EMPIRICAL MODELS OF GENERAL CIRCULATION OF THE ATMOSPHERE AT IONOSPHERIC LEVELS. HE GAVE A SUMMARY OF THE EXPERIMENTAL RESULTS IN MEASURING VECTORS IN THE D AND E REGIONS OF THE IONOSPHERE AND DRIFTS OF INHOMOGENEITIES IN THE E AND F REGIONS. R. A. ZEVAKIN EXPLAINED THE REASONS FOR DISTURBANCES AND DESCRIBED CHANGES IN IONOSPHERIC PARAMETERS DURING DISTURBANCES. A. S. EESPROZVANNAYA DISCUSSED ONE OF THE MOST CLEARLY EXPRESSED PHENOMENA IN THE HIGH LATITUDE IONOSPHERE: THE ANOMALOUSLY HIGH IONIZATION OF THE F2 LAYER DURING THE POLAR NIGHT WHEN THE IONOSPHERE IS COMPLETELY ECLIPSED. N. P. BENKOVA EXAMINED GEOMAGNETIC EFFECTS IN THE IONOSPHERE, ESPECIALLY PHENOMENA AT MAGNETICALLY CONJUGATE POINTS. B. N. GERSHMAN DESCRIBED THE SUCCESSES ATTAINED DURING RECENT YEARS IN UNDERSTANDING THE NATURE OF NONSTATIONARY IONOSPHERIC PHENOMENA AGAINST THE BACKGROUND OF INTERACTION BETWEEN PLASMA AND A NEUTRAL MEDIUM (INHOMOGENEITIES OF THE MOVING DISTURBANCES TYPE, SPORADIC E LAYER, ETC.).

UNCLASSIFIED

373 041 UNCLASSIFIED PROCESSING DATE--02JCT70
CIRC ACCESSION NO--AN0114722
ABSTRACT/EXTRACT--YA. L. AL'PERT EXAMINED THE SPECTRA OF ALL BRANCHES OF WAVES FORMING IN ISOTHERMAL AND NONISOTHERMAL PLASMA. HE GAVE A CLASSIFICATION OF WAVES OF DIFFERENT TYPE APPLICABLE TO THE OUTER IONOSPHERE, INTERPLANETARY MEDIUM AND SOLAR WIND. V. I. KARPMAN EXAMINED RESONANCE MECHANISMS OF NONLINEAR INTERACTION OF WAVES IN PLASMA. THESE PROCESSES PLAY AN IMPORTANT ROLE IN THE DYNAMICS OF WAVE GENERATION AND ABSORPTION IN THE UPPER IONOSPHERE (H GREATER THAN 500 KM) WHERE COLLISIONS OF PARTICLES CAN BE NEGLECTED.

UNCLASSIFIED

USSR

UDC: 537.291

KANASHEVICH, V. I., LAPTEV, S. V., RYBIN, S. N., and CHURSIK, G. P.

"Measuring the Paths of Charged Particles in a Material"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, July-August 1972,
pp 43-45

Abstract: The instrument described in this paper is a further development of a device for measuring the path of charged particles in a material as a function of the particle energy. The method of the instrument involves measuring the energy spectrum of the particles in a cyclotron beam after their passage through a target using 30 pieces of the material. Drawings of the instrument are given, together with a textual explanation. The device was used to determine the energy of a beam on various materials in order to study excitation reaction functions evoked by deuterons on a ^{59}Co nucleus; a curve is plotted for the energy spectrum of the deuteron elastic scattering. A curve for the path of alpha particles in Al as a function of the particle energy is also shown. The work was done at the Institute of Nuclear Physics, Kazakh Academy of Sciences, at Alma-Ata.

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USSR

UDC 615.917

NIKOLOV, S. KH., LYUBETSKIY, KH. Z., BARSEL'YANTS, G. B., ZABELIN, A. A., NEPELOV, P. V., ONOPCHENKO, N. V., CHURSINA, M. A., YEREMIN, V. M., TRENSUK, R. A.

"Toxicologic Estimate of the New Organophosphorus Pesticide Bitex"

V sb. Vliyaniye ul'trazvuka, yadokhimik. i drugikh faktorov sredy na organizm cheloveka i pishcha. produkty (Effect of Ultrasound, Poisons and other Factors of the Environment on the Organism of Man and Food Products -- collection of works), Krasnodar, 1971, pp 85-91 (from RZh-Farmakologiya. Khimioterapevticheskiye sredstva. Toksikologiya, No 2, Feb 72, Abstract No 2.54.773)

Translation: Rats were injected intraventricularly with bitex (an organophosphorus pesticide; I: contains 50% active principle) dissolved in water (1 ml) in doses of 100, 200, 300, 400, 500, 600, 700 and 800 mg/kg, and they were observed for 3 weeks. With a dose of 100-200 mg/kg, the activity of the cholinesterase dropped by 2-3 times during the first 1-2 days, and it began to recover after 7-11 days. The dose of 100 mg/kg was taken as the minimum toxic dose. For doses of 300 mg/kg and higher, sluggishness, increased frequency of urination, diarrhea, contraction of the pupils, tears, paresis of the extremities, a drop in body temperature of 1-5°, an increase in the sedimentation rate, leucocytosis, neutrophilia and a reduction in the cholinesterase activity by 3-15 times were noted. The DL_{100} of I is 800 mg/kg, the DL_{50} is 384.6
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KOLOV, S. KH., et al., Vliyaniye ul'trazvuka, yadokhimik. i drugikh faktorov
redy na organizm cheloveka i pishch. produkty, Krasnodar, 1971, pp 85-91

(491.8-277.4 mg/kg). For rabbits (I was injected in doses of 25-200 mg/kg) the
DL₅₀ was calculated on the level of 82 (11.67-47.3) mg/kg. The pathomorphologi-
cal changes in rabbits were characterized by circulatory disorders and distrophy.
USSR. Krasnodar, Medical Institute.

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UEC 547.566.66.095.25

ISAGULYANTS, V. I., GOZALOVA, N. S., and CHURSINA, N. A.

"Condensation of Phenol with Cinnamyl Alcohol in Presence of Cation Exchange Resin KU-2"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 9, Sep 71, pp 1960-1962

Abstract: A mixture of 141 g phenol, 100.5 g cinnamyl alcohol, and 24.15 g KU-2 was stirred for 5 hrs at 60°. The solid was separated and 90 g of phenol was distilled. The residue was treated with 10% aqueous base and distilled. The first fraction obtained boiled at 200-215°/10 mm, the second -- at 185-200°/10 mm, and the third had a b.p. 220-255°/4 mm. After recrystallization from petroleum ether p-cinnamylphenol, m.p. 63° was obtained from the first fraction. 2-Phenylchromane, m.p. 43° was obtained from the second fraction, and 2,6-dicinnamylphenol, m.p. 126° was obtained from the third. After separation on an alumina column of a mixture of o- and p-isomers, the o-cinnamylphenol, m.p. 67° was obtained.

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USSR

UDC: 621.386.8:531.781.2

LUTSYAK, V. G., CHURSINA, Z. S.

"An X-Ray Method of Measuring Residual Stresses in Massive Parts"

V sb. Materialy Konferentsii molodykh metallurgov. Donetsk. n.-i. in-t chern. met., 1968 (Materials of the Conference of Young Metallurgists. Donetsk Scientific Research Institute of Ferrous Metallurgy, 1968), Donetsk, "Donbass", 1970, pp 233-234 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov 70, Abstract No 11.32.398)

Translation: A brief description is given of an installation which can be used to take radiograms in directions normal to the surface and at angles. The elevating and rotating mechanism permits the x-ray tube to be moved in space over a sphere of 300 mm radius around the point to be examined on the surface of the metal. P. N. A.

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USSR

UDC: 669.131.6-18:621.746.75 3

BRAYNIN, I.YE., GUTOROVA, V.L., LUTSYAK, V.G., KULINCHENKO, V.P., KUSHNIR, YA.P.,
ZHUNEVA, N.D., and CHURSINA, Z.S., Donets Polytechnic Institute and Donets
Scientific-Research Institute of Ferrous Metallurgy

"Nature of Nonmetallic Inclusions in Titanium-Modified Cast Iron"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5,
1970, pp 141-143

Abstract: Investigations were conducted of the nature of nonmetallic inclusions in cast iron with various (from 0.05 to 0.78%) titanium supplements to determine the role of the latter in the graphitization of basic blast-furnace cast iron used for casting of large-mass ingot molds. Samples were taken from ingot molds, modified with brand TG-ChM (96-98% Ti) titanium sponge, and from cast iron ingots, remelted in an induction furnace from conversion cast iron of the following composition (%): 4.14 C, 0.67 Si, 0.42 Mn, 0.041 S, 0.074 P. Metallic titanium (99.7% pure) was introduced into the molten cast iron at a temperature of 1400°C. The nonmetallic inclusions were studied by x-ray structural analysis of electrolytically-separated deposits and also by a local x-ray method directly on slides. Metallographic investigation of the experimental samples indicated that the addition of titanium caused a whole series of inclusions, the amount of which

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USSR

BRAYNIN, I.YE., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 141-143

increases with a rise in titanium content. The following compounds were detected: TiO , FeO , TiO_2 , Ti_2O_3 , Ti_3Si_4 , $TiMn_2$, $Ti(C, N)$; titanium nitrides in pure form were seldom encountered. The absence of contact of titanium compounds with graphite and enlargement of dimensions of the latter were established. This confirms the work of V.L. Gutorova, in which it was postulated that nonmetallic titanium inclusions are not graphitization centers. The increased resistance of large-mass ingot molds, cast from basic blast-furnace cast iron modified with titanium sponge, is associated with the enlargement of graphite flakes and with the increase in the ferrite content in the metal base caused by the indirect action of titanium, (binding oxygen and nitrogen into stable compounds) and by the action of hydrogen, introduced by the titanium sponge.

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1/4 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FIFTH ALL UNION CONFERENCE ON COMETARY PHYSICS -U-

AUTHOR--(02)-RUBO, G.A., CHURYUMOV, K.I.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKIY ZHURNAL, VOL 47, NO 2, 1970, PP 454-457

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--COMET, ASTRONOMIC CONFERENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0508

STEP NO--UR/0033/70/047/002/0454/0457

CIRC ACCESSION NO--AT0129722

UNCLASSIFIED

2/4 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC-ACCESSION NO--AT0129722

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FIFTH ALL UNION CONFERENCE ON COMETARY PHYSICS WAS HELD AT KIEV DURING THE PERIOD 6-9 OCTOBER 1969. THE CONFERENCE WAS ATTENDED BY ABOUT 90 SCIENTISTS FROM 29 SCIENTIFIC INSTITUTIONS. THE CONFERENCE WAS OPENED BY S. K. VSEKHSVYATSKIY. HE NOTED THE CONTINUING BROADENING OF RESEARCH IN THE FIELD OF COMETARY PHYSICS, THE IMPORTANCE OF COMETS AS NATURAL PROBES FOR REGISTERING THE SITUATION IN INTERPLANETARY SPACE, MAKING IT POSSIBLE TO STUDY THE CHARACTERISTICS OF SOLAR WIND PLASMA AND MAGNETIC FIELDS AND CORPUSCULAR STREAMS AT DIFFERENT HELIOGRAPHIC LATITUDES AND HELIOCENTRIC DISTANCES, CREATING PREMISES FOR USING COMETARY PHENOMENA FOR PREDICTING CONDITIONS IN INTERPLANETARY AND CIRCUMTERRESTRIAL SPACE. STUDY OF THE EVOLUTION AND ORIGIN OF COMETS AND OTHER SMALL BODIES OF THE SOLAR SYSTEM AND SOME STATISTICAL CHARACTERISTICS OF THE COMETARY SYSTEM AND THE PECULIARITIES OF THEIR ORBITAL EVOLUTION MAKE POSSIBLE A NEW APPROACH TO A WHOLE SERIES OF IMPORTANT PROBLEMS IN SOLAR SYSTEM COSMOGONY. FIFTY PAPERS AND COMMUNICATIONS WERE PRESENTED. FOR EXAMPLE, A. Z. DOLGINOV, ET AL. ANALYZED THE CIRCUMNUCLEAR REGION OF A COMET AND POSTULATED A MAXWELLIAN SOURCE OF PARTICLES AND A COLLISIONLESS ESCAPE REGIME. THEY EVALUATED A NUMBER OF PHYSICAL CHARACTERISTICS (SOURCE POWER, ESCAPE VELOCITY, OPTICAL THICKNESS, DISTRIBUTION OF MATTER, TEMPERATURE OF THE GAS MIXTURE). ESTIMATES OF THE TEMPERATURE OF THE GAS MIXTURE INDICATED POSSIBLE CHEMICAL REACTIONS IN THE CONSIDERED REGION (CARBON PYROLYSIS, FORMATION OF CYANOGEN MOLECULES).

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3/4 015

UNCLASSIFIED

PROCESSING DATE--30GCT70

CIRC ACCESSION NO--AT0129722

ABSTRACT/EXTRACT--L. M. SHUL'MAN EXAMINED THE FORMATION OF C SUB2, C SUB1 AND N SUB2 POSITIVE MOLECULES IN COMETARY ATMOSPHERES FROM COMPLEX COMPOUNDS. PHOTOLYSIS OF THESE COMPOUNDS CAN LEAD TO HEATING OF THE NUCLEUS TO 1000 DEGREE SK. COMPLEX MOLECULES IN A COMETARY NUCLEUS CAN BE THE RESULT OF RADIATION SYNTHESIS FROM THE SIMPLEST RADICALS UNDER THE INFLUENCE OF GALACTIC AND SOLAR COSMIC RAYS AND RADIATION OF NUCLEAR MATTER. IN TWO OTHER REPORTS THE SAME AUTHOR ANALYZED PROCESSES LEADING TO A REDUCTION IN COMETARY BRIGHTNESS (DECREASE IN SIZE OF THE NUCLEUS DUE TO THE MELTING OF ICE, FORMATION OF A SOLID CRUST ON THE NUCLEUS SURFACE). N. I. IL'CHISHINA REPORTED ON COMPLETION OF WORK ON COMPILING A CATALOGUE OF THE PHYSICAL CHARACTERISTICS OF COMETS OBSERVED DURING 1965-1968 AND ANALYZED THE DISINTEGRATION OF A NUMBER OF PERIODIC COMETS. REPORTS BY O. V. DOBROVOL'SKIY AND OTHERS GAVE SOME RESULTS OF THE CONFERENCE OUTLINED A FIVE YEAR PLAN (1971-1975) OF BASIC WORK FOR THE ASTRONOMICAL INSTITUTES OF THE ACADEMIES OF SCIENCES AND COLLEGES OF THE USSR IN THE FIELD OF COMETARY RESEARCH. EMPHASIS WILL BE ON THE STUDY OF PHYSICAL PROCESSES IN NUCLEI, HEADS AND TAILS OF COMETS AND THEIR RELATIONSHIP TO CONDITIONS IN THE INTERPLANETARY MEDIUM AND SOLAR ACTIVITY. IMPORTANT WORK MUST BE DONE ON INVESTIGATING COMETARY SYSTEMS, THEIR ORIGIN AND EVOLUTION IN RELATION TO THE COSMOGONY OF THE SOLAR SYSTEM, CLARIFICATION OF THE NATURE AND PAST OF COMETS. THE NEXT CONFERENCE ON COMETARY PHYSICS IS TO BE HELD DURING MAY-JUNE 1971. STUDY OF THE HONDA COMET 1968C.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0129722

ABSTRACT/EXTRACT--THEY OBTAINED SLIT SPECTROGRAMS, SPECTROGRAMS WITH AN OBJECTIVE PRISM AND SPECTROGRAMS WITH THE 125 CM REFLECTOR OF THE STATE ASTRONOMICAL INSTITUTE WITH IMAGE CONVERTERS. INTENSITIES OF A NUMBER OF EMISSIONS WERE DETERMINED; THEY HAVE AN ASYMMETRIC DISTRIBUTION. AN ELECTROPHOTOMETRIC STUDY OF THE COMET WAS MADE IN THE B, V SYSTEM. POLARIMETRIC OBSERVATIONS INDICATED AN INCREASE IN THE PERCENTAGE CONTENT OF DUST IN THE COMETARY ATMOSPHERE WITH AN INCREASE IN SOLAR ACTIVITY. OTHER AUTHORS REPORTED A CORRELATION BETWEEN BRIGHTNESS VARIATIONS AND THE INDEX OF FLARE ACTIVITY AND WOLF NUMBERS. V. I. CHEREDNICHENKO DEMONSTRATED THAT DISSOCIATIVE RECOMBINATION CAN EXPLAIN THE APPEARANCE OF FORBIDDEN EMISSION LINES OF ATOMIC OXYGEN AND THE DISAPPEARANCE OF SO SUB2 PRIME POSITIVE, CO PRIME POSITIVE AND N SUB2 PRIME POSITIVE IONS IN COMETARY ATMOSPHERES. YE. I. KAZIMIRCHAK-POLONSKAYA TOLD THE CONFERENCE ABOUT THE INTERNATIONAL SYMPOSIUM ON "MOTION, ORBITAL EVOLUTION AND ORIGIN OF COMETS".

UNCLASSIFIED

USSR

UDC: 533.6.011

KATSKOVA, O. N., CHUSHKIN, P. I.

"Three-Dimensional Supersonic Flow of a Gas With Nonequilibrium Physico-chemical Transformations Around Solids"

Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey" (Works of the Second Republic Conference on Aerohydromechanics, Heat Exchange and Mass Exchange. "High-Velocity Aerodynamics" Section), Kiev, Kiev University, pp 63-69 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B332)

Translation: A scheme proposed earlier by the authors is used for studying supersonic nonequilibrium flows in a three-dimensional nozzle and around the tail section of a blunt body having the shape of an inverted cone. The above-mentioned numerical scheme is obtained by representing the relations between the unknown functions and the angular variable ψ of the cylindrical coordinate system through trigonometric polynomials in ψ with interpolation points on a series of meridional planes $\psi = \text{const}$. As a result, an approximating system of differential equations of two independent variables is found for determining the unknown functions on all meridional interpolation

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USSR

KATSKOVA, O. N., CHUSHKIN, P. I., Tr. II Resp. konf. po aerogidromekh., teploobmenu i massobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev, Kiev University, pp 63-69

planes. At supersonic velocities, the system is hyperbolic, having two families of wave characteristics (Mach lines) and a family of stream line analogs on each interpolation plane, and is solved by means of an inverse scheme of the method of characteristics in which reckoning is done by layers $x = \text{const}$, where x is measured off along the axis of the cylindrical coordinate system.

Nonequilibrium flow of dissociated oxygen is considered in the calculated examples. In these examples the nozzle had a cylindrical external generatrix of elliptical cross section as well as an elliptical profiled (tapered) central plug. The calculations revealed "freezing" of the gas composition as it expanded in the nozzle. In calculating nonequilibrium flow around a blunt body with tail section in the form of an inverted cone, various half-angles of the vertex of the cone were considered: $\omega = 0^\circ, 10^\circ$ and 30° , and two angles of attack: $\alpha = 10^\circ$ and 15° . It is noted that nonequilibrium dissociation of oxygen causes an appreciable reduction in temperature and increase in density as compared with the case of a perfect gas.

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USSR

KATSKOVA, O. N., CHUSHKIN, P. I., Tr. II Resp. konf. po aerogidromekh.,
teplobmenu i massobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev,
Kiev University, pp 63-69

At the same time, the influence of the nonequilibrium state on pressure, and consequently on the aerodynamic characteristics of the investigated bodies is slight. It is found that the gas composition close to the surface of the body on its conical tail section is practically frozen. A. N. Krayko.

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C HUSHKIN, P. I.

RAN / 18.960/5.04.77.92
Doc 72 22

Katukova, O. N., and P. I. Chushkin. Three-dimensional supersonic flow around bodies by a gas with nonequilibrium physico-chemical transformations. In: Trudy II Respublikanskoy konferentsii po aerodinamicheskoy teorii i massobmenu. Sektziya "Aerodinamika bol'shikh skorostey", Kiyev, Kiyevskiy Universitet, 1971, 63-69. (RZhMekh, 5/72, no. 5B332)

A scheme proposed earlier by the authors is applied to the investigation of supersonic nonequilibrium flow in a three-dimensional nozzle and near the tail section of a blunt body in the shape of an inverted cone. The numerical scheme is obtained by representing the shape of the desired functions to the angular variable ψ of a cylindrical system of coordinates by trigonometric polynomials along ψ with interpolation points on a series of meridional planes $\psi = \text{const}$. For determination of the desired functions, an approximating system of differential equations of two independent variables is consequently obtained on all the meridional planes of interpolation. At supersonic speeds this system is hyperbolic with two sets of wave characteristics (Mach lines) and a family of flow-line analogs on each interpolation plane, and is solved by an inverse accordance with layers of $x = \text{const}$, where x is measured along the axis of the cylindrical system of coordinates.

The calculated examples are of nonequilibrium flow of dissociated oxygen. The nozzle had a cylindrical external generatrix of elliptical cross section, as well as an elliptical (narrowing) central body. The calculations revealed a "freezing" of the gas composition during expansion in the nozzle. In calculating nonequilibrium flow around a blunt body with a tail section in the shape of an inverted cone, various half-angles of the cone, $\alpha = 0^\circ, 10^\circ, \text{ and } 30^\circ$, and two angles of attack $\alpha = 10^\circ \text{ and } 15^\circ$, were considered. It is noted that nonequilibrium oxygen dissociation causes a

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UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--EFFECT OF NONEQUILIBRIUM DISSOCIATION ON SUPERSONIC SPATIAL FLOWS
PAST INVERTED CONES -U-

AUTHOR-(02)-KATSKOVA, O.N., CHUSHKIN, P.I.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDKOSTI I GAZA,
MAR.-APR. 1970, P. 182-185

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERSONIC FLOW, GAS FLOW, OXYGEN, AERODYNAMIC FORCE

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STEP NO--LR/0421/70/000/000/0182/0185

CIRC ACCESSION NO--AP0124987

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124987
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL STUDY OF THE EFFECT OF
NONEQUILIBRIUM DISSOCIATION ON THE PHYSICAL PARAMETERS OF A SUPERSONIC
SPATIAL FLOW OF OXYGEN INCIDENT ON INVERTED BLUNTED CONES AT AN ANGLE OF
ATTACK. IT IS CONCLUDED THAT THE FINITE DISSOCIATION RATES OF
UNSTEADILY DISSOCIATING OXYGEN ATOMS HAVE A SIGNIFICANT EFFECT ON THE
THERMAL FLUXES BUT DO NOT APPRECIABLY AFFECT THE AERODYNAMIC FORCES
ACTING ON INVERTED CONES IN A SUPERSONIC OXYGEN FLOW.

UNCLASSIFIED

USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., BOGDANOV, N. I.
(Deceased), KUDYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYKH, YU. A.,
NIKIPELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V. and CHUSHKIN, YU. V.,
State Committee for the Use of Atomic Energy USSR

"Advancement of Research in the Field of Nuclear Power Engineering in the
USSR (Report Presented at the Fourth United Nations International Conference
on the Peaceful Uses of Atomic Energy held 6 to 16 September 1971 in
Geneva)"

Moscow, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

Abstract: This report cites data on the Soviet development of the thermo-
electric generators designed for feeding oceanographic and navigation
devices, hydrographic, automatic, radiometeorological, magnetic variation
stations, high-mountain cosmic ray stations, and other scientific research
land stations. The report covers the scientific and technical fundamentals
of such energy sources and cites the characteristics of some generators.
Discussed in some detail are various aspects of radio isotopic fuels,
selection, properties, distinctive characteristics, evaluation, requirements,
cost factors, availability, handling safety factors, and forms of applica-

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FRADKIN, G. M., et al, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

tion. The potential use of extraction separation of alkali-earth elements for obtaining pure strontium is noted. A table lists the comparative characteristics of various isotopes having potential use in thermoelectric generators. Much consideration is given to topics dealing with energy release in an isotopic unit, biological protection, radioactive decay energy conversion, thermal flow chart selection, and generator designs. Described and illustrated are some thermoelectric generators of various designations (using Ce^{144} , Cs^{137} , Sr^{90} , Pu^{238} , Cm^{242} (Po^{210})) including Beta-1, Beta-2, Beta-C, Efir, Penguin, MIG-67 (portable-type), and generators with cascade converters. (8 illustrations).

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Nuclear Science and Technology

USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., ~~POGDANOV, N. I.~~ (Deceased), KODYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYKH, YU. A., NIKIPELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V., and CHUSHKIN, YU. V., State Committee on the Use of Atomic Energy USSR, Fourth International Conference of the United Nations on the Peaceful Use of Atomic Energy, Geneva, 6-16 Sep 71

"Development of Isotopic Power Technology in the USSR"

Moscow, Atomnaya Energiya, Vol 31, No 4, Oct 71, pp 358-365

Abstract: The construction in the USSR of isotopic thermoelectric generators for powering oceanographic and navigation devices, hydrographic, automatic radiometeorological, magnetic variation stations, high-elevation cosmic ray stations, and other scientific research stations and ground installations is reported on. The most suitable for fuel applications are isotopes with a half-life period within the limits 100 days to 100 years (approximately 50 isotopes), of which 12-15 can be obtained in large amounts. Most quantities of fission radioactive isotopes and also the most widely used radioactive Sr⁹⁰ are obtained by processing radioactive waste solutions. To simplify isolation of radiochemically pure elements, including Sr⁹⁰, the group concentration method is used, based on calcium oxalate precipitation. The most promising technique is extraction separation of alkaline-earth elements with the isolation of pure strontium. Here the following extractants are used: a

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SR

FRADKIN, G.M., et al, Moscow, Atomnaya Energiya, Vol 31, No 4, Oct 71, pp 358-365

solution of di-2-ethylhexylorthophosphoric acid in kerosene from a nitric acid medium, and a solution of salicylaldehyde in tributyl phosphate from an alkaline (sodium hydroxide or ammonia) solution. Currently construction has been completed for blocks with activities in the tens and hundreds of kilocuries based on Ce^{144} (20,000 curies), Sr^{90} (9000-100,000 curies), and Cs^{137} (50,000-150,000 curies), and also blocks based on Pu^{238} , Po^{210} , Cm^{242} , and Co^{60} . The thermal capacity of these blocks lies within the range 1-1000 watts. An empirical formula was derived and tested for the power yield in an isotopic (thermal) block. Also discussed is biological protection during development and construction of isotope power sources containing kilocurie amounts of radioactive heat. In dealing with the conversion of radioactive decay energy, the thermoelectric method was found to be most fully mastered at present: low-temperature semiconductor materials (up to 300°C) have been obtained with quite high efficiencies (5-8%), as well as medium-temperature (300-700°C) and high-temperature (higher than 700°C) semiconductor materials. Combining different materials in the form of cascade elements already permits attainment of 12-15% conversion efficiency in prototypes. Demands of minimum weight and size and also low background of attendant neutron and gamma-radiation led to construction of portable generators of the MIG-67 type based on Pu^{238} . The unique properties of Cm^{242} and Po^{210} (high specific power yield and fairly low-gamma-radiation intensity) made feasible construction of isotopic thermoelectric generators using cascaded converters with efficiencies of 8-10% in the 300-850°K range.

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TITLE--MULTIFUNCTIONAL ADDITIVE FOR LUBRICATING OILS -U-
AUTHOR--(CS)--KHARCHENKO, L.S., GORELOV, S.A., GORDASH, YU.T., RABINOVICH,
I.L., CHUSHKINA, R.D.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 244,578
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--LUBRICATING OIL, CHEMICAL PATENT, THIOL, PHOSPHATE ESTER,
BENZENE DERIVATIVE, LUBRICANT ADDITIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/0084 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0127711
UNCLASSIFIED

272

018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0127711

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. O, O DIALKYL S BENZOTHAZOLYL
PHOSPHATE OR O, O DIALKYL SE BENZOTHAZOLYL SELENOPHOSPHATE ARE
USEFUL AS POLYFUNCTIONAL ADDITIVES IN LUBRICATING OILS.

UNCLASSIFIED

USSR

UDC 533.607.11

BELYANIN, B. V., KHARITONOV, A. M., CHUSOV, D. V.

"Study of the Flow Characteristics After Exit Cones with Large Expansion Angles"

Izvestiya sibirskogo otdeleniya Akademii Nauk SSSR, Seriya tekhnicheskikh nauk, No 8 (203), vyp. 2, Jun 1972, pp 54-57

Abstract: A study was made to obtain data on the flow characteristics in the forechamber after exit cones with large angles of expansion and large area ratios in the presence of various equalizing and deturbulizing devices. The studies were performed on a special test unit which was equipped with replaceable exit cones with angles of expansion of 8, 45 and 90° with fixed area ratio of 14. Equalizing lattices, a perforated cone or longitudinal barriers were installed in the exit cones successively, and in the forechamber, a set of deturbulizing grids. The forechamber 800 mm in diameter and three diameters long ended in a convergent channel with a cylindrical chamber of smaller diameter. In the second chamber the flow velocity was 2.5 times higher than in the forechamber. The equalizing lattices were installed one in the exit cross section of the exit cone with a degree of preparation of 37%, two at a distance of 1/3 and 2/3 of the length of the exit cone from the intake cross section with a perforation of 42 and 43% respectively. The perforated cone with a central angle of 120° was installed in the exit cross section of the exit cone. The Re numbers were varied with respect to the parameters at the intake to the

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USSR

BEL'YANIN, B. V., et al., Izvestiya sibirskogo otdeleniya Akademii Nauk SSSR, Seriya tekhnicheskikh nauk, No 8 (203), vyp. 2, Jun 1972, pp 54-57

exit cone in different experiments in the range from 10^6 to 10^7 . Significant flow pulsations and unsatisfactory uniformity of the velocity field were observed in all cases when studying the velocity field after exit cones with the given angles of expansion without equalizers. The equalizers were studied in an exit cone with an angle of 45° . The characteristics of the degree of non-uniformity of the velocity field in the forechamber $\Delta v_{\text{mean}} / v_{\text{mean}} \%$ (Δv_{mean} is the mean value of the deviations from the mean velocity in the forechamber, v_{mean} is the mean flow velocity in the forechamber) are tabulated for various equalizers. It was found that $\Delta v_{\text{mean}} / v_{\text{mean}} \leq 3\%$ is acceptable. The results of multiple measurements of the turbulence level ϵ in the second cross section of the forechamber are tabulated. They show that for identical combinations of equalizers (perforated cone and 7 grids) the degree of turbulence after the exit cones of 8 and 45° is identical in practice. The drag was found to be constant in the investigated range of Reynolds numbers, and the greatest part of the losses are created by the exit cone itself. Exit cones with large angles of expansion can be used with properly chosen equalizers in wind tunnels and other devices.

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AA0038781

CHUISOV D.V.

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

237322 NON-RESIDUAL OXIDISING GASIFICATION,
METHOD FOR OIL RESIDUES by incomplete

3/70

burning in air or oxygen, differs in being carried out in two stages first at 500-700°C and then at 1200-1400°C with the formation of gaseous products. The preliminary oxidation chamber is fed with part of the air, 0.1 of the stoichiometric quantity, and with all the fuel to be gasified. The whole mass of fuel is evenly heated in the chamber. This causes considerable destruction of the complex compounds, introducing atoms of oxygen into the molecular structure of the fuel. The process in this chamber is not brought to a thermodynamic balance, so the condensation reactions do not have time to finish, and the product, containing a rich selection of active radicals, enters the reaction chamber, where, being mixed with the remaining air, it reacts up to the point of terminal gaseous products con-

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AA0038781

siderably more rapidly. By eliminating intermediate oxidation, the process takes place more energetically, less jerkily, is easily regulated, and produces less soot. 29.3.67. as 1146013/23-26, MASLENNIKOV, V.M. et al. Theoretical and Practical Mechanics Inst. Siberian Sect. Acad. Sciences U.S.S.R. (7.7.69) Sol. 8/12.2.69. Class 24e, Int. Cl. C 10j.

AUTHORS: Maslennikov, V. M.; Vyskubenko, Yu. A.; Dimitrov, V. I.; Zharkova, G. M.; Morozov, A. P. and Chusov, D. V.

Institut Teoreticheskoy i Prikladnoy Mekhaniki Sibirskogo Otdeleniya AN SSSR

19731978

1/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--STUDY OF LINEARIZED GRAD EQUATIONS OF RAREFIED GASDYNAMICS IN THE
THREE-DIMENSIONAL CASE -U-
AUTHOR--CHUSOV, M.A.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, FIZIKA ATMOSFERY I OKEANA VOL. 6,
FEB. 1970, P 146-153
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, ATMOSPHERIC SCIENCES, EARTH SCIENCES AND
OCEANOGRAPHY
TOPIC TAGS--RAREFIED GAS DYNAMICS, FLUID FLOW, LINEAR EQUATION, AIR,
OCEANOGRAPHY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/2044 STEP NO--UR/0362/70/006/003/0146/0153
CIRC ACCESSION NO--AP0108370
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108370

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF DISPERSION RELATIONS FOR A LINEARIZED SYSTEM OF GRAD EQUATIONS. THIS SYSTEM CONTAINS, IN ADDITION TO A 13 MOMENT GRAD SYSTEM, AN EQUATION FOR THE NONEQUILIBRIUM PART OF THE PRESSURE, WHICH DESCRIBES THE PROCESS OF SECOND (BULK) VISCOSITY. ASSUMING THE FLUID FLOW TO BE THREE DIMENSIONAL, THE LONGITUDINAL AND TRANSVERSE DISPERSION BRANCHES ARE DETERMINED.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--OXICATION OF TRIVALENT CHROMIUM -U-
AUTHOR--(05)-YAKOBI, V.A., BOCHKAREVA, T.P., KOZOREZ, L.A., CHUSOVA, L.L.,
SHPAK, L.P.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262,106
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--METAL OXIDATION, CHROMIUM, CHEMICAL PATENT, OZONE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1465 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0126996
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0126996
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CR PRIME3POSITIVE IS OXIDIZED TO
CR PRIME6POSITIVE IN AN ACIDIC MEDIUM IN THE PRESENCE OF MN COMPS.
(E.G. MNCL SUB2) WITH OZONIZED AIR. FACILITY: RUBEZHANSKIY
FILIAL KHAR'KOVSKOGO ORDENA LENINA POLITEKHNICHESKOGO INSTITUTA IM V. I.
LENINA.

UNCLASSIFIED

USSR

UDC 669.25:539.292

TKACHENKO, O. YE., and CHUISTOV, K. V., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Morphology of Homogenous Precipitation in a Co-Ti Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 834-840

Abstract: An electron microscopic study was made of the nature of distribution of gamma-phase particles during homogeneous precipitation in a cobalt alloy containing 9 at % Ti. The alloy was produced in an arc furnace with a water-cooled copper hearth in a purified argon atmosphere. After pouring the ingots were annealed at 1200°C for 10 hours, quenched in water, forged, and rolled to a final thickness of approximately 0.1 mm. From the rolled strips 20 x 30 mm samples were cut which were reheated to 1200°C, quenched in water, and aged at various temperatures. Aging was done in a salt bath for short periods and in a vacuum (10^{-5} torr) for longer periods. From the heat-treated samples, disks with a 3-mm diameter were made which were used as blanks for the preparation of thin foils. The latter were produced by electropolishing in a solution of 20 ml H₂O + 133 ml acetic acid + 25 g chromic anhydride at 92 v in a special teflon holder. The foils were examined under a UEMV-100V microscope at 20,000X.

In the initial stages of the precipitation process, fine zones (approximately

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USSR

TKACHENKO, O. YE., and CHUISTOV, K. V., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 834-840

100 Å), enriched with titanium atoms with an ordered structure of the Cu_3Au type, are formed and chaotically situated in the solid solution. In view of the closeness of their structure to the structure of the gamma (Co_3Ti)-phase, these zones can be viewed as the nucleus of the given phase.

Increasing the heating temperature leads to enlargement of the zones and their alignment along the $\langle 110 \rangle$ direction, and further aging of the alloy is accompanied by the formation of a three-dimensional lattice from precipitates of the gamma-phase with a lattice period of approximately 300 Å. Shortened heating at a high temperature (900° C) leads to a change in particle shape from equiaxial to lamellar and to the disturbance of their proper position.

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USSR

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BEREZINA, A. L., and CHRISTOV, K. W., Institute of Metal Physics, Academy of Sciences USSR

"Study of the Influence of Recovery in the Alloy Co-Ti at 700°C - a Study"
Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 5, Sep 73, pp 887-894

Abstract: An x-ray study of the phenomenon of the recovery of hardness in aged Co-Ti alloy demonstrates that the recovery effect results principally from structural aging of the solid solution. This study was performed by heating the Co-Ti alloys to 600 and 700° C for various lengths of time, then briefly heating to 1000, 900 and 800°. After brief high-temperature heating, low-temperature annealing was performed. In some cases, a number of cycles were performed consisting of aging at low temperature and brief high-temperature heating. The changes in hardness were studied and the softening of x-ray by specimens of the alloy after various heat treatment was measured. It was determined that high-temperature, short-term heating leads to a decrease in hardness of the alloy in many cases even to its initial value corresponding to the initial state. Subsequent low-temperature aging restores the hardness of the alloy. The degree of recovery depends on the nature of the heat treatment.
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USSR

BEREZINA, A. L., and CHUISTOV, K. V., *Fizika Metallov i Metallovedeniya*, Vol. 30, No. 3, Sep 79, pp 587-594

a Co-Ti alloy aged at 700° for ten minutes, full recovery of hardness occurs after brief heating at 900° and 1000°, while partial recovery occurs after heating at 800°. The phenomenon of recovery in the Co-Ti alloy results primarily from a decrease in the concentration of titanium in the particles of the γ -phase after high-temperature heating.

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USSR

Composite Materials

UDC: 669.715:621.002.3

SEVERDENKO, V. P., MATUSEVICH, A. S., CHUTAYEV, I. Kh., RADAYEV, M. A.

"Hardening of Aluminum by Fibers of Stainless Steel"

Moscow, Tsvetnyye Metally, No 12, Dec 73, pp 60-61.

Abstract: A specimen consisting of alternating layers of degreased steel wire and surface-treated aluminum foil was placed in an envelope of copper sheets, the edges of which were sealed by gas welding. The air was extracted from the envelope to a residual pressure of $1 \cdot 10^{-4}$ - $1 \cdot 10^{-5}$ mm hg, after which the packet was heated to 450° C for 30-45 minutes, depending on packet thickness. The residual pressure in the packet before rolling was not over $5 \cdot 10^{-5}$ mm hg. Based on the experiments, a nomogram was constructed which can be used to determine the spacing of wires, foil thickness and minimum necessary degree of compression for fixed values of volumetric content and a diameter of hardening wires. Reinforced sheets measuring (1.0-3.5) by 180 by 220 mm were made. The highest strength values were achieved for a composite material consisting of aluminum plus 44% EP-322 wire.

1/1

USSR

UDC 621.316.722.1

KILADZE, N.SH., CHUBINASHVILI, D.N., CHUTKERASHVILI, T.D.

"Precision Regulators Of The Effective Value Of Large-Power A-C Voltage"

Tr. in-ta elektron. avtomatiki i telemekh. AN Gruz SSR (works Of The Institute Of Electronic Automatics And Telemechanics, Academy Of Sciences, Georgian SSR), 1970, 8, No 2, pp 66-71 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B498)

Translation: In order to regulate a-c voltage with a power above 0.5 kw with great precision and small nonlinear distortion, it is advisable to use regulators with a saturation choke connected to the primary winding of an autotransformer. An electron-tube diode is used in the sensor [datchik] of effective voltage. In the circuit at 3 kw a control circuit using transistors is employed and in the circuit at 0.5 kw, a control circuit using tubes. The basic parameters of the regulators with an output voltage of 220 v plus or minus five percent at 3 and 0.5 kw, respectively, are: load current 13.6 and 2.3 amp; specific power 45 and 25 wt/kg; coefficient of nonlinearity distortion 5 and 4 percent; temperature range from 5 to 50° C and from 10 to 40° C. 2 ill. 2 ref. S.D.

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USSR

UDC 615.849.52.015.3

ZALMANZON, YU. YE., and CHUTKIN, O. A., Scientific Research Institute of Instrument Building, Moscow

"Distribution in Tissue Depth of the Absorbed Dose From α -Active Aerosol Particles"

Moscow, Meditsinskaya Radiologiya, Vol 17, No 7, Jul 72, pp 69-72

Abstract: Calculations are carried out of the absorbed dose in tissue in relation to the distance from an aerosol particle of an α -active isotope. The particle is assumed to be imbedded in the tissue. The non-uniformity of energy losses along the path of α -radiation and the actual energy spectra of aerosol particles are considered. On the example of

$^{239}\text{PuO}_2$ particles, the effect of particle size on the absorbed dose is discussed. It is shown that the dosage rate on the particle surface depends on the particle size (parameter k), rapidly decreasing with increasing particle size (by a factor of 100 on transition from $k = 0.01$ to $k = 0.1$). On the basis of the calculations, the relation between the dosage rate and the distance from the aerosol particle surface shows a slight rise in the dosage rate at distances somewhat smaller than the length of the path of α -particles in tissue. This is due to a rise in the linear energy loss by a α -particles at the end of the path. It is brought out that the distribution of the dose

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USSR

ZALMANZON, YU. YE., and CHUTKIN, O. A., Meditsinskaya Radiologiya, Vol 17,
No 7, Jul 72, pp 69-72

in tissue depth is a highly variable function; this must be taken into consideration in estimating the damage that may be caused by α -active aerosols. The importance of the results of the study from the standpoint of danger presented by irradiation of the respiratory tract in occupational accidents involving inhalation of α -active aerosols is pointed out.

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USSR

UDC 616.24-001.29-057-07:616.24-088.927.994.02.239

ZALMANZON, Yu. Ye., and CHUTKIN, O. A., Union Scientific Research Institute of Instrument Building

"Doses of Radioactive Aerosols Absorbed in the Lungs"

Moscow, Meditsinskaya Radiologiya, Vol 17, No 4, 1972, pp 63-68

Abstract: Mathematical models are developed to review and expand current concepts concerning the absorption of radioactive aerosols and safety standards. The factors considered in the calculations include: concentration of radioactivity in the inhaled air, dispersion and size of radioactive particles, flow dynamics, respiratory rate, tidal volume, distribution of the radioactive matter in the bronchi, bronchioles, and alveoli, and concentration of radioactivity per unit weight of the lungs. Because of unavailability of precise data on certain parameters, simplifications are made in the equations. By using Pu²³⁹ as an example, it is demonstrated that at a given (constant) concentration of the radioactive aerosol, the dose absorbed in the lungs may vary by a factor of several hundred, depending on the actual value of a number of variables. Therefore, in order to establish valid standards, it is necessary to develop methods by which the inhaled fraction of the radioactive aerosol can be measured.

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USSR

UDC: 539.1.08

VAD'IN, V. I., ZALMANZON, Yu. Ye., NIKITIN, V. I., CHUPKIN, O. A.

"Radiometry and Identification of Alpha-Active Isotopes of 'Thick' Aerosol Samples"

Tr. Soyuzn. n.-i. in-ta priborostr. (Works of the Union Scientific Research Institute of Instrument Building), 1970, vyp. 12, pp 204-215 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov 70, Abstract No 11.32.1460)

Translation: The authors show the possibility of determining isotopic composition for "thick" specimens, and find corrections for the radiation yield and the effectiveness with which radiation is registered for such specimens. Five illustrations, one table, bibliography of eight titles.

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1/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CLINICAL PICTURE OF RETROLENTAL FIBROPLASIA IN CHILDREN WITH THE
EYE PATHOLOGY -U-

AUTHOR--(02)-GRIGORYEVA, V.I., CHUTKO, S.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 3, PP 13-16

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EYE DISEASE, PEDIATRICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0125

STEP NO--UR/0357/70/000/003/0013/0016

CIRC ACCESSION NO--A0129381

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129381

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE CARRIES A DESCRIPTION OF 15 PATIENTS WITH RETROLENTAL FIBROPLASIS EXAMINED AT AN EYE CLINIC FOR CHILDREN. THE NECESSITY OF AN EARLIER DETECTION AND PREVENTION OF THIS DISEASE IS STRESSED. FACILITY: KAFEDRA GLAZNYKH BOLEZNEY, LENINGRADSKOGO PEDIATRICHESKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

1/2 046 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FORMATION OF SHOCK WAVES DURING THE INTERACTION OF A MOVING PULSED
PLASMA WITH A STATIONARY GAS DISCHARGE PLASMA -U-
AUTHOR--CHUTOV, YU.I.
COUNTRY OF INFO--USSR
SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, APR. 1970, P. 682,
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SHOCK WAVE PROPAGATION, PLASMA OSCILLATION, GAS DISCHARGE
PLASMA, GLOW DISCHARGE, SHOCK WAVE FRONT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0711 STEP NO--UR/0185/70/015/000/0682/0682
CIRC ACCESSION NO--AP0126423
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126423

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASURED CHARACTERISTICS OF PROPAGATION OF A DISTURBANCE IN THE GLOW INTENSITY OF A STATIONARY GAS DISCHARGE PLASMA, ARISING FROM INTERACTION WITH A MOVING PULSED PLASMA. THE DATA SHOW THAT THE DISTURBANCE IN GLOW INTENSITY REPRESENTS A SHOCK WAVEFRONT WHICH PROPAGATES IN THE STATIONARY GAS DISCHARGE PLASMA AHEAD OF THE MOVING PULSED PLASMA. FACILITY: KIIVS'KII DERZHAVNII UNIVERSITET, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PSEUDOCHOLINESTERASE ACTIVITY IN STORED BLOOD -U-

AUTHOR--(02)-CHUVASHAYEV, R.S., NURGALEYEVA, R.N.

COUNTRY OF INFO--USSR

SOURCE--KAZAN. MED. ZH. 1970, (1), 58-60

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PRESERVED BLOOD, STORED BLOOD, CHOLINESTERASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3007/1993

STEP NO--UR/0392/70/000/001/0058/0060

CIRC ACCESSION NO--AP0137172

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137172
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BLOOD WAS TREATED WITH L-12
(REDISTD. WATER, 1000 PARTS; NA CITRATE, 25; GLUCOSE, 30; SYNTHOMYCINE,
0.25) AND WITH L-6 (REDISTD. WATER, 1000 PARTS; NA CITRATE, 25;
TRYPAFLAVINE, 0.25; NA SULFACYL, 5; GLUCOSE, 30). THE
PSEUDOCHOLINESTERASE ACTIVITY OF THE BLOOD DECREASED DURING STORAGE AS
FOLLOWS: 83.7PERCENT OF NORMAL VALUE AFTER 6 DAYS OF STORAGE,
80.9PERCENT AFTER 30 DAYS, 74.5PERCENT AFTER 2 WEEKS, AND 71.2PERCENT
AFTER 3 WEEKS. FACILITY: GOROD. KLIN. BOL'NITSA, KAZAN, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE EFFECT OF RACHITOGENIC FOOD RATION ON THE FUNCTION OF THE
ADRENAL CORTEX IN RATS -U-
AUTHOR--(02)-NATANSON, A.O., CHUVAYEV, A.V.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 46-47
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--VITAMIN DEFICIENCY, BONE DISEASE, ADRENAL GLAND,
DEHYDROGENASE, ALDOSTERONE, CORTICOSTEROID, THYMUS GLAND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0006 STEP NO--UR/0244/70/000/003/0046/0047
CIRC ACCESSION NO--AP0120706
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--APO120706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RATS WEANLINGS WERE KEPT FOR 3 WEEKS ON A RACHITOGENIC DIET. THE WEIGHT OF SUPRARENALS, THE 3- α -LZOSTEROID DEHYDROGENASE ACTIVITY THEREIN, PRODUCTION OF ALDOSTERONE AND CORTISOL BY THE ADRENALS IN VITRO SHOWED NO CHANGE BY COMPARISON WITH CONTROLS. THE WEIGHT OF THE THYMUS IN RACHITIC RATS WAS SOMEWHAT INCREASED. FACILITY: LABORATORIYA BIOKHEMII VITAMINOV VSES. N-I INSTITUTA VITAMINOLOGII MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

L/2: 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--H II REGIONS IN NGC 628, NGC 4254 AND NGC 5194 -U-
AUTHOR--(02)-CHUVAEV, K., PRONIK, I. C
COUNTRY OF INFO--USSR, SWITZERLAND
SOURCE--THE SPIRAL STRUCTURE OF OUR GALAXY; PROCEEDINGS OF THE SYMPOSIUM,
UNIVERSITAT BASEL, BASEL, SWITZERLAND, AUGUST 29-SEPTEMBER 4, 1969,
DATE PUBLISHED-----70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, NAVIGATION
TOPIC TAGS--SPIRAL GALAXY, TELESCOPE, IMAGE CONVERTER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605030/F02 STEP NO--SZ/0000/70/000/038/0083/0086
CIRC ACCESSION NO--AT0141873
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0141873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF MULTICOLOR OBSERVATIONS OF GALAXIES BEING CARRIED OUT AT THE PRIME FOCUS OF THE 2.6 M SCHAJN TELESCOPE, USING AN IMAGE CONVERTER AND 6-9 COLOR FILTERS. THE OBSERVATIONS OF THE SC GALAXIES NGC 628, NGC 4254, AND NGC 5194 WERE CARRIED OUT IN 1965-1969. TWO OF THE GALAXIES ARE SINGLE, BUT NGC 5194 IS DOUBLE. THE ENERGY DISTRIBUTIONS FOR THE CENTRAL REGION AND FOR DOZENS OF BRIGHT PATCHES IN EACH GALAXY HAVE BEEN DETERMINED, AND THE RATIOS OF BRIGHTNESSES ARE TABULATED. FACILITY: KRYMSKAIA ASTROFIZICHESKAIA OBSERVATORIIZ, NAUCHNY, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 576.858.75.098.31

ZHUMATOV, Kh. ZH., ISAYEVA, Ye. S., CHUVAKOVA, Z. K., and STETSENKO, O. G.,
Laboratory of General Virology, Institute of Microbiology and Virology, Academy
of Sciences, Kazakh SSR, Alma-Ata

"Study of the Electrophoretic Mobility and Immunospecificity of Influenza
Virus and Host Cell Neuraminidases"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 68-71

Abstract: A comparative study was conducted of the electrophoretic mobility of neuraminidases from different influenza virus strains and from cells of chick embryo chorioallantois, the medium most widely used to maintain this virus. The specificity of the individual zones on the electrophoregrams of the enzyme was determined serologically. The electrophoretic mobility of neuraminidase from the A² (Singapore/57) and A² (Alma-Ata 397/57) strains was found to be different from that of the A² (Alma-Ata 454/65) and A² (USSR 0467/69) strains, but the latter two strains were similar in this respect. Neuraminidase from the host cells, unlike that of the virus, was bound to a rapidly moving component in the electrical field. However, components with identical electrophoretic mobility appeared in preparations of both cellular and viral neuraminidase.

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USSR

UDC 546.78+541.452+546.212

CHUVAYEV, V. F., SHINIK, G. M., POLOTEBNOVA, N. A., SPITSYN, V. I., Academician,
Institute of Chemical Physics, Soviet Academy of Sciences, Moscow

"Investigation of Crystal Hydrates of Phosphotungstovanadic Heteropoly Acids
by the Paramagnetic Resonance Method"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 27 Jul 73, pp 614-616

Abstract: The paper gives the results of an investigation of the PMR spectra of hydrates of various water content of phosphotungstovanadic heteropoly acids with one or two atoms of vanadium in the anion $H_4[PW_{11}VO_{40}] \cdot nH_2O$ and $H_5[PW_{10}V_2O_{40}] \cdot nH_2O$. Specimens of acids with intermediate water content were produced by allowing the initial high-water crystals to stand in air for different durations at different temperatures. The PMR spectra show specific peculiarities of the hydrate structure of phosphotungstovanadic heteropoly acids with one and two vanadium atoms. The nature of dehydration of the H^+ ions in acid $H_5[PW_{10}V_2O_{40}] \cdot H_2O$ supports the hypothesis of formation of a four-spin grouping H_4O^{2+} . In the hydrates $H_4[PW_{11}VO_{40}] \cdot H_2O$ and $H_5[PW_{10}V_2O_{40}] \cdot 2H_2O$ the proton-proton distance of the water molecules $r_{H-H} = 1.8 \text{ \AA}$ is considerably greater than the usual distances in crystal hydrates.

1/1

172 007 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--USE OF VARIOUS ACTIVATED ESTERS IN THE SYNTHESIS OF REGULAR
POLYPEPTIDES, AND THEIR COMPARATIVE EVALUATION -U-
AUTHOR--(03)--SHIBNEV, V.A., CHUVAYEVA, T.P., POROSHIN, K.T.
CCUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 121P9
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ESTER, PEPTIDE
CCNTRG MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1922 STEP NO--UR/0062/70/000/001/0121/0129
CIRC ACCESSION NO--AP0103649
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0103649

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE SYNTHESIS OF POLYPEPTIDES WITH REGULAR CHAIN STRUCTURE, THE HIGHEST MOL. WTS. WERE OBTAINED VIA THE PENTACHLOROPHENYL ESTERS, FOLLOWED IN TURN BY:

N, HYDROXYSUCCINIMIDYL, 2,4,5, TRICHLOROPHENYL, 2,4,6, TRICHLOROPHENYL, RHO, NITROPHENYL, 3, HYDROXYPYRIDYL, PENTAFLUOROPHENYL, AND 8, HYDROXYQUINOLYL ESTERS. HOWEVER OWING TO LOW SOLY. OF MANY POLYPEPTIDES WITH RELATIVELY LARGE MOL. WT., THE DESIRABILITY OF IMPROVED SOLY. DURING THE HANDLING MAKES 2,4,5, TRICHLOROPHENYL AND N, HYDROXYSUCCINIMIDYL ESTERS VALUABLE. THE REACTION WAS APPLIED TO THE INDICATED ESTERS OF HBR OR HCL SALTS OF GLYCYLPROLYLGLYCINE OR THE ANALOG OF GLYCYLHYDROXYPROLYLHYDROXYPROLINE, AS WELL AS THE GLYCYLPROLYLHYDROXYPROLINE ANALOG. THE REACTIONS WERE RUN IN ME SUB2 SO IN THE PRESENCE OF ET SUB3 N AT ROOM TEMP. SEVERAL DAYS. BY THIS METHOD THE PENTACHLOROPHENYL ESTER YIELDED POLYMERIC POLYPEPTIDES OF INDICATED MOL. WTS.: GLY-HYP-HYP OVER 15,000 AND REACHING 160,000; GLY-PRO-HYP 100,000; GLY-ALA-HYP OVER 25,000.

UNCLASSIFIED

USSR

UDC 541.183

CHUVELEVA, E. A., NAZAROV, P. P., and CHMUTOV, K. V., Institute of Physical
Chemistry, Acad. Sc. USSR, Moscow

"Kinetics of the Ionic Exchange on Complex Forming Resins. I. Sorption
Kinetics of Uranyl, Sodium, and Barium Ions on Carboxyl and on Phosphate Resins"
Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 11, Nov 72, pp 2865-2869

Abstract: Sorption kinetics of uranyl, barium and sodium ions on the H-form of
the carboxyl cation exchange resins SG-1, Amberlite IRC-50 and the phosphate
cation exchange resin of the KRF type has been studied as a function of the
concentration of the metals in starting solution, as a function of graininess
and the degree of crossgrafting of the ion exchange resins. The rate of uranium
sorption increases with decreasing grain size of the exchange resin. The
exchange rate of uranium increases with increasing concentration of uranium in
the starting solution. Finally, the exchange of sodium takes place much faster
on the phosphate resin than on SG-1 material.

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USSR

UDC 541.183

~~CHIVELIYA~~ F. A., NAZAROV, P. P., CHMUTOV, K. V., Institute of Physical Chemistry, Academy of Sciences USSR

"Study of the Mechanism of Metal Ions Sorption on Phosphate Cation Exchangers"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 9, 1971, pp 2297-2301

Abstract: Interaction of uranyl, copper, and nickel ions with the styrene- and p-divinylbenzene phosphate cation-exchange resins was studied by the adsorption and potentiometric titration techniques. The experimental partition coefficients of the uranyl ion were found to be high at a low nitric acid concentration and those of Cu and Ni to increase steadily with the increase in pH and decrease in ionic strength of solution. In contrast to carboxylate resins, sorption of uranium on phosphate resins proceeds by a chemical reaction mechanism. The tabulated stability constants of the uranium complex formed indicate a strong affinity between uranyl ion and phosphate group of the resin, which indirectly

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USSR

CHUVELEVA, E. A., et al, Zhurnal Fizicheskoy Khimii, Vol 45,
No 9, 1971, pp 2297-2301

confirms the previously suspected existence of a covalent bond. In contrast the tabulated stability constants of Cu and Ni complexes indicate a relatively weak affinity between these metals and phosphate groups of the resins, apparently because they are bonded by electrostatic forces. The Cu complex contains only two phosphate groups.

2/2

Ion Exchange

USSR

UDC 541.183

CHUVELEVA, E. A., NAZAROV, P. P., and CHMUTOV, K. V., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Mechanism of Sorption of Metal Ions on Carboxyl Cation Exchangers. V. Formation of Complexes of the Type $\sqrt{M(A)_3}$ by the Uranyl Ion"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 482-485

Abstract: Adsorption of UO_2^{++} ions by the cation-exchange resin SG-1 with three COOH groups from solutions contains uranyl nitrate, NaOH, and $NaNO_3$ was studied. Data obtained on equilibria in the solution-resin system at pH 1.72-3.36 indicated that a complex of the type $\sqrt{UO_2(A)_3}$ formed on the resin and that this complex combined with Na^+ to form $Na\sqrt{UO_2(A)_3}$ in preference to binding H^+ with the formation of $H\sqrt{UO_2(A)_3}$. Experiments in which $NaNO_3$ containing ^{22}Na was used confirmed the results in regard to the adsorption of Na^+ . With increasing amounts of UO_2^{++} adsorbed on the resin, the adsorption of Na^+ increased because of formation of the compound $Na\sqrt{UO_2(A)_3}$.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANISM OF ADSORPTION OF METAL IONS ON CARBOXYLIC CATION
EXCHANGERS. IV. ADSORPTION OF URANYL ION ON KB-4 RESIN -U-
AUTHOR--(03)-CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 166-70
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CATION EXCHANGE RESIN, BENZENE DERIVATIVE, URANIUM COMPOUND,
COMPLEX COMPOUND, CALCULATION/(U)KB4 ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1403 STEP NO--UR/0076/70/044/001/0166/0170
CIRC ACCESSION NO--AP0116850
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0116850
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INVESTIGATION WAS ACCOMPLISHED
ON CATION EXCHANGERS OF THE TYPE KB-4, CONTAINING DIFFERENT AMOUNTS OF
DIVINYLBENZENE. THE CONSTS. OF COMPLEX FORMATION OF UO SUB2 PRIME2
POSITIVE WERE CALCD. ON THE BASIS OF EXPTL. DATA. FACILITY:
INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STUDY OF THE MECHANISM OF SORPTION OF METAL IONS ON CARBOXYLIC
CATION EXCHANGERS. V. THE FORMATION OF COMPLEX URANYL COMPOUNDS OF THE
AUTHOR--(03)-CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.
COUNTRY OF INFO--USSR
SOURCE--IZV. FIZ. KHIM.; 44: 482-5(FEB 1970)
DATE PUBLISHED----FEB 70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--URANIUM COMPOUND, CARBOXYLIC RADIACAL, CATION EXCHANGE RESIN,
COMPLEX COMPOUND/(U)SGL ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0966 STEP NO--BU/2505/70/044/000/0482/0485
CIRC ACCESSION NO--AP0137994
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 011

CIRC ACCESSION NO--AP0137994

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

ABSTRACT. A STUDY WAS MADE OF THE CONDITIONS OF FORMATION OF URANYL COMPLEXES WITH THREE CARBOXYLIC GROUPS OF THE SG-1 RESIN. THE PROBABILITY OF FORMATION OF COMPLEX COMPOUNDS WITH THE COORDINATION OF THE MAXIMUM NUMBER OF ACTIVE GROUPS OF THE RESIN INCREASED WITH DECREASING CONCENTRATION OF THE METAL IN THE INITIAL SOLUTION.

FACILITY: INST. OF PHYSICAL CHEMISTRY, MOSCOW.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--MECHANISM OF METAL ION ADSORPTION ON CARBOXYLIC CATION EXCHANGERS.
VI. ADSORPTION OF COPPER AND NICKEL IONS ON SG,1 RESINS -U-
AUTHOR--(04)-YULFRYAKOVA, N.K., NAZAROV, P.P., CHUVELEVA, E.A., CHMUTOV,
K.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 720-3
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CATION EXCHANGE RESIN, ADSORPTION, COPPER COMPLEX, NICKEL
COMPLEX, CARBONYL RADICAL, STABILITY CONSTANT/(U)SG1 ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1211 STEP NO--UR/0076/70/044/003/0720/0723
CIRC ACCESSION NO--AP0128629
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION OF 0.019 AND 0.038M CU(NO SUB3) SUB2 AND 0.0196M NI (CLO SUB4) SUB2 WITH THE CATION EXCHANGER SG,1 (PK SUBDISOCN. 5.4 AND 5.52 IN NANO SUB3 AND NACLO SUB4 SOLNS., RESP.) WAS STUDIED BY MEASURING THE PH OF THE SG,1 SUSPENSION AND EXTENT OF CU PRIME2 POSITIVE AND NI PRIME2 POSITIVE ADSORPTION AFTER THE ADDN. OF VARIOUS AMTS. OF ALKALI. BOTH OF CU PRIME2 POSITIVE NI PRIME2 POSITIVE FORM A COMPLEX WITH 2 CARBOXYL GROUPS. CU IS MORE FIRMLY COMPLEXED, WITH A STABILITY CONST. K_{SUB2} TIMES 10^{PRIME} NEGATIVES EQUALS 0.93 AND 1.2 FOR THE CONCNS, 19 AND 38 MM-1., RESP., WHILE NI HAS K_{SUB2} EQUAL 0.013 TIMES 10^{PRIME5} AT THE STUDIED CONCNS. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MECHANISM OF METAL ION ABSORPTION ON CARBOXYL CATION EXCHANGERS. V.
FORMATION OF M A SUB3 TYPE URANYL ION COMPLEXES -U-
AUTHOR--(03)--CHUVELEVA, E.A., NAZAROV, P.P., CHMUTOV, K.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 482-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION MECHANISM, CATION EXCHANGE RESIN, METAL,
CARBOXYLIC ACID, CHEMICAL BONDING, ORGANIC COMPLEX COMPOUND/(U)S61
CATION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/2172 STEP NO--UR/0076/70/044/002/0482/0485
CIRC ACCESSION NO--AP0125752
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30DC170

CIRC ACCESSION NO--AP0125752

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS OF FORMATION OF URANYL COMPLEXES WITH 3 CARBOXYL GROUPS OF RESIN SG-1 ARE DESCRIBED. BASED ON RESULTS OBTAINED BY A PREVIOUS METHOD (P. P. NAZAROV, ET AL., 1969). BAR N, QUANTITY OF ADSORBENT FOR 1 ATOM OF METAL, WAS 3.0, AND ONLY THE 3RD COMPLEX WAS FORMED AT URANYL CONCNS. OF 0.0025 AND 0.005MU. REACTION EQUIL. CONSTS. AND STABILITY CONSTS. OF THE COMPLEXES ARE GIVEN. THE MEAN NO. OF COORDINATED GROUPS N IS APPROXIMATELY EQUAL TO 3, WHICH INDICATES THE PRIMARY FORMATION OF URANYL COMPLEXES WITH 3 CARBOXYL GROUPS. EXPTL. AND CALCD. DATA ARE COMPARED; THE BERRUM-GREGORS CALCN. METHOD COULD BE USED WHEN ONLY 1 COMPLEX COMPD. WITH A CONST. NO. OF LIGANDS WAS FORMED. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132238

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PR PRIME³ POSITIVE ION EXCHANGED WITH 3 CARBOXYLIC GROUPS OF THE ION EXCHANGER. K PRIME^H SUBPR³ POSITIVE, THE CONST. OF EXCHANGE H-PR PRIME³ POSITIVE VARIED FROM 5.6 TIMES 10 PRIME³ TO 2.3 TIMES 10 PRIME⁴ IN THE PH RANGE 2.66-4.04, WHILE K PRIME^{NA} POSITIVE SUBPR³ POSITIVE WAS INDEPENDENT OF PH AND EQUAL TO 40. THE STABILITY CONST. K SUB³ OF THE PR-COOH COMPLEX, DETD. ACCORDING THE METHOD OF BJERRUM, IS 3.3 TIMES 10 PRIME⁶. THESE FIGURES DEMONSTRATE A RELATIVELY LOW AFFINITE OF PR PRIME³ POSITIVE IONS FOR THE CARBOXYLIC GROUPS OF THE RESIN. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

CHUVELEVA, N. P.

SPRS 59808
6-73

SESSION 111
111-1. OBTAINING AND STUDYING CERTAIN PROPERTIES OF SOLID SOLUTIONS OF THE
INDIUM ARSENIDE AND GALLIUM ARSENIDE SYSTEM

(Article by B. A. Sakharov, H. D. Khlystovskaya, N. Ye. Dmitriyeva, N. P. Chuvelova, Ye. V. Kandelova, Ye. P. Roshchinskaya, Moscow: Novotibirsk, III. Simpozium po Protsessam Rosta i Shcheta Poluprovodnikov Kristallov I Plena, Russian, 13-17 June, 1972, p. 75)

The solid solutions of the indium arsenide and gallium arsenide system are interesting and prospective semiconducting materials the basic characteristic parameters of which have intermediate values between the parameters of such important compounds as gallium arsenide and indium arsenide.

In the given paper a study was made of the problem of obtaining solid solutions of the indium arsenide and gallium arsenide system by different methods: zone growth, directional crystallization, pulling from a melt by the Czochralski method, crystallization from the gas phase. Comparative characteristics of the materials obtained by these methods are presented.

A study was made of some optical and electrophysical properties of solid solutions of the indium arsenide and gallium arsenide system in the entire range of compositions. The spectra of the optical transmission in the wave length range of 0.9-2.5 microns were measured for temperatures of 77 and 300°K. The curves were obtained for the spectral dependence of the absorption coefficient. A study was made of the dependence of the concentration of the charge carriers, mobility and width of the forbidden zone on the composition of the solid solution.

USSR

UDC [629.12:624.02/.09].001.2:681.3

PALIY, O. M. and CHUVIKOVSKIY, V. S.

"Reliability of Numerical Calculations in Ship Structural Mechanics"

Leningrad, Sudostroyeniye, No 10, Oct 72, pp 15-17

Abstract: An analysis is made of the reliability of calculations of hull structures conducted by means of electronic digital computers. In judging the reliability of the results of numerical calculations, a distinction is made between the possibility of direct mistakes in programming and the possibility of errors as a consequence of inaccuracy of the initial data, the approximate nature of the algorithm as a whole, or error accumulation during the conduct of the calculations themselves (e.g., rounding off). The elimination of mistakes is called the provision of calculation reliability, and the attainment of acceptable error is called the provision of counting stability.

It is indeed important to obtain calculation reliability, i.e., the elimination of direct mistakes. But this can be accomplished by means of the usual methods of reliability theory. In the present study, attention is devoted to the question of attaining counting stability. Each stage of the calculation process, namely that of a physical model, the transformed mathematical

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USSR

PALIY, O. M. and CHUVIKOVSKIY, V. S., Sudostroyeniye, No 10, Oct 72, pp 15-17

model, and the scheme of the computing algorithm is aimed at optimal convergence and specificity with respect to the preceding stage, where by convergence is meant the degree to which a stage reflects the properties of the preceding (simulated) stage, and by specificity is meant the permissibly small change of the output data under consideration for variations (discrepancies) of the initial data. 1 figure. 2 references.

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USSR

UDC 629.12.011-192:519.21

CHUVIKOVSKIY, V. S.

"Probability Models and Application of them in Estimating the Reliability of Hull Structures"

Leningrad, Sudostroyeniye, No 4, 1972, pp 21-23

Abstract: Probability models are finding application in the solution of the problems of reliability of ship hull structures [V. V. Yekimov, Veroyatnostnyye metody v stroitel'noy mekhanike korabliya, Leningrad, Sudostroyeniye Press, 1966; V. S. Chubikovskiy, et al., Osnovy teorii nadezhnosti sudovykh korpusnykh konstruksiy, Leningrad, Sudostroyeniye Press, 1965]. However, just as in other fields where probability theory is used, difficulties are arising in connection with the statement of the corresponding mathematical problems and estimating the results of solving them. The probability concept is analyzed with the introduction of the auxiliary concepts of completely and relatively objective models of reality. The difficulties of the practical utilization of probability theory and mathematical statistics in such studies are discussed. Example cases of the situation which develops when processing and accepting hull materials and a case characteristic of testing hull structures are considered. The application of probability models in estimating the various aspects of the reliability of hull structures requires serious and realistic analysis of each specific practical situation, establishment of the system of specific physical

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USSR

CHUVIKOVSKIY, V. S., Sudostroyeniye, No 4, 1972, pp 21-23

representations and, primarily, careful analysis of the accuracy of the initial data for obtaining the required result with acceptable accuracy. Utilization of various relatively objective models in hull reliability theory indicates the impossibility of formalizing many of the sections even apparently of a mathematical nature, and it also indicates the necessity for performing broad research by the characteristic methods of this science.

2/2

USSR

UDC: 621.771.23

POLUKHIN, V. P., VISHNYAKOV, YA. D., POTEKIN, V. K., and CHUVILEK, V. P.,
Moscow Institute of Steels and Alloys

"Effect of the Temperature Conditions of Hot Rolling on Both Structure and
Mechanical Properties of 08 kp Steel"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya,
No 1, 1971, pp 82-85

Abstract: This study concerns the causes of quality impairments of thin hot-rolled strip up to 3 mm in thickness designed to be cold converted to 0.8-0.6 mm. The study involved the effect of temperature conditions of hot rolling on the structure and mechanical properties of 08 kp steel strip rolled for 2.8 mm under four sets of temperature conditions. Investigation of the strip along its length and width has found the central sections to have lower characteristics than those at the edges. The data given here are therefore referred to the middle sections along the width.

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USSR

POLUKHIN, V. P., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1971, pp 82-85

Figures in the original article show changes in the grain size, the strength properties, and plasticity along the length of the strip. It has been demonstrated that the optimum structure and mechanical properties-to-plasticity ratio are attained at 880°C at the end of rolling and 610°C for coiling.

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USSR

UDC 532.7

NIKOLAYEV, N. I., KALININA, M. D., and CHUVILEVA, G. G., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov, Moscow

"Effect of the Concentration of the External Electrolyte Solution on the Diffusion of Counter Ions within Cationites"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLIV, No 12, Dec 70, pp 3110-3114

Abstract: Current attempts to explain observed variations in the mobility of ions in ionites by the sinuosity of the ion diffusion route alone are adequate in the case of the self-diffusion of water, the diffusion of an inert substance, or even the diffusion of co-ions; however, this approach will not explain the sharp shift in diffusion coefficients within the ionite phase of an external electrolyte.

The authors determined systematically the diffusion coefficients in the cation KU-2, with varying content of divinylbenzene, during the exchange of copper ions with hydrogen and sodium ions.

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USSR

NIKOLAYEV, N. I., et al., Zhurnal Fizicheskoy Khimii, Vol XLIV, No 12,
Dec 70, pp 3110-3114

It was found that the interdiffusion coefficients rise as the concentration of the external equilibrium solution increases. This is explained on the basis of a model of a friable quasi-crystal. Graphs are included to illustrate the experimental data.

2/2

USSR

UDC 621.352.1.035.151(038.8)

PEVZNER, M. G., GRIGOR'YEV, V. V., LEONOV, O. V., KOCHERGINSKIY, M. D., CHUVPILIC, A. V.

"[Small Battery]. Galvanic Battery"

USSR Author's Certificate No 276191, filed 16 Dec 66, published 29 Sep 70 (from RZh-Elektrotehnika i Energetika, No 5, May 1971, Abstract No 5A251P)

Translation: In order to simplify the assembly and improve the voltage of a small battery one end of the case, for example, the bottom is made concave and is supported on the open surface of the electrode with the current tap of the outside element. There is 1 illustration.

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UR9027

AUTHOR-- RUNYANTSEV, I., DIRECTOR, SCIENTIFIC-RESEARCH INSTITUTE OF CHEMICAL MACHINE CONSTRUCTION /SRICM/

TITLE-- THE EFFECT OF RESEARCH

NEWSPAPER-- VECHERNYAYA MOSKVA, JANUARY 13, 1970, P 2, COLS 2-5

ABSTRACT-- THE ARTICLE IS A VERY BRIEF REVIEW OF THE ACTIVITIES OF THE SRICM. THE INSTITUTE IS THE LEADING ORGANIZATION IN THE FIELD OF MACHINE DESIGN FOR CHEMICAL INDUSTRY. IT GUIDES THE TECHNOLOGICAL POLICIES AND COORDINATES THE EFFORTS OF OTHER INSTITUTES AND PLANTS. THE FOLLOWING STAFF MEMBERS OF THE INSTITUTE ARE MENTIONED AS ACHIEVERS-- R. KAZAKOV, S. GDALIN, V. SEMENOV, YU. KIPRIANOV, YE. CHUVPILO, AND V. ZAVAROV. ALL ARE MEMBERS OF THE COMMUNIST PARTY.

19571886

1/2 012 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--A SIMPLE SEMIEMPIRICAL SCHEME FOR CALCULATING SPIN DENSITY
DISTRIBUTION IN ORGANIC LIGANDS OF PARAMAGNETIC COMPLEXES -U-
AUTHOR-(02)-ZHIDOMIROV, G.M., CHUYLYKIN, N.D.
COUNTRY OF INFO--USSR
SOURCE--TECR. EKSP. KHIM. 1970, 6(2), 254-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC COMPLEX COMPOUND, PYRIDINE, ANILINE, PARAMAGNETISM,
CALCULATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/F09 STEP NO--UR/0379/70/006/002/0254/0258
CIRC ACCESSION NO--APO140342

2/2 012 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NU--AP0140342
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CLASS OF EQUATIONS WAS USED FOR
INVESTIGATION OF SPIN D. DISTRIBUTION IN ORG. LIGANDS OF PARAMAGNETIC
COMPLEXES. CALCNS. WERE CARRIED OUT FOR PYRIDINE, PHNH SUB2, AND ALPHA,
BETA, AND GAMMA PICOLINE. FACILITY: INST. KHIM. KINET.
GORENIYA, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 539.4.015

MATVEYEVA, M. P., and CHUYAN, A. M., Moscow

"The Separation of Carbides During High-Temperature Heat and Mechanical Working"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 151-155.

Abstract: The influence of high temperature heat and mechanical working (HBMW) on self-tempering of type 55KhGSFA steel was studied. At optimal HBMW modes, the process of self-tempering of martensite and separation of more dispersed carbides are observed, assuring a high combination of mechanical properties of the steels. These processes doubtless reflect the state of the austenite during the process of HBMW before the martensite conversion. The austenitization temperature, temperature and degree of deformation of the austenite change the state of the austenite and cause a displacement of the position of the martensite point.

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USSR

UDC 539.4.015

MATVEYEVA, M. P., and CHUYAN, A. M., Moscow

"The Separation of Carbides During High-Temperature Heat and Mechanical Working"

Moscow, Fizkia i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 151-155.

Abstract: The influence of high temperature heat and mechanical working (HBMW) on self-tempering of type 55KhGSFA steel was studied. At optimal HBMW modes, the process of self-tempering of martensite and separation of more dispersed carbides are observed, assuring a high combination of mechanical properties of the steels. These processes doubtless reflect the state of the austenite during the process of HBMW before the martensite conversion. The austenitization temperature, temperature, and degree of deformation of the austenite change the state of the austenite and cause a displacement of the position of the martensite point.

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Thermomechanical Treatment

USSR

UDC 669.24:539.4

BERNSHTEYN, M. L., VLADIMIRSKAYA, T. K., LAPTEV, D. V., and CHUYAN, A.M.,
Moscow Institute of Steel and Alloys

"Stability of the Thermomechanical Strengthening Effect in Gonzo Nickel Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 403-408

Abstract: The effect of repeated heating after prior thermomechanical treatment on the properties and structure of austenite and martensite was studied for 60N20 steel which had the following chemical composition (in %): 0.61 C, 20.44 Ni, 0.11 Mn, 0.18 Si, 0.010 S, and 0.001 P. Temperatures of the direct M_s and inverse A_s martensite transformation were -35 and $+420^\circ\text{C}$, respectively. Results of mechanical tests and electron microscopy examinations showed that the effect of thermomechanical strengthening is preserved during the repeated heatings to 650 and 950°C , followed by quenching, because the accelerated heating promotes growth in the strength properties of the austenite and martensite as a result of phase cold hardening. The morphological features, forming in the austenite during repeated quenching, are the result of the reverse alpha-gamma transformation. In austenitic samples, subjected to high-temperature thermomechanical treatment with repeated quenching, preservation of the developed polygonal

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BERNSHTEYN, M. L., Fizika Metalloy i Metallovedeniye, Vol 35, No 2, Feb 73,
pp 403-408

structure can be observed. Dislocation structures formed in the austenite are caused by the combined action of thermomechanical treatment and phase cold hardening during the gamma-alpha-gamma transformation. 5 figures, 6 bibliographic references.

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1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THE ELECTRON MOMENTUM DISTRIBUTION FUNCTION OF A P-TYPE
SEMICONDUCTOR WITH AN ARBITRARY BAND STRUCTURE IN THE PRESENCE OF
AUTHOR--CHUYENKOV, V.A. C
COUNTRY OF INFO--USSR
SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, MAY 1970, P. 860-868
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRON DISTRIBUTION, DISTRIBUTION FUNCTION, SEMICONDUCTOR
BAND STRUCTURE, ELECTRIC FIELD, MAGNETIC FIELD EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--AP0136318
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136318

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GENERALIZATION OF A METHOD PROPOSED BY KELDYSH (1965) FOR CALCULATING BOTH THE EXPONENTIAL FUNCTION AND THE PREEXPONENTIAL MULTIPLIER IN THE ELECTRON MOMENTUM DISTRIBUTION FUNCTION OF A P-TYPE SEMICONDUCTOR WITH AN ARBITRARY BAND STRUCTURE IN THE PRESENCE OF ELECTRIC AND MAGNETIC FIELDS. THE PROPOSED METHOD IS SHOWN TO BE APPLICABLE IN THE ASYMPTOTIC REGION AND TO LEAD TO ALREADY KNOWN RESULTS IN LIMITING CASES. USING THE ELECTRON MOMENTUM DISTRIBUTION FUNCTION THUS DETERMINED, A CALCULATION IS MADE OF THE IMPACT IONIZATION PROBABILITY. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 617-001.18-08

ZHADENOV, I. I., ~~CHUYENKOV, V. F.~~, and GORFINKEL', I. V., Chair of Hospital Surgery, Therapeutic Faculty, Saratov Medical Institute

"Recovery of Patients from Deep Hypothermia"

Moscow, Khirurgiya, No 1, 1970, pp 126-127

Abstract: Excerpts from the case histories of two drunks brought to the hospital unconscious (the rectal and axillary temperatures were 24.6° C and 23.6° C in one and 22.8° C and 21.8° C in the other) and successfully resuscitated by active therapy are presented. Therapy included transfusions of whole blood, 10% glucose solution, blood substitute, protein hydrolysates, intravenous injection of sodium bicarbonate, vitamins, hydrocortisone, novocain block, and oxygen therapy.

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243219 TENSOMETRIC COMMAND SENDER, designed for the purpose of the remote control by electrical means of an object in a plane-rectangular co-ordinate system, has a point of improvement over other designs in that it enables one operator to control simultaneously both the object concerned and its carrier with an accuracy of no lesser magnitude than that of the two operations separately. The transmission device consists of a thin-walled metal tube and end flange 1, along the stem of which are cemented four diametrically opposed strain gauges 6. The unit is enclosed in a body 5, together with

AUTHORS: Kolosov, A. P.; Timin, R. I.; Chuyev, V. G.; Chesunov, V. V.

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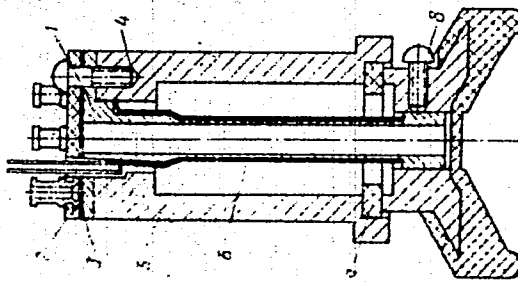
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insulating disc and terminal plate 3,2 by screws 4. The lower end of the body is sealed by the control knob 7, fastened to the gauge tube by screws 8 and seated on a rubber washer 9. The four strain gauges are connected, one each, into an arm of DC bridges, whence the signals pass through parallel units of modulator, amplifier (DC) and demodulator, to two outputs controlling the respective movements of the object. The reduced diameter of 7 serves to limit the bending of the gauge tube at its lower end.

5.7.67 as 1169786/40-23.A.P.KOLOSOV et alia(24.9.69)
Bul 16/5.5.69. Class 42k. Int.Cl.G 01 1.



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USSR

UDC: 8.74

KUZ'MIN, V. I., LEBEDEV, B. D., CHUYEV, Yu. V.

"Ways to Improve Analytical Models of Development"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works),
vyp. 24, Moscow, "Nauka", 1971, pp 5-14 (from RZh-Kibernetika, No 4,
Apr 72, Abstract No 4V602)

Translation: The paper investigates ways to improve models of develop-
ment based on analysis of existing models of specific processes. Bibli-
ography of 28 titles. Authors' abstract.

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USSR

UDC 616.936-084.4(470.41)

CHUYEVA, S. V., and YAKOBSON, B. L., Republic Sanitary Epidemiological Station of the Tartar ASSR, Kazan'

"Organization of Malaria Control, Eradication of Malaria, and Prophylaxis of this Disease in the Tartar ASSR"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 747-750

Abstract: During 1920-70 there were two significant rises in the incidence of malaria in the Tartar ASSR, one in 1923 and another in 1935. In 1936-43 the incidence of malaria steadily decreased. There was a slight increase in 1943-44 as a result of conditions due to World War II, but the increase brought about by the war was insignificant, because measures for the control of this disease were not interrupted. In 1951 malaria was eliminated as a mass disease in the Tartar ASSR. In 1962 there was only a single case of malaria there that originated locally. In 1966-70 there were individual cases of malaria among USSR citizens who had returned from assignments in African and Asian countries and had become infected there. In 1962 there were 32 antimalaria stations, which in 1955 were incorporated in the sanitary epidemiological stations. Mass examination of the population for the presence of malaria was carried out; in the period after World War II, up to 600-800 thousand persons per year were

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CHUYEVA, S. V. and YAKOBSON, B. L., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 747-750

examined. In 1954, the number of persons examined had been increased to 910 thousand to establish reliably that malaria as a mass disease had been actually eradicated. In regions in which the chances of infection with malaria were great, chemoprophylaxis was carried out on an extensive scale. Dusting against mosquitoes and draining of areas covered with stagnant water were applied. While malaria has been eliminated, the danger of the development of new foci of infection still exists. In connection with the construction of the Volga Reservoir imeni V. I. Lenin and its filling starting with 1956, shallow flooding developed in areas at Kazan', Chistopol', and Zelenodol'sk as well as in 13 rayons with the result that favorable conditions for the breeding of Anopheles mosquitoes were created. However, because of the effective measures taken, malaria did not appear in the regions in question. Great attention is being paid to the prevention of malaria at the site of the construction of the Kama Automobile Plant at Nabrezhnyye Chelny, which will be located in an area in which malaria may develop, and in the 3 km zone of populated localities downstream from there, which will be affected by the construction of the dam of the Lower Kama Hydroelectric Station.

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USSR

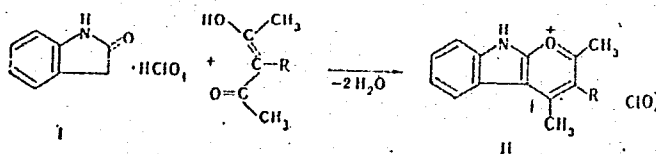
UDC 547.816'759.3

CHUYGUK, V. A., Kiev Institute im. T. G. Shevchenko

"Method for Preparing Pyrano 2,3-b indol Compounds"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, 5, May 1973, p 713

Abstract: It was reported that oxindol in alcoholic HCl reacted with formyl-ketones to form derivatives of pyrano [2,3-b] indols. β -Diketones will undergo a similar reaction with HClO_4 as follows:



Compounds were prepared for $\text{R}=\text{H}$ and C_2H_5 . Compounds (II) gave a polymethine color when heated with p-dimethylaminobenzaldehyde in acetic anhydride.

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USSR

C UDC 547.789.6 + 547.859.3

SHUL'GA, S. I., and CHUYGUK, V. A., Kiev Technological Institute of the Food Industry, Kiev, Ministry of Higher and Secondary Specialized Education RSFSR; Kiev State University imeni T. G. Slenchenko, Kiev, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Thiazolo(3,2-*a*)pyrimidinium Salts. Synthesis From Salts of α -Aminothiazoles and Symmetric β -Diketones"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 5, May 70, pp 483-485

Abstract: The authors used a previously suggested method of preparing condensed pyrimidinium salts for the synthesis of thiazolo-pyrimidinium salts by the condensation of simple salts of α -aminothiazoles with β -diketones. Simple salts (halogen derivatives and particularly perchlorates) of α -aminothiazoles, -benzothiazoles, -naphtho(2,1-*d*)thiazole and -2-thiazoline were used. The β -diketones used were acetylacetone, methyl- and ethylacetylacetones and dibenzoylmethane.

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USSR

UDC 621.396.6.002:621.793

MIDELYSHEVA, L. I., CHUYKO, G. M.

"Thermomechanical Reliability of Seals Between 22K₂S Ceramic and Molybdenum-Manganese Metallizing Coatings, and Between 22K₂S Ceramic and Molybdenum-Manganese-Titanium Metallizing Coatings"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronics Technology. Scientific and Technical Collection. Gas-Discharge Devices), 1970, Vyp. 1 (17) (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V296)

Translation: The authors give the results of a comparative analysis of thermomechanical reliability of joints with Mo-Mn-Ti and Mo-Mn metallizing coatings under tropical climatic conditions and temperatures up to 700°C in air. It is found that metallo-ceramic seals with Mo-Mn-Ti metallization are more reliable. It is shown that the thermomechanical reliability of joints with Mo-Mn-Ti metallization is reduced by active oxidation of the solder; the thermomechanical reliability of joints with Mo-Mn metallization is reduced by uncontrollable changes in the spinel layer. Resumé.

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