1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE TECHNIQUE OF ISOLATING TETANUS HEMOLYSIN AND STUDY OF SOME OF ITS PROPERTIES -U-

AUTHOR-(02)-GOLSHMID, V.K., ZAKGEYM, D.A.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 116-118

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TETANUS, GEL, FILTRATION, TOXIN, HEMOLYSIN, ERYTHROCYTE, HEMOGLOBIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0209 STEP NO--UR/0219/70/069/005/0116/0118

CIRC ACCESSION NO--AP0120907

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120907

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GEL FILTRATION ON COLUMNS WITH SEPHADEX G-100 WITH THE RATIO OF THE HEIGHT TO THE DIAMETER FROM 25 TO 1 TO 87.5 TO 1 ENABLED TO ISOLATE TETANUS HEMOLYSIN AND NEUROTOXIN. THE ADMINISTRATION OF PURIFIED TETANUS HEMOLYSIN TO RABBITS DID NOT CAUSE MANIFESTATIONS OF TETANUS, BUT RESULTED IN A REDUCTION OF THE QUANTITY OF ERYTHROCYTES AND HEMOGLOBIN IN THE BLOOD. THE SEDIMENTATION COEFFICIENT OF HEMOLYSIN COMPRISED 3.22S, THE MOLECULAR WEIGHT ACCORDING TO GEL FILTRATION DATA, 55,000-60,000. THE PH OPTIMUM, TEMPERATURE COEFFICIENT AND INFLUENCE OF SOME CHEMICAL SUBSTANCES ON THE ACTIVITY OF HEMOLYSIN WERE DETERMINED. FACILITY: MOSCOW INSTITUTE OF VACCINES AND SERA.

UNCLASSIFIED

Acc. Nr: AP0051532 Abstracting Service: METALS ABST. 4-70 Ref. Code: 4R0136

46 0019 **Effect of Composition on the Hot Shortness of Aluminium–Magnesium–Silicon Alloys.** G. M. Vorob'ev, R. M. Gol'shtein, I. I. Maurits, and A. A. Manina. Tsvet. Metally, Nov. 1969, (11), 65-66 [in Russian].

The hot shortness of a number of alloys belonging to the Al–Mg–Si system was studied as a function of Mg and Si content (0.45-1.2 and 0.2-0.9%, resp.). The hot hardness was determined by studying crack development in annular samples, making 10 determinations for each. For low Mg contents the hot hardness was independent of Si content. For alloys contg. 0.65% Mg the hot hardness fell sharply with increas ing Si content, reaching 16-20% at the upper end of the composition range. This agrees with existing data.—G. A.

X-REF. See also 7004-35 0297.

REEL/FRAME
19811744

USSR

UDC: 512.25/.26+519.3:330.115(02)

GOL'SHTEYN, Ye. G.

"The Theory of Duality in Mathematical Programming and its Applications"

Teoriya dvoystvennosti v matematicheskom programmirovanii i yeye prilozheniya (cf. English above), Moscow, "Nauka", 1971, 351 pp, ill. 1 r. 28 k. (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V487 K)

Translation: The monograph deals with the theory of duality formulated in recent decades for an extensive class of extremum problems in functional spaces. Here a general analytical scheme is given for formulating dual problems, theorems of duality are established, criteria of optimality are derived. In particular, the general theory of duality enables derivation of many new results for mathematical programming. It may also find application in various divisions of mathematics. In the monograph the dualistic approach is used for solving a number of problems in the theory of approximations. In particular it is used as the basis for constructing a very general theory of optimum approximation with additional limitations.

Chapter 1--Necessary Data From Functional Analysis; Chapter 2--Generalized Relations of Duality; Chapter 3--Theorems of Duality for

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USSR

GOL'SHTEYN, Ye. G., Teoriya dvoystvennosti v matematicheskom programmirovanii i yeye prilozheniya, Moscow, "Nauka", 1971, 351 pp, ill. 1 r. 28 k.

Problems of Convex Programming; Chapter 4--Linear Reference Functions and Concretization of the Formulations of Dual Problems and Criteria of Optimality; Chapter 5--Finite-Dimensional Problems of Convex Programming; Chapter 6--Problems in Fractional-Convex Programming; Chapter 7--Problems of Optimum Approximation by Elements of a Convex Set; Chapter 8--Problems of Optimum Approximation With Additional Limitations; Chapter 9--Some Classes of Problems of Optimum Approximation With Additional Limitations; Chapter 10--Extremum Problems in Complex Programming. Bibliography of 100 titles.

2/2

USSR

GOLST, G.

"Oscillations of a Mechanical System with a Finite Number of Degrees of Freedom under the Effect of a Continuous Repeated Load"

Tr. Tallin. politekhn. in-ta (Works of Tallin Polytechnical Institute), 1970, A, No 293, pp 83-93 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11A135)

Translation: This article contains a study of small linear oscillations of systems with any finite number of degrees of freedom under the effect of a continuous repeated load of finite duration for the general case of sign-variable forces of different magnitude and different duration of effect. When determining the displacements of the masses of a mechanical system only the first two principal forms of oscillations are considered. The solution is given both considering the forces of resistance and without them. The total oscillations are defined as the sum of the natural and forced oscillations. The bibliography has 12 entries.

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AP0003333 CHEMICAL ABST. 12/69 4R0032

108936q Determination of 4,6-dinitro-m-xylene in m-xylene nitration products. Kaminskii, A. Ya.; Gol'tsuzen, E. E.; Gitis, S. S. (Vses. Nauch.-Issled. Proekt. Inst. Monomer., USSR). *Zavod. Lab.* 1969, 35(6), 662–4 (Russ). The products of nitration of *m*-xylene are both 4,6- and 2,4-dinitro derivs. To analyze the mixt., the isomers are reacted with ketones or with other compds. contg. an active methylene group in a basic medium (Janovsky reaction). The 4,6-deriv. forms 1 colored product with max. absorption at 646 nm. and the 2,4-deriv. forms a complex with a short-wave max. absorption. The compn. of the isomer mixt. may be thus detd. spectrometrically. Et_4NOH is used as a base (in C_6H_6–MeOH soln.) because the colored products are more stable than in KOH–H_2O soln. With Me_2CO as the nucleophilic agent, the max. values were at 650 nm. for the 4,6-deriv. and 416 nm. for the 2,4-deriv. $HCONMe_2$ can be used instead of Me_2CO; the max. are almost the same and the products are more stable. For the 4,6-deriv. there is a wide range of MeOH concn. in which absorptivity is const. At 660 nm., the 2,4-complex also absorbs; however, absorbance decreases with increasing MeOH concn. in the mixt. The optimum concn. of MeOH in the mixt. is 8.5%, the complex with 2,4-isomer is not formed, and the content of the 4,6-deriv. can be detd. (1 component anal.). The optimum concn. of Et_4NOH is 0.010*M*, in this region the absorbance is independent of the base concn. The colored complex of the 4,6-isomer obeys Beer's law, the molar absorptivity is 1.04×10^4 l./mole cm. The relative error is ~±4%. L. J. Zeman

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19521557

USSR UDC 616.001.4-08

SHCHUR, V. V., MAKEYEVA, N. S., ARENBERG, A. A., GOL'TS, M. V., and NIKANOROV, YU. A., Fryazino Central Municipal Hospital

"Use of a Laser to Treat Wounds"

Leningrad, Vestnik Khirurgii imeni I. I. Grekova, No 6, 1972, pp 85-89

Abstract: A helium-neon laser (output power 10 milliwatts, wavelength 6328 Å) was used to treat 25 patients with persistent non-healing wounds and trophic ulcers of the lower extremities that had previously shown no response to conservative treatment, physical therapy, or surgery. The course of treatment included 12 to 25 daily sessions with the initial exposure of 20 to 30 seconds gradually increased to several minutes. The results showed complete healing of the wounds with the formation of a rather elastic connective-tissue scar and epithelization in 19 and marked contraction of the wound area in 4. In the great majority of patients, active growth of granulations in the wound and start of epithelization at the margins were evident after 3 to 5 sessions. Neither the microflora of the wound nor the main hematological indexes (except a slight decrease in the WBC after 70 to 10 procedures and near normalization by the end of treatment) were significantly affected by the laser radiation. Follow-up of 16 patients for 3 to 7 months revealed no recurrences of the wounds.

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USSR UDC: 621.373.531.1(088.8)

AL'TER, A. M., GOL'TS, M. Ye., GUDZENKO, A. B., OSTREROV, V. M., Ukrainian Scientific Research Institute of Machine Tools and Cutting Tools

"A Transistorized Pulse Generator"

USSR Author's Certificate No 269987, filed 22 Jul 68, published 4 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G231 P)

Translation: This Author's Certificate introduces a transistorized pulse generator which contains a multivibrator and an additional transistor of opposite conductivity type connected in a common base circuit. To simplify the device, a time-mark capacitor is connected to the collector of the additional transistor and to the emitter of one of the multivibrator transistors. This time-mark capacitor is simultaneously connected through a resistor, two capacitors and a second resistor to the collector of the other multivibrator transistor.

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1/2 036 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--FROM THE "OKEAN" WAR GAMES REGION THE HUNT -U-

AUTHOR--GOLTSEV, V.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA, APRIL 25, 1970, P 3, COLS 4-5

DATE PUBLISHED--25APR70

SUBJECT AREAS--MILITARY SCIENCES, MECH., IND., CIVIL AND MARINE ENGR, AERONAUTICS
TOPIC TAGS--WAR GAMES, MILITARY TRAINING, ANTISUBMARINE WARFARE, ATTACK AIRCRAFT, ATTACK HELICOPTER, COMBATANT SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0075 STEP NO--UR/9003/70/000/000/0003/0003

CIRC ACCESSION NO--AN0100634
UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AN0100634

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SUCCESSFUL COMBINED ASW OPERATIONS BY THE LAND BASED AIRFORCE, CARRIER BASED HELICOPTERS, AND THE SURFACE FLEET DURING "OKEAN" WAR GAMES ARE MENTIONED.

UNCLASSIFIED

JPRS 59863
22 Aug 73 (3)

THE BEHAVIOR OF RARE-EARTH-BASED ABSORBING MATERIALS UNDER IRRADIATION

[Paper by V. P. Gol'tsev, T. M. Buseva, and V. M. Boytsov, Scientific Research Institute for Atomic Reactors imeni V. I. Lenin, Dimitrovgrad, USSR; Dimitrovgrad, Pogloshchayeshchiye materialy i sterzhni regulirovaniya bystrykh reaktorov (Absorbing materials and control rods for fast reactors), Russian, International Working Group for Fast Reactors Specialists Meeting, Dimitrovgrad, 4-8 June 1973]

The results of an investigation of the radiation stability of pure and alloyed europium oxide, irradiated at temperatures of 500 - 600°C by an integral flux of 1×10^{22} neutrons per square centimeter are given. The dimensional and structural stabilities and compatibility with the jacket (cladding) material were studied. Conclusions were made concerning the application of the absorbents investigated in fast reactors.

1. Introduction

In fast reactors, characterized by a high density of neutron fluxes and considerable operating temperatures, the application of n,γ absorbents is very promising.

The n,γ-absorbing materials differ advantageously from the n,α-absorbents in their lack of nuclear reactions, leading to the formation of gaseous products. In connection with this, the problem of gas liberation and gas swelling is removed, and these are one of the principal radiation effects in n,α-absorbents. In n,γ-absorbents, as a consequence of the capture of neutrons, either isotopes of the initial substance are formed, or atoms of the adjacent element in the periodic system.

GOL'TSEV, V.P.

GOL'TSEV, V.P.

TTS 57563

(6)

B

THE BEHAVIOR OF BOR-60 REACTOR CONTROL AND SAFETY RODS DURING THEIR OPERATION

[Article by S. N. Votinov, V. P. Gol'tsev, P. N. Guseva, R. I. Mineyev, V. I. Prokhorov, and V. V. Chusanov, Scientific Research Institute of Atomic Reactors imeni V. I. Lenin; Dimitrovgrad, Pogloshchayushchiye materialy i sterzhni regulirovaniya bystrykh reaktorov, Russian, International Working Group for Fast Reactors Specialists Meeting, International Atomic Energy Agency, Dimitrovgrad, 4-8 June, 1972]

The results of an investigation of automatic regulation (AR) rods, burn-up compensation (KS-2) rods, and rods for compensation of the temperature and power effects of reactivity (KS-1), which had operated in the BOR-60 from 1 year to 2.5 years, are given. It was established that the basic radiation effects determining the efficiency of the PEL (absorbing elements) is the bulging (swelling) of the carbide, the magnitude of which is associated with temperature and burn-up. Gas liberation from B_4C at working temperatures for the operation of the rod is not great and does not exceed 10% out of the total formed.

1. Introduction

In a reactor, for reliable operation, regulating rods of various designation are used: emergency protection (AZ) rods, automatic regulation (AR) rods, and rods for compensation of burn-up and temperature effects (KS).

The requirements imposed upon them also differ. Thus, for AZ rods the main thing is the efficiency of the absorbent, and requirements with respect to radiation resistance are less rigid. AR and KS rods, their high radiation resistance must be the basic factor.

GOL'TSEV, V.P.

JPRS 59565
30 Aug 73
(3)
3

BORON CARBIDE PROPERTIES AND BEHAVIOR UNDER IRRADIATION

[Paper by V. P. Gol'tsev and T. M. Guseva, Scientific-Research Institute for Atomic Reactors imeni V. I. Lenin; Dimitrovgrad, Poglosshchayushchiye materialy i sterzhni regulirovaniya bystrykh reaktorov (Absorbing Materials, Control Rods for Fast Reactors), Meeting of specialists of the International Working Group for Fast Reactors, Russian, Dimitrovgrad, 4-8 June, 1973]

The physico-mechanical properties of boron carbide, having various physical densities and enrichments with ^{10}B, are presented. The irradiation effects in boron carbide are considered, and also its behavior during irradiation, depending upon the initial structure and composition, density and enrichment, temperature and neutron spectrum. On the basis of an analysis of the investigations made, conclusions were reached concerning the variation of the basic properties of boron carbide, determining its radiation stability, and the boundary conditions for its applicability have been established.

1. Introduction

Boron carbide is the most widely distributed absorbing material in SUZ organs and the biological shield of nuclear reactors that are operating, under construction, or being designed at the present time. This is explained by a number of the favorable properties of boron carbide, among which we should include: its high capability for the absorption of neutrons as a consequence of the large absorption cross-section and the concentration of boron-10 nuclei per unit volume; its low density; its high thermal conductivity; its good workability; and the availability and economical production of boron carbide based on natural boron.

GOL'TSEV, V.P.

EFFECTIVENESS OF SUZ (CONTROL AND SAFETY RODS) OF FAST REACTORS AND MEANS OF INCREASING IT

(Paper by V. P. Gol'tsev and T. M. Gusev, Scientific Research Institute of Atomic Reactors imeni V. I. Lenin, Dimitrovgrad)

Dimitrovgrad, Poslednaya bystrykh reaktorov (Absorbing materials and control rods for fast reactors), International Working Group for Fast Reactors Specialists Meeting, Dimitrovgrad, 4-8 June, 1973

By working from operating conditions of SUZ rods of fast reactors and the requirements imposed upon them, with a consideration of the specifics of the operation, criteria are proposed for evaluation of the efficiency of the REL (absorbing elements) of fast reactors. Ways are considered for increasing the efficiency of SUZ rods of fast reactors, the realization of part of which made it possible to increase the service life of the AR (automatic regulation) and EP rods of the BOR-60 reactor.

1. Introduction

The development of atomic power engineering in the Soviet Union is characterized by two stages. At the first stage, the basis of atomic electric-power stations (AES) consisted of water-cooled, water-moderated and uranium-graphite reactors operating on thermal neutrons. In the second stage, which will begin in 1980-85, reactors operating on fast neutrons will take the dominating position in AES [1].

For the purpose of accumulating experience in the development and operation of fast reactors of large capacity, several fast reactors are successfully operating in the USSR and others are under construction. These are the operating BN-5 and BOR-60 reactors, the BN-350 reactor, which is being prepared for

UDC 669.725:621.039.5

USSR

ZAVGORODNIY, A. YA., GOL'TSEV, V. P., CHECHETKINA, Z. I., SERNYAYEV, G. A.

"Kinetics of Gas Swelling of Irradiated Beryllium"

Radiatsion. fiz. tverd. tela i reaktornove materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 221-231 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I834)

Translation: Dilatometric and metallographic methods were used to study the kinetics of gas swelling of hot-extruded Be irradiated at 70° with doses of $3.7 \cdot 10^{21}$–$2 \cdot 10^{22}$ neutrons/cm^2 in the temperature range of 100-900°. The presence of three sections on the temperature-swelling curves of irradiated beryllium was detected. The bibliography has 1 entry.

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Beryllium

USSR

UDC 669.725.621.039.5

GOL'TSEV, V. P., CHECHETKINA, Z. I., SERNYAYEV, G. A.

"Radiation Damage to Beryllium With Low-Temperature Neutron Bombardment"

Radiatsion. Fiz. Tverd. Tela. i Reaktornoye Materialoved. [Solid State Radiation Physics and Reactor Materials Science -- Collection of Works], Moscow, Atomizdat Press, 1970, pp. 213-220. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I807 by V. B.).

Translation: The bombardment of hot-pressed Be with an integral fast neutron flux of about $5 \cdot 10^{21}$ cm^{-2} causes no notable changes in mechanical properties. Increasing the dose to $4 \cdot 10^{22}$ cm^{-2} causes a decrease in density of 1.5% as a result of the appearance of microfissures and discrete cavities along the grain boundaries. 3 figs; 4 biblio refs.

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USSR

UDC 669.822:621.039.5

ZAVGORODNIY, A. YA., GOL'TSEV, V. P.

"Study of Gas Swelling of Uranium Under Annealing Conditions"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 197-203 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I826)

Translation: Metallic uranium of industrial purity was irradiated at 300° to 0.2 and 0.45% burn-up. The swelling during post-radiation annealing was studied with the help of a remote dilatometer. After rapid heating to each temperature the sample was held isothermally until the elongation rate as a result of swelling dropped to ~1 micron/hour. The swelling process begins at an annealing temperature of ~425°. The swelling to 700° is insignificant (elongation of 0.4%); the $\alpha \rightarrow \beta$ transition is not accompanied by noticeable swelling. Intense swelling begins at 759° and lasts >13 hours; the volume of the sample increases by 13% in this case. On conversion to the γ-phase, the swelling intensity again increases; however, above 830° the swelling practically stops. The total increase in size of the sample is 19%. There are 6 illustrations and a 3-entry bibliography.

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USSR UDC 621.039.532.5:621.039.553

CHECHETKINA, Z. I., GOL'TSEV, V. P., KLIMENKOV, V. I., VOTINOV, S. N., and TSYKANOV, V. A.

"Behavior of Metallic Beryllium in the SM-2 Reactor"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

Abstract: Metallic beryllium has been used in the SM-2 reactor since 1962 in the system for expelling water from the neutron trap. The expulsion system consists of four inserts placed between the fuel assemblies and the central channel located in the neutron trap. Each insert consists of two blocks. The bottom part of the safety rods is also made of beryllium. In 1964 the reactor design was modified by replacing the beryllium oxide reflector with metallic beryllium. Since then experimental material has been accumulated on the stability of metallic beryllium under SM-2 conditions. The article presents some of the data. Experiments were conducted on specimens cut out of the inserts and safety rods before and after being held in the reactor. The inserts were made of not-pressed blocks of dis-

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

tilled powder beryllium, the safety rods fabricated by hot extrusion from hot-pressed blocks. The investigated parts found in the neutron trap underwent the maximum irradiation. The thermal-neutron flux over the cross section of the inserts was $1.5 \cdot 10^{15} - 5 \cdot 10^{14}$ nv, the fast-neutron flux $1 \cdot 10^{15}$ nv and energy release through gamma absorption 100 w/g. The main emphasis was on dimensional stability, density, structural changes, and mechanical properties of beryllium.

It was found that the surface condition depends on the water quality, the total time spent in the water by the beryllium, and the integral irradiation dose. A photograph taken of the inserts during the 1962-1964 period shows extensive pitting regions, while a photograph taken subsequently, when the quality of the medium was improved, shows only individual traces of pitting. An increase in the irradiation dose on the surface of the

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

blocks produces macrocracks in addition to the pitting. No changes were found in the geometric dimensions of the investigated parts even after irradiation with fast neutrons to an integral dose of (3-4) · 10^{22} neutrons/sq cm. The density of the beryllium remained constant in all cases up to doses of (5-7) · 10^{21} neutrons/sq cm. A decrease in density to 1.5 percent was found in individual specimens cut out of blocks irradiated with doses of 10^{22} neutrons/sq cm or more. There is practically no change in the density of hot-extruded beryllium at the above doses. Up to $5 \cdot 10^{21}$ neutrons/sq cm there is no appreciable change in the microstructure of hot-pressed beryllium. At an integrated flux of about 10^{22} neutrons/sq cm there are twins, slip lines, microcracks, and appreciable discrete porosity, primarily along the grain boundaries. Higher doses result in fur-

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CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 174-177

ther porosity development and the spread of microcracks over the grain boundaries, as well as the grains themselves. No appreciable changes are found in the microstructure of hot-extruded beryllium irradiated with an integrated flux of up to $1.5 \cdot 10^{22}$ neutrons/sq cm; there are no microcracks. There is a sharp increase in microhardness up to an integrated flux of $(3-5) \cdot 10^{21}$ neutrons/sq cm. The compression strength remains practically unchanged up to a dose of $(3-5) \cdot 10^{21}$ neutrons/sq cm, but declines with a higher dose. Yield point is unchanged up to 10^{20} neutrons/sq cm, but rises with a higher dose. The influence of the build-up of helium and tritium products is considered.

The results indicate that the permissible irradiation dose for beryllium parts which carry no external mechanical loads is an integrated fast-neutron flux of $2 \cdot 10^{22}$ neutrons/sq cm.

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USSR UDC 621.039.532.5

CHECHETKINA, Z. I., GOL'TSEV, V. P., KAZAKOV, V. A., SERNYAYEV, G. A., and BAZYUKIN, V. G.

"Radiation Damage to Beryllium by High-Temperature Irradiation"

Moscow, Atomnaya Energiya, Vol 30, No 5, May 71, pp 434-438

Abstract: Radiation damage to beryllium by high-temperature irradiation is aggravated by the fact that the atoms of helium and tritium forming in the irradiation process, by having sufficient diffusion mobility and by combining, form a nucleus of gas bubbles which under certain conditions may lead to significant swelling of the material and to changes in its mechanical properties.

This article is concerned with the experimental results of studying the physico-mechanical properties of beryllium following irradiation at various temperatures by an integrated fast neutron flux of $6 \cdot 10^{20}$ neutron/cm^2. The authors give six illustrations to demonstrate their findings.

On the basis of their study the authors make several conclusions. Radiation damage is manifested in beryllium in its swelling and hardening. The swelling attained in the process of irradiating beryllium depends to a large degree both on its structural state and on the temperature of the

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USSR

CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 30, No 5, May 71, pp 434-438

irradiation. The fused material in the entire investigated temperature range does not undergo substantial swelling. Materials hot-extruded from powder with dimensions less than 60 and 600 μm do not undergo extensive swelling in the temperature range below 600° C. Hot-extruded materials begin to swell noticeably at a temperature of 600° C and continue to swell as the temperature of irradiation is elevated. A material, hot-extruded from powder with dimensions less than 600 μm has a greater tendency to swelling than does a material obtained from a powder with dimensions less than 60 μm.

The strength properties of beryllium depend to a very large degree on the irradiation temperature. Electron microscopic studies show that the characteristics of change in the properties of the materials correlate well with the characteristics of the behavior of the helium accumulated in them. The behavior of this same helium in materials prepared by various techniques is predetermined to a large degree by their structural states.

This article contains 6 figures and a bibliography of 6 titles.

2/2

USSR UDC: 620.171

Sobolev, N. D., Morozov, Ye. M., Markochev, V. M., Gol'tsev, V. Yu., Sapunov, V. T., Bobrinskiy, A. P., Moscow

"Experimental and Theoretical Study of the Rupture of Sheet Materials with Cracks"

Kiev, Problemy Prochnosti, No 7, 1972, pp 45-49.

Abstract: Methods are presented for producing rupture diagrams during tensile testing of flat specimens with an initial crack. The results of testing of specimens of sheet material of various thicknesses of aluminum and titanium alloys, as well as certain steels, are studied.

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USSR UDC 577.3

KOGAN, A. B., SACHAVA, T. S., DOROZHKINA, L. I., PAVELKO, V. M., and GOL'TSEVA, I. N.

"The Mechanism of the Effect of a Constant Magnetic Field"

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 56-68

Abstract: An investigation was made of the effect of a constant magnetic field on organisms of different evolutionary levels. During experiments on infusoria, a change in movements, redistribution and reduction of RNA (protoplasmic), and an increase in aerobic glycolysis was observed under the influence of a constant magnetic field. In the cells of nitella algae, a reduction in dormancy potential during the effect of a magnetic field was detected using the technique of intracellular registration of biopotentials. The effect depended on the intensity of the field being used and on seasonal conditions under which the experiment was conducted. In studying a single nerve cell of the muscle extension receptor of a crab, it was established that a magnetic field of 500 Oe with an exposure of 30 minutes causes an inhibitory reaction in the neuron whose intensity depended on the season. Structural changes in the neurons were characterized by disintegration of small RNA chunks and RNA accumulation
1/2

USSR

KOGAN, A. B., et al., Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 56-68

in the perinuclear area. The physiological activity of adrenalin exposed to a magnetic field changed when it was tested on an isolated frog heart according to the Shtrauber method.

2/2

USSR UDC: 536.468

TODES, O. M., IONUSHAS, K. K., GOL'TSIKER, A. D., and ABDURAGIMOV, I. M.

"Investigating the Inhibition of Flame Propagation in Air-Dispersed Systems"

Novosibirsk, Fizika goreniya i vzryva, No 2, 1973, pp 204-210

Abstract: This paper is the follow-up of an earlier article (O. M. Todes, et al, Tretiy Vses. simpozium po goreniyu i vzryvu, Author's abstract, Chernogolovka, 1971) which developed a theory of the propagation of flames in air-dispersed media due to heat radiation transmission. The present paper considers the principal consequences of this theory, important in the study of the effectiveness of inhibiting the flames for the simplest case in which the radiative front is deep and its frontal limit can be considered a plane. Experiments are described to determine the speeds of the propagation and to compare them, in their order of magnitude, with those specified by the theory; a diagram of the equipment is given with the method of the experiment. The results of the latter confirm the assumption of heat radiation as the means of propagation and demonstrate the effectiveness of flame inhibition by halide hydrocarbons.
1/1

USSR

UDC 536.46:533.6

PODES, O. M., GOL'TSIKER, A. D., GORBUL'SKIY, Ya. G., IONUSHAE, K. K.

"On the Propagation of a Plane Flame Front in Aerodisperse Systems"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 166-170 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B964)

Translation: The technique for calculating the propagation velocity of the standing flame front in aerodisperse systems was developed from the studies of Nusselt and Esseng. Radiant flow from the flame front heats the aerosuspension located ahead of it up to its combustion temperature under conditions that ensure the possibility of steady-state propagation of the front with velocities from meters up to tens of meters per second. The possibility of the inhibition of flame propagation in the aerosuspension was analyzed theoretically and supported experimentally. 5 ref. Authors' abstract.

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF ACRYLONITRILE COPOLYMERS CONTAINING REACTIVE METHYLOLAMIDE GROUPS -U-
AUTHOR-(05)-POPOVA, G.P., KIRPICHENKO, T.R., GLAZOMITSKIY, K.L., GOLTSIN, B.E., ROSKIN, YE.S.
COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 259-62
DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, ACRYLONITRILE, COPOLYMER, AMIDE, CHEMICAL REACTION RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0966 STEP NO--UR/0153/70/013/002/0259/0262

CIRC ACCESSION NO--AP0124625
UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124625

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCES OF (CH SUB2 CHCNCH SUB2 CME(CONHCH SUB2 OH) SUBN (I) COMPN., YIELD, AND REACTION RATE ON THE COMPN. OF THE MIXT. OF MONOMERS, ACRYLONITRILE (II) AND N-METHYLOLACRYLAMIDE (III), AND ON REACTION TIME WERE DETD. MONOMER REACTIVITY RATIOS OF II AND III WERE 0.98 PLUS OR MINUS 0.05 AND 2.33 PLUS OR MINUS 0.1, RESP. I WAS ENRICHED IN III COMPARED WITH THE ORIGINAL MONOMER MIXT. COMPN. BUT III WAS SPENT SIGNIFICANTLY FASTER AS COPOLYMN. PROCEEDED. COPOLYMN. RATES WERE HIGH (E.G. CONVERSION AFTER 60 MIN FOR A 95:5 II-III MIXT. WAS 75-80PERCENT) BUT THE RATE DECREASED WITH TIME AND WITH INCREASING III CONCN. IN THE ORIGINAL MONOMER MIXT.

FACILITY: LENINGRAD. INST. TEKST. LEGK. PROM. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

GOL'TSMAN, B. M. and KOMISSARCHIK, M. G., Physicotechnical Institute, Academy of Sciences, USSR, Leningrad

"Mechanical Stresses in Films of the Solid Solution $(BiSb)_2Te_3$"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 1, Jan 73, pp 301-303

Abstract: An investigation is made of mechanical stresses in films of an extensively used thermoelectric material, the solid solution $(BiSb)_2Te_3$, and the influence of these stresses upon conductance and the thermo-emf coefficient is evaluated. The stresses acting in the films were evaluated on the basis of flexure of the backings. It was established that the films are in a stretched state, the radius of curvature R of the backing comprising 6-7 mm. Calculations conducted on the basis of a formula for determining the stresses in the film, show that considerable stresses are present in films with a surplus of tellurium and in films of stoichiometric composition; these stresses attain values of 25 kg/mm^2. Subsequent annealing of the films in an atmosphere of spectrally pure argon at a temperature of 380°C brings about a decrease in the radius of flexure, and consequently an increase of the stresses to 50-55 kg/mm^2.

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USSR

GOL'TSMAN, B. M., and KOMISSARCHIK, M. G., Fizika Tverdogo Tela, Vol 15, No 1, Jan 73, pp 301-303

Measurement of conductance and the thermo-emf coefficient in the films under various stress conditions indicates that the stresses acting in $(BiSb)_2Te_3$ films should essentially affect the electrical properties of the film. 1 figure, 7 references.

2/2

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INFLUENCE OF INTRINSIC CONDUCTIVITY ON THE THERMO ELECTRONIC PROPERTIES OF BI SUB2 TE SUB3-X SE SUBX SOLID SOLUTIONS -U-

AUTHOR-(04)-GOLTSMAN, B.M., IKONNIKOVA, G.N., KUTASOV, V.A., SHAPIRO, E.KH.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1402-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INTRINSIC SEMICONDUCTOR, SEMICONDUCTOR CONDUCTIVITY, SOLID SOLUTION, THERMAL EMF, FORBIDDEN ZONE WIDTH, FERMI LEVEL, ELECTRON MOBILITY, BISMUTH COMPOUND, TELLURIDE, SELENIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0889 STEP NO--UR/0181/70/012/005/1402/1409

CIRC ACCESSION NO--AP0131475

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131475

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN TERMS OF THE MODEL IN WHICH THE THERMOELEC. FIGURE OF MERIT, Z, IN THE PRESENCE OF INTRINSIC COND. IS DESCRIBED BY A REDUCED WIDTH OF THE FORBIDDEN BAND, ETA G, THE POSITION OF THE ELECTRON FERMI LEVEL, AND THE MATERIAL PARAMETERS BETA AND GAMMA (BETA IS SIMILAR TO CONST. T PRIME5 OVER 2 (M SUBN) PRIME 3 OVER 2 MU SUBCN OVER X SUBP; GAMMA EQUALS (MU SUBOP OVER MU SUBON) (M SUBP OVER M SUBN) PRIME5 OVER 2 WHERE M SUBN, MU SUBON, M SUBP, AND MU SUBOP ARE THE EFFECTIVE MASSES AND MOBILITIES OF ELECTRONS AND HOLES, RESP., AND X SUBP IS THE THERMAL COND. OF THE CRYSTAL LATTICE), CALCN. WAS CARRIED OUT FOR A SERIES OF VALUES, BETA, ETA G, AND GAMMA. THE REGION OF THE CHOSEN VALUES OF ETA G, BETA, AND GAMMA INCLUDED EXPTL. VALUES OF THESE PARAMETERS OBSD. IN THE INVESTIGATED SYSTEM OF THE SOLID SOLNS. BI SUB2 TE SUB3-X SE SUBX. FOR X IS GREATER THAN 0.3 (FOR SOLID SOLNS. WITH THE WIDTH OF THE FORBIDDEN BAND E SUBG IS GREATER THAN 0.2 EV, ETA G EQUALS 7.8), THE EFFECT OF INTRINSIC COND. ON Z CAN BE NEGLECTED. DUE TO THIS EFFECT, VARIATION OF GAMMA WITH Z IS PRACTICALLY ABSENT. HOWEVER, FOR BI SUB2 TE SUB3, Z IS ONLY SLIGHTLY SENSITIVE TO VARIATIONS IN GAMMA, DEVIATIONS IN GAMMA BY AS MUCH AS 30PERCENT LEAD TO VARIATION IN Z OF 3.5PERCENT. VALUES WERE DETD. OF THERMAL EMF. AND ELEC. COND. FOR MAX. VALUES OF Z FOR ALL INVESTIGATED COMPNS. OF THE SYSTEM BI SUB2 TE SUB3-X SE SUBX. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 8.74

ZHEZHEL', N. F., GOL'TSMAN, F. M., ZHEZHEL', Yu. N.

"Interval Evaluation of the Parameters of Geophysical Objects by Linear, Two-Alternative Recognition With Instruction on Model Material"

Leningrad, Vopr. dinamich. teorii rasprostr. seysmich. voln--sbornik (Problems of the Dynamic Theory of Propagation of Seismic Waves--collection of works), vyp. 13, "Nauka", 1973, pp 190-200 (from RZh-Matematika, No 10, Oct 73, abstract No 10V780 [authors' résumé])

Translation: The paper presents a method and program of two-alternative recognition with instruction on model material used for interval evaluation of the parameters of an object. A compact system is introduced for indexing multiparameter,two-alternative recognition to minimize the number of symbols for automatic control of the selection of kinds of problems to be considered. Specific examples of analysis of problems of two-alternative interpretation of magnetic fields showed certain extremum singularities in the degree of divisibility of classes such as the extremum nature of differentiating parameters or the extremum nature of special measures of divergence with respect to individual receivers on the one hand, while on the other hand these

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USSR

ZHEZHEL', N. F., et al., Vopr. dinamich. teorii rasprostr. seysmich. voln, vyp. 13, "Nauka", 1973, pp 190-200

examples enabled investigation of some governing principles of the behavior of the degree of divergence of classes of fields as dependent both on the number and types of the differentiating parameters and on the magnitude of the complicating random component. The results show the effectiveness of the proposed method for evaluating the degree of divergence of the types of fields to be distinguished in problems with complex model functions.

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USSR

ZHEZHEL', N. F., GOL'TSMAN, F. M. and ZHEZHEL', YU. N., Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln, No 13, Leningrad, Nauka Press, 1973, pp 190-200

value of a random complicating component. The results indicate effectiveness of the method suggested for estimation of the degree of divergence of different types of fields in problems with complex model functions.

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Author's view

USSR

ZHEZHEL', N. F., GOL'TSMAN, F. M. and ZHEZHEL', YU. N.

"Interval Estimate of Parameters of Geophysical Objects by Linear Two-Alternative Recognition with Learning on Model Material"

Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln [Problems of the Dynamic Theory of Propagation of Seismic Waves -- Collection of Works], No 13, Leningrad, Nauka Press, 1973, pp 190-200 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V780)

Translation: A method and program are suggested for two-alternative recognition with learning on model material, used for interval estimation of the parameters of an object. Compact indexing of multi-parameter two-alternative recognition is introduced, allowing the minimum number of symbols to be used for automatic control of the selection of the types of problems studied. Specific examples of analysis of problems of two-alternative interpretation of magnetic fields have allowed, on the one hand, establishment of the presence of certain extreme peculiarities of the degree of differentiability of classes such as extremality with respect to values of delineating parameters or extremality of particular measures of divergence with respect to individual receptors and, on the other hand, investigation of certain regularities of the behavior of the degree of divergence of classes of fields as functions of both number and type of delineating parameters, as well as of the

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USSR

GOL'TSMAN, E. M.

UDC 534-16

Statisticheskiye Modeli Interpretatsii (Statistical Models of Interpretation), Moscow, "Nauka," 1971, 327 pp

Translation: Annotation: This book gives a systematic discussion of the theoretical basea and practical methods of constructing optimal and suboptimal algorithms for solving inverse problems on an electronic digital computer. The discussions are based on the statistical theory of proving hypotheses and evaluation of parameters. Considerable attention is paid to investigating the quality of optimal interpretation and explaining the threshold conditions at which the interpretation still has meaning. (40 illustrations, 11 tables and 85 bibliographic entries)

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GOL'TSMAN, F. M., Statisticheskiye Modeli Interpretatsii, Moscow, "Nauka," 1971, 327 pp

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GOL'TSMAN, F. M., Statisticheskiye Modeli Interpretatsii, Moscow, "Nauka," 1971, 327 pp

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GOL'TSMAN, F. M., Statisticheskiye Modeli Interpretatsii, Moscow, "Nauka," 1971, 327 pp

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GOL'TSMAN, F. M., Statisticheskiye Modeli Interpretatsii, Moscow, "Nauka," 1970, 327 pp

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GOL'TSMAN, F. M. Statisticheskiye Modeli Interpretatsii, Moscow, "Nauka," 1971, 327 pp

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AUTHOR-- GOL,TSEV, VAL

TITLE-- FIRE POWER

NEWSPAPER-- IZVESTIYA, MARCH 15, 1970, P 4, COLS 1-7

ABSTRACT-- IN DESCRIBING AN ENGAGEMENT THAT TOOK PLACE DURING THE "DVINA" MANEUVERS IN BELORUSSIA, THE AUTHOR MENTIONS FIERY "BUGS" WHICH WERE LAUNCHED BY INFANTRY SOLDIERS AGAINST THE TANKS /DISCARDED OUTDATED MODELS/. THE "ROARING BUGS" AUTOMATICALLY SOUGHT OUT THEIR TARGETS AND "LITERALLY TORE THEM APART". THE AUTHOR CLAIMS THAT THE "BUGS" CAN BE EFFECTIVELY USED AGAINST ENEMY MAN POWER, TANKS, PERSONNEL CARRIERS, SUPERSONIC AIRCRAFT, AND EVEN TACTICAL ROCKETS.

THE ARTICLE ALSO CONTAINS A PHOTOGRAPH OF A TANK.

19710082

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USSR

UDC 621.791.75:533.5:669.715

GOL'TSOV, V. A., Candidate of Technical Sciences, and OLYSHANSKIY, N. A., Doctor of Technical Sciences

"Effect of Welding Mode on Seam Metal Density in the Vacuum-Arc Welding of Alloy AMg6"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 73, pp 15-17

Abstract: The effect of welding rate, magnitude of threshold energy, temperature of sample preheating, and shape of edge preparation were studied. Evaluation of seam metal density was done by hydrostatic weighing and x-ray radioscopy. The theoretical density of AMg6 was taken to be 2.65 g/cm^3. Porosity of the base metal, determined by hydrostatic weighing, amounted to 0.09 cm^3/100 g. Effect of welding rate was determined with a constant threshold energy of 9 kcal/cm. It was established that, upon changing welding rate from 5 to 15 m/hr, pores in the seam were absent but the total volume of cavities amounted to 0.1-0.13 cm^3/a00 g. When welding at the rate of 20 m/hr the porosity amounted to 0.9-1.0 cm^3/100 g. Adjustment of threshold energy in the range of 8 to 13.8 kcal/cm was done by changing the welding rate from 5 to 16 m/hr and welding current from 380 to 720 a. It was established that when welding in a mode with a threshold energy of 8 kcal/cm and rate of 15 m/hr there are no pores in the seam. Two figures, five bibliographic references.

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USSR

UDC 669.15:548.526

GOL'TSOV, V. A., KOSHELEVA, V. Yu., KAGAN, G. Ye., ANDREYEVA, L. P., AINOV'YEVA, G. P., and GEL'D, P. V., Ural Polytechnical Institute imeni S. M. Kirov

"Influence of the K-State on Diffusion and Solubility of Hydrogen and Mechanical Characteristics of Kh20N80 Alloy"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 957-962

Abstract: The temperature dependence of the modulus of elasticity and internal friction (300-650°), permeability, diffusion, and solubility of hydrogen (350-900°C) in Kh20N80 alloy was studied. The effects discovered were compared with results produced earlier on the influence of long- and short-range order and the K-state in alloys on the behavior of the hydrogen dissolved in them. It was determined that the modulus of elasticity and internal friction are sensitive to the formation and disruption of the K-state in nichrome. The activation energy for formation of the K-state, calculated on the basis of results of measurements of internal friction, is 42 Kcal/mol. This value agrees well with the activation energy calculated from measurement of hydrogen permeability (about 40 Kcal/mol). It was established that the atomic regroupings resulting

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GOL'TSOV, V. A., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 957-962

in formation of the K-state sharply change the diffusion coefficient D and the solubility of hydrogen S in Kh20N80 alloy. D decreases significantly, while S increases significantly, as a result of which the hydrogen permeability p = D·S is less sensitive to these changes in the structure of the alloys.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--DIFFUSION AND SOLUBILITY OF HYDROGEN IN ORDERING ALLOYS OF THE CU .
SUB3 AU TYPE -U-

AUTHOR--VYKHODETS, V.B., GOLTSOV, V.A., GELD, P.V.

COUNTRY OF INFO--USSR

SOURCE--UKRAIN. FIZ. ZHUR. JAN. 1970, 15, (1), 107-110

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ORDERED ALLOY, COPPER ALLOY, GOLD CONTAINING ALLOY, NICKEL ALLOY, IRON CONTAINING ALLOY, DIFFUSION COEFFICIENT, HYDROGEN, SOLUBILITY, METAL CONTAINING GAS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1202 STEP NO--UR/0185/70/015/001/0107/0110

CIRC ACCESSION NO--AP0107678

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107678

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION AND DISSOLUTION OF THE CU SUB3 AU AND NI SUB3 FE TYPES ARE DISCUSSED ON THE BASIS OF EXISTING THEORETICAL MODELS AND FRESH EXPERIMENTAL DATA. THEORETICALLY PREDICTED SHARP JUMPS IN THE BROADLY BORNE OUT BY THE EXPERIMENTAL RESULTS, PARTICULARLY IN THE CASE OF NI SUB3 FE. SLIGHT DISCREPANCIES IN THE CASE OF CU SUB3 AU ARE ATTRIBUTED TO THE CONSIDERABLE DIFFERENCES IN THE SIZES OF THE ATOMS INVOLVED. 9 REF.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF THE FORMATION OF K STATE ON THE HYDROGEN PERMEABILITY OF KH20N80 ALLOY -U-

AUTHOR-(03)-GOLTSOV, V.A., GELD, P.V., KOSHELEVA, V.YU.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 97-101

DATE PUBLISHED-------70

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

TOPIC TAGS--CHROMIUM NICKEL ALLOY, NICKEL BASE ALLOY, ALLOY DESIGNATION, HYDROGEN, PERMEABILITY, ACTIVATION ENERGY, FLUID PERMEABILITY/(U)KH20N80 NICKEL BASE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1658 STEP NO--UR/0148/70/013/002/0097/0101

CIRC ACCESSION NO--AT0118637

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0118637

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TUBULAR SPECIMENS WERE STUDIED OF THE CR-NI ALLOY KH20N80 (CR 15 OR 20, C 0.08, MN 0.3, AND SI 0.5 WT. PERCENT) WITH DIAM. 20 MM AND PROVIDED WITH A MEMBRANE IN THE MIDDLE 1.5-2 MM THICK. THESE SPECIMENS WERE HEATED PRELIMINARILY IN VACUUM TO 1100DEGREES, HELD 1 HR, AND QUENCHED IN WATER. THE H PERMEABILITY OF THE ALLOY ANNEALED AT 550-850 (WHEN DETD. AT 650DEGREES) WAS A FACTOR OF SIMILAR TO 3 LESS THAN THAT OF THE SAME ALLOY AFTER ANNEALING AT 330-500DEGREES. THIS LOWERING IS ASCRIBED TO THE REDISTRIBUTION OF THE ALLOYING ELEMENTS OWING TO THE FORMATION OF THE K STATE. THE ACTIVATION ENERGY OF THE K STATE FORMATION WAS DETD. AS 40 KCAL-MOLE, WHICH IS MUCH LOWER THAN SIMILAR ACTIVATION ENERGIES DETD. FROM ELEC. COND. (57-80 KCAL-MOLE). FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--APPARATUS FOR DETERMINING THE INDUCTION PERIOD OF PARAFFIN OXIDATION BY A DIFFERENTIAL THERMAL METHOD -U-

AUTHOR-(03)-GOLTSOVA, L.F., KHARLAMPOVICH, G.D., KOLLEGOV, V.F.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 247-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL LABORATORY APPARATUS, ALKANE, HYDROCARBON OXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1995 STEP NO--UR/0032/70/036/002/0247/0248

CIRC ACCESSION NO--AP0125584

UNCLASSIFIED

2/2 · 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE APP. IS DESCRIBED IN DETAIL. THE METHOD IS BASED ON THE RAPID TEMP. INCREASE OF THE PARAFFIN SAMPLE BECAUSE OF INTENSIVE RELEASE OF HEAT ON AUTOCATALYSIS AFTER THE END OF THE INDUCTION PERIOD. PARAFFIN SAMPLES (WITH OR WITHOUT ANTIOXIDANTS) WERE ADDED TO 5 TEST TUBES (THE STD. IS IN THE 6TH ONE) AND LOWERED INTO THE INNER VESSEL OF AN ULTRATHERMOSTAT WITH REQUIRED TEMP. (ACCURACY PLUS OR MINUS 0.2DEGREES). AFTER HEATING THE SAMPLE TO THE OEPRATING TEMP., CLEANED AND PREHEATED AIR WAS INTRODUCED AND THE SAMPLE TEMPS. WERE MEASURED BY A THERMOCOUPLE. AFTER THE END OF THE INDUCTION PERIOD, A TEMP. RISE (1.5-2.0DEGREES) TOOK PLACE. ON THE BASIS OF IODOMETRIC DETN. OF H SUB2 O SUB2, IT WAS FOUND THAT THE TEMP. DURING INDUCTION PERIOD INCREASED BY 0.6DEGREES. ON COMPARISON OF RESULTS OF IODOMETRIC AND THERMAL METHODS, THE THERMAL METHOD IS SHOWN TO BE MORE ACCURATE THAN THE IODOMETRIC (RELATIVE ERROR 0.5-1.0 AND 3.0-4.0PERCENT, RESP.). FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 621.791.72

BASHKATOV, A. V., RYZHKOV, F. N., GLOTOV, V. S., GOL'TSOVA, V. P.

"Features of Welding of OT4 Titanium Alloy by an Oscillating Electron Beam"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 72, pp 68-69

Abstract: The Voronezh Polytechnic Institute has studied the possibility of improving seam characteristics in OT4 alloy by the use of an oscillating electron beam. Studies were performed using specimens 2, 4 and 6 mm thick. Beam oscillation was varied between 5 and 2,000 Hz, both along and across the seam. Beam oscillation amplitudes reached 7.5 mm for longitudinal oscillation, 2.0 mm for transverse oscillation. Transverse oscillation causes grain size to equalize over the cross section of the seam, while longitudinal oscillation also reduces grain size. Longitudinal saw tooth oscillations are most effective in reducing grain size. Different welding speeds correspond to different optimal oscillation frequencies. Increased oscillating amplitude results in finer grain size, but the oscillating amplitude must be limited to a value dependent on welding rate: welding rates of 15, 25 and 35 m/hr correspond to optimal longitudinal saw tooth oscillation amplitudes of 4, 3 and 2 mm.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--UROCHOLECYSTOQUININE AND ACID FORMATION FUNCTION -U-

AUTHOR-(02)-POPOVA, YE.A., GOLTYAKOVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 34-36

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STOMACH, GALLBLADDER, GUINEA PIG, DUODENUM, QUININE, HYDROCHLORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1826 STEP NO--UR/0504/70/042/005/0034/0036

CIRC ACCESSION NO--AP0123615

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR INVESTIGATED THE ACTIVITY OF UROCHOLECYSTOQUININE IN PERSONS WITH NORMAL INCREASED AND LOWERED ACID FORMATION FUNCTION OF THE STOMACH (USING BIOLOGICAL TITRATION ON THE GALL BLADDER OF A GUINEA PIG ACCORDING TO A. SVATOSH). WITH A LOWERED ACID FORMATION FUNCTION ON GASTING STOMACH THE LEVEL OF UROCHOLECYSTOQUININE PROVED TO BE LOW IN A NUMBER OF CASES BUT FOLLOWING DUODENAL TUBAGE USING SUNFLOWER OIL REACHED THE NORMAL VALUE. THE CONTENT OF UROCHOLECYSTOQUININE BOTH ON A FASTING STOMACH AND AFTER DUODENAL TUBAGE WHICH SUNFLOWER OIL WAS NORMAL (AS IN HEALTHY CONTROL INDIVIDUALS) IN OTHER PATIENTS WAS WELL AS IN THE GROUP WITH AN INCREASED ACID FORMATION FUNCTION OF THE STOMACH. NO EXCITING ACTION OF HYDROCHLORIC ACID ON THE FORMATION OF CHOLECYSTOQUININE WAS FOUND.

FACILITY: GOSPITAL'NAYA TERAPEVTICHESKAYA KLINIKA AND TESENTRAL'NAYA N-I LABORATORIYA I MOSKOVSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

Acc. Nr: AP0049504 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR 0279

G

100794s Halogenation of p-carborane. Stanko, V. I.; Gol'tyapin, Yu. V. (USSR). *Zh. Obshch. Khim.* 1970, 40(1), 127–31 (Russ). Refluxing 1 g *p*-carborane in CCl_4 with 1 g $AlCl_3$ 2 hr gave 1 g 2-chloro-*p*-carborane, m. 189–90°, which chlorinated 10–12 hr in refluxing CCl_4 in the presence of $AlCl_3$ gave mainly the dichloride, along with 5–7% mono- and 15–20% trichlorides; after fractionation some 2,9-dichloro-*p*-carborane (I), m. 151–2°, was isolated. Similar chlorination 50 hr gave 15% I, 45% mixed 2,9,10- and 2,9,11-trichloro-carboranes, at least 4 isomeric tetrachlorides (35%) and some apparent pentachloride. Heating 0.5 g *p*-carborane 8 hr with 0.28 g Br and 0.3 g $AlCl_3$ in CS_2 gave 0.65 g 2-bromo-*p*-carborane, m. 140–1°. Similarly was prepd. 2,9-dibromo-*p*-carborane, m. 86–7°. Refluxing 0.5 g *p*-carborane with 0.8 g ICl in CS_2 in the presence of 0.5 g $AlCl_3$ 12 hr gave 0.65 g 2-iodo-*p*-carborane, m. 60–1°; similarly was prepd. 2,9-diiodo-*p*-carborane, m. 141–2°. Heating

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REEL/FRAME
19801347

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10 g mixed *m*- and *p*-carboranes (from isomerization of *o*-carborane at 760°) and 3 g $AlCl_3$ in CCl_4 10–12 min until the *m*-isomer had vanished gave after an aq. treatment *p*-carborane and 9-chloro-*m*-carborane; these (*1*) heated with dry piperidine 0.5 hr then treated with H_2O and Et_2O gave 3 g pure *p*-carborane, or (*2*) the mixt. sepd. on Al_2O_3 to yield the 2 components by hexane elution. 2-Iodo-*p*-carborane and fresh Cu_2Cl_2 heated 1 hr at 360° in inert atm. gave 80–5% 2-chloro-*p*-carborane via halogen exchange. *p*-Carborane in CCl_4 was chlorinated in uv light 50 hr to 82% *B*-decachloro-*p*-carborane, m. 297–8°.

G. M. Kosolapoff

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19801348

USSR UDC: 537.312.62

GOLUB, A. A. and KON, L. Z.

"More on Superconductivity Theory in Semiconductors"

Kishinev, V sb. Issled. po kvant. teorii sistem mnogikh chastits (Investigating Systems of Many Particles by the Quantum Theory) 1971, pp 27-32 (from RZh--Radiotekhnika, No 4, 1972, Abstract No 4D486)

Translation: Equations for determining the energy gap are obtained from the minimum thermodynamic potential conditions. The case of zero temperature is considered. The interactions leading to superconductivity are expressed through the full dielectric permeability of the crystal and do not contain resonance denominators. Bibliography of twelve. Resume

1/1

USSR

6

[illegible], [illegible] and [illegible], Institute of [illegible] AN Moldavian SSR

"Absorption of [illegible] in Dual-Zone Superconductors With [illegible]"

Sverdlovsk, Fizika Metallov i Metallovedeniya, Vol [illegible], No [illegible], [illegible]

Abstract: The [illegible] of [illegible] absorption is [illegible] tion of the energy spectrum of superconductors. Earlier [illegible] the theory of absorption of ultrasound in single-zone anisotropic superconductors. Still [illegible] the multizoned structure of superconductors in the spectr[illegible] of the absorption of ultrasound. In con- trast to these [illegible] present work studies the absorption of [illegible] in dual-zone superconductors, taking into account the [illegible] of electrons on impurity [illegible] zones. This scattering [illegible] even with low impurity concentrations. For example, only one [illegible] appears instead of the [illegible] two [illegible] in the energy spectrum. The [illegible] of the [illegible] zone [illegible] significantly [illegible] tration [illegible]. The [illegible] of ultrasound absorption [illegible] α_s/α_n [illegible]
1/2

USSR

MOSKALENKO, V. A., et al, Fizika Metallov [illegible], Aug 70, pp [illegible]

superconductors with nonmagnetic impurity at the upper concentration limit. Dispersion of the sound wave is not taken into consideration.

2/2

USSR UDC 546.66.32.776+546.66.35.776

GOLUB, A. M., PEREPELITSA, A. P., MAKSIN, V. I., AGANIYAZOV, K., Department of Inorganic Chemistry, Kiev State University imeni T. G. Shevchenko

"Dimolybdates of Rare Earth Elements and Alkali Metals"

Ivanovo, IVUZ: Khimiya i Khimicheskaya Tekhnologiya, Vol 14, No 3, 1971, pp 328-331

Abstract: By measuring pH, electrical conductivity and solubility, the authors studied the ternary system $R(NO_3)_3$-K_2MoO_4-H_2O where R is yttrium and scandium. It is found that two compounds are formed: $R_2(MoO_4)_3$ and $KR(MoO_4)_2$. Dimolybdates with the general formula $MR(MoO_4)_2$, where M is K and Rb, and R is Sc, Y, Tb and Er were synthesized from aqueous solutions for the first time. The thermographic behavior of these compounds was studied (the melting point and temperature of crystallization of x-ray amorphous residues were determined). Debye powder patterns were used for determining the interplanar spacing of $KY(MoO_4)_2$.

1/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CADMIUM NIOBATES -U-

AUTHOR-(03)-GOLUB, A.M., NGUYEN, C.Y., GRIGORENKO, F.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(1), 23-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TERNARY FLUID SYSTEM, AQUEOUS SOLUTION, NIOBATE, SOLUBILITY, CADMIUM COMPOUND, ELECTRIC CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0778 STEP NO--UR/0078/70/015/001/0023/0025

CIRC ACCESSION NO--AP0104224

UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200930005-0"

2/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104224

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING SOLY METHOD, CD(NBO SUB3) SUB2. 1.5H SUB2 O AND CD SUB3 (NBO SUB4) SUB2. 5H SUB2O WERE PREPD. IN KNBO SUB3 MINUS CD(NO SUB3) SUB2 MINUS H SUB2 O AND K SUB3 NBO SUB4 MINUS CD(NO SUB3) SUB2 MINUS H SUB2 O SYSTEMS. AT 25DEGREES, SATD. KNBO SUB 3 SOLN. HAD AN ELEC. COND. OF 1.65 TIMES 10 PRIME NEGATIVE4 OHM PRIME NEGATIVE1 CM PRIME NEGATIVE1. THE SOLY. PRODUCT OF CD(NBO SUB3) SUB2 IS 4.5 TIMES 10 PRIME NEG8TIVE18.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--COMPLEXES OF ALUMINUM WITH INORGANIC ACIDS ANIONS AND 8,HYDROXYQUINOLINE -U-
AUTHOR-(02)-GOLUB, A.M., PHAM, V.CH.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(3), 233-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM COMPLEX, HYDROXYL RADICAL, QUINOLINE, IR SPECTRUM, THIOCYANATE, CHLORINE, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0893 STEP NO--UR/0073/70/036/003/0233/0238

CIRC ACCESSION NO--AP0137921
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137921
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING AIX SUB2 L, WHERE L PRIME NEGATIVE EQUALS 8,HYDROXYQUINOLINATE ANION, ARE REPORTED (X AND NEGATIVE LOG SOLY. PRODUCT GIVEN): CL PRIME NEGATIVE, 11.17; NO SUB2 PRIME NEGATIVE, 14.40: NO SUB3 PRIME NEGATIVE, 16.25: NCS PRIME NEGATIVE, 17.26. BASED ON IR SPECTRA IT IS BELIEVED THAT AL IS BOUND TO NCS PRIME NEGATIVE AND NO SUB2 PRIME NEGATIVE VIA THE N ATOM.
FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 542.61:541.49:546.831/.832

GOLUB, A. M., and SERGUN'KIN, V. N., All-Union Scientific Research Institute Reaktivelektron, Donetsk, and Kiev State University imeni T. G. Shevchenko, Kiev, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Extraction of Thiocyanate Complexes of Zirconium and Hafnium with Cyclohexane (CHN) and Tributyl Phosphate (TBP)"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 6, Jun 70, pp 1203-1207

Abstract: To obtain data pertaining to the separation of Zr from Hf by solvent extraction and determine the composition of the complexes that were extracted, the distribution of Zr and Hf between an organic phase consisting of CHN or TBP diluted with benzene and an aqueous phase was studied in the presence of NCS ions, $HClO_4$, and HCl. The extraction of $ZrCl_4$ and $HfCl_4$ from CHN and TBP with H_2O in the presence of NCS ions in various concentrations was also studied. At a concentration of $/NCS/_{aq} < 0.15$-0.2 g-mole/l in the aqueous phase, Zr and Hf were extracted into the organic phase in the form of $M(OH)_3NCS$ (M = Zr,Hf), while at $/NCS/_{aq} > 0.2$ g-mole/l Zr was extracted in the form of $Zr(OH)_2(NCS)_2$ and Hf as $Hf(OH)_3NCS$ and $Hf(OH)_2(NCS)_2$. At $/NCS/_{aq} > 1.5$ mole/l. Zr and Hf could be transferred into the organic phase in the form of tetrathiocyanate complexes. The

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GOLUB, A. M. and SERGUN'KIN, V. N. Zhurnal Prikladnoy Khimii, Vol 43, No 6, June 70, pp 1203-1209

highest extractability into CHN and TBP was shown by the $(NCS)_2$ complexes of Zr and Hf. The extracted thiocyanate complexes contained in the organic phase were solvated with 1-2 molecules of CHN or TBP. On grinding of dry NaCNS with dry $MOCl_2 \cdot 8H_2O$ and treatment of the mixture with the solvents used for extraction, the complexes $M(OH)_2(NCS)_2 \cdot 2Solv$ (Solv = CHN, TBP) formed.

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1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--DOUBLE MOLYBDATES AND TUNGSTATES OF RARE EARTH ELEMENTS WITH SODIUM -U-

AUTHOR-(04)-GOLUB, A.M., AGANYAZOV, K.S., KISEL, N.G., MOKHOSOYEV, M.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. AMTER. 1970, 6(1), 170-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLYBDATE, TUNGSTATE, RARE EARTH ELEMENT, SODIUM, X RAY ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0166 STEP NO--UR/0363/70/006/001/0170/0172

CIRC ACCESSION NO--AP0054962

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054962

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO CONFIRM THE ESTABLISHMENT OF FULL EQUIL. IN THE LN(NO SUB3) SUB3-NA SUB2 MOO SUB4-H SUB2 O SYSTEM, THE ISOMOLAR SERIES OF THE MIXTS. OVER A PERIOD OF 1 AND 2 WEEKS, AS WELL AS OVER 1 AND 3 MONTHS, FROM THE INSTANT OF THEIR PREPN. WERE STUDIED CONDUCTIOMETRICALLY AND POTENTIOMETRICALLY. THE MIN. IN ELEC. COND. CORRESPONDS TO MIXTS. WITH THE RATIO (LN(NO SUB3) SUB3): (NA SUB2 MOO SUB4) EQUALS 1:2. THIS ATTESTS TO THE FORMATION OF DOUBLE MOLYBDATES OF RARE EARTH METALS. INVESTIGATION OF THE LN(NO SUB3) SUB3-NA SUB2 WO SUB4-H SUB2 O SYSTEM INDICATES THE FORMATION OF SIMPLE TUNGSTATES OF RARE EARTH METALS. X RAY ANAL. OF DOUBLE TUNGSTATES SHOWS THAT THEY BEHAVE ANALOGOUSLY TO DOUBLE MOLYBDATES. AN ENDOTHERMAL EFFECT AT 180-200DEGREES CORRESPONDS TO THE LOSS OF WATER. THE EXOTHERMAL EFFECT AT 400-480DEGREES CORRESPONDS TO THE CRYSTN. OF THE COMPDS. NALN(WO SUB4) SUB2 TIMES 0.5H SUB2 O, AND THE EXOTHERMAL EFFECT AT 560-575DEGREES CORRESPONDS TO THE CRYSTN. OF NALN(WO SUB4) SUB2.

UNCLASSIFIED

USSR

UDC 536.521.088.6

GOLUB, L. M., FINKEL'SHTEYN, V. Ye.

"Concerning the Computation of Corrections Pertaining to Inexactitude of the Wien Formula, During a Construction of the Scale of Monochromatic Pyrometers and Cumulative-Radiation Pyrometers"

Tr. Metrol. In-tov SSSR (Works of Metrological Institutes of the USSR), No 110 (170), 1971, pp 59-170 (from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 12, Dec 71, Abstract No 12.32.1121)

Translation: The article deals with methods for computing corrections, connected with an insufficiency of the Wien formula when lambda T is greater than 2300 microns times K. Correction tables are presented for quasi-monochromatic pyrometers, as well as for cumulative-radiation pyrometers, the scale of which is constructed in the high-temperature region by means of absorbents; the spectrotransmission tau prime of the absorbents satisfies the condition lambda times ln tau = const. The presented tables systematize the correction delta T in a broad spectral region (0.4-3.0 microns), and in a wide temperature range (1000-6000°C), which fully embraces the region of application of all existing types of pyrometers. 4 tables. 3 references.

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AP020914 CHEMICAL ABST. 2/70 UR0079

31125k Quaternary ammonium salts N,N'-Derivatives of ethylenediamine. VI. Denisenko, V. P.; Rudi, V. P.; Golub, L. V. (Chernovits. Med. Inst., Chernovtsy, USSR). *Zh. Obshch. Khim.* 1969, 39(9), 2082–5 (Russ). $ClCH_2CO_2C_9H_{19}$ and 1 mole $(CH_2NMe_2)_2$ heated in Et_2O 3 hr gave the quaternary salt, m. 86–8°; similarly was prepd. the decyl analog, m. 88–90°; and the tetradecyl analog, m. 119–20°. The surface-tension vs. concn. curves for these in aq. soln. were shown, along with curves of viscosity vs. concn. and pH of such solns. over a wide range of concn. These salts, of type $Me_2NCH_2CH_2N^+Me_2CH_2CO_2R\ Cl^-$ showed small changes in viscosity (relative) at 20° with changes in concn. when R = nonyl, undecyl or tetradecyl; salts with decyl or hexadecyl groups had greater relative viscosities than the others and at high concns. these displayed evidence of structural viscosity. These salts had lesser antimicrobial activity than the bisquaternary salts but they tended to retard the elimination of chlorides from the organism (unspecified). G. M. Kosolapoff

19620895

USSR UDC 628.16.08+628.322+682.162.8

GLOBA, L. I., LASTOVETS', L. M., ROTMISTROV, M. M., GOLUB, M. F., and RADOLITS-'KA, L. S., Institute of Colloid Chemistry and Chemistry of Water, Academy of Sciences UkSSR, and Institute of Infectious Diseases, Ministry of Health, UkSSR

"Removing Water from Viruses with Some Materials With Adsorption and Adhesive Properties"

Kiev, Doklady Akademii Nauk Ukrains'koy SSR, Seriya B. Geologiya, Geofizika, Khimiya i Biologiya, Vol 33, No 11, 1971, pp 1036-1038

Abstract: The problem of water decontamination to a degree adequate for complete prevention of spread of contagious diseases has not yet been fully resolved. This is particularly true with respect to contamination with pathogenic microorganisms, which are present in water in the form of suspensions or colloids (usually as a mixture of both). An attempt was made to convert finely dispersed mixtures into coarse ones, to facilitate removal from the medium. Various clay-like materials were studied as catalysts of the process. First, virus cultures were introduced into tap water. Then samples of infected water were treated with 800 mg/l of each of the materials tested, with the addition of 50 mg/l of aluminum sulfate. Samples were left to stand

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USSR"

GLOBA, L. I., et al., Doklady Akademii Nauk Ukrains'koy SSR, Seriya B. Geologiya, Geofizika, Khimiya i Biologiya, Vol 33, No 11, Nov 71, pp 1036-1038

for 2 hours. During that time, the adsorbents precipitated. The liquid left above the precipitate was then filtered and tested for virus content. Tests indicated that viruses were removed to the extent of 90.0 to 99.9%. This was taken as a positive proof of the effectiveness of the method; the use of highly dispersed materials for water purification.

2/2

USSR

GOLUB, N. N., Donetsk Inspection Organization, State Commission on the Testing of Agricultural Crops

"The Brown Leaf Rust of Wheat"

Moscow, Zashchita Rasteniy, No 9, Sep 72, p 46

Abstract: The susceptibility of varieties of winter wheat in Donetsk Oblast to brown lead rust of wheat, caused by Puccinia triticina, was studied in test plots in 1969-70. The highest resistance to infection with this disease was exhibited by the new varieties Avrora and Kavkaz and the varieties Rubezh (hard wheat) and Bezostaya 1 zoned in Donetsk Oblast'. A medium resistance was shown by Novostepnyachka and Chernomorskaya and a low resistance by all other varieties planted on the test plots, including Mironovskaya 808 and Mironovskaya Yubileynaya, which had been zones locally. The most susceptible variety was Dneprovskaya 521. Some varieties of wheat evidently lost their resistance to the infection as time passed, presumably because more virulent strains of the causative factor developed - e.g., Mironovskaya 808 lost the high resistance to the disease which it exhibited in 1962-64. Winter wheat was less resistant when planted upon a bare fallow and more resistant when planted after corn for silage or after winter crops.
1/1

USSR

UDC 628.165.04

SOBOLEV, Y. A., RYUCHIN, S. V., GOLUB, S. I., and PODBEREZNYY, V. L.

"Ten-Unit Experimental Industrial Desalination Apparatus"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 7, 1973, pp 30-32

Abstract: For the first time on a world-wide scale a 10 unit desalination apparatus has been built and successfully operated. This complex is based on the principle of evaporation with seeding; it consists of evaporation units with forced circulation of the brine. The average productivity of such units is 640-650 m^3/hr. The distillate obtained is suitable for the use as drinking water as well as for feeding high pressure boilers.

1/1

UDC 532.529.6

USSR

GOLUB, S. I., ROZEN, A. M., VAYSBLAT, M. B., and BOTINTSEVA, T. I.,

"The Height to Which Liquid Droplets are Raised in a Vertical Gas Flow"

Moscow, Teoreticheskiy Osnovy Khimicheskoy Tekhnologii, Vol 6, No 3, May/Jun 72, pp 484-490

Abstract: Equations are derived for computing the height to which droplets formed in bubbling operations are raised in a vertical gas flow, and the effects of some parameters on this height are analyzed. The droplet path can be divided into two regions -- one in which the droplet moves faster than the gas flow and one in which its velocity is lower than the gas flow velocity. The equations relate droplet mass, the vertical component of the droplet's absolute velocity, resistance of the medium, droplet diameter, specific weights of liquid and vapor, relative drop velocity, hydraulic resistance, and gas flow velocity. The dependence of maximum height on droplet diameter is analyzed. Computer analysis of the equations demonstrated that when initial droplet velocity is higher than vapor velocity, the final height increases with increasing droplet diameter, while in the reverse case the final height increases with decreasing droplet diameter. Changes in medium density from 0.05 to 1.3 kg/m^3 have little effect on height. The

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USSR

GOLUB, S. I., et al., Teoreticheskiy Osnovy Khimicheskoy Tekhnologii, Vol 6, No 3, May/ Jun 72, pp 484-490

analysis assumes sphericity of the droplets and neglects the buoyancy of the carrier gas.

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USSR

UDC 542.48

BAYSBLAT, M. B., GOLUB, S. I., and CHERNYKH, N. YE., Sverdlovsk

"Calculation of Specific Heat-Exchange Surface in Multi-Stage Evaporating-Distilling Installations"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 1, 1970, pp 2-3

Abstract: Specific heat-exchange surface in apparatus and heaters (surface per 1 kg/hr of evaporated water) is one of the principal technical-economic indices of evaporating installations, but calculation of the theoretically correct value of this index is extremely cumbersome.

The authors derive simplified formulas which do not take into account the less important factors affecting specific heat-exchange surface. Test calculations made with these formulas yield results within 4 percent of the theoretical values.

1/1

1/2 043 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--FLASH IGNITION OF THE LUMINESCENCE OF SILVER HALIDE PHOSPHORS -U-

AUTHOR-(03)-ORLOVSKAYA, N.A., BELOUS, V.M., GOLUB, S.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK, 1970, 12(3), 460-6

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL PHOSPHOR, SILVER COMPOUND, HALIDE, LUMINESCENCE CENTER, IR RADIATION, EXCITATION ENERGY, SINGLE CRYSTAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1490 STEP NO--UR/0368/70/012/003/0460/0466

CIRC ACCESSION NO--AP0118477

UNCLASSIFIED

2/2 043 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118477

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LUMINESCENT PROPERTIES WERE STUDIED AT AGBR, AGBR(I), AND AGCL,MN SINGLE CRYSTALS BY USING THE FLASH IGNITION OF LUMINESCENCE STIMULATED BY IR RADIATION. THE FLASH IGNITION IS OBSD. ONLY AT THE LUMINESCENT BANDS GENERATION OF WHICH RESULTS FROM RECOMBINATION OF FREE ELECTRONS ON LOCALIZED HOLES. BOTH KINETICS AND MICROSTRUCTURE OF LUMINESCENCE CNETERS IN MN ACTIVATED AGCL SINGLE CRYSTALS ARE DISCUSSED IN DETAIL.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CALCULATION OF THE HEAT TRANSFER COEFFICIENT IN THE CASE OF SCALE FORMATION -U-

AUTHOR-(03)-GONIONSKIY, V.TS., GOLUB, S.I., ROZEN, A.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, ENERG. TRANSP. 1970, (1), 176-80

DATE PUBLISHED--------70

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

TOPIC TAGS--HEAT TRANSFER COEFFICIENT, HEAT EXCHANGER, METAL SCALING, METAL TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1521 STEP NO--UR/0281//0/000/001/0176/0180

CIRC ACCESSION NO--AP0120302

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120302

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING HEATING OF SOLNS. WITH NEG COEFF. OF SOLY., THE RATE OF SCALE FORMATION CHANGES SHARPLY ALONG THE LENGTH OF THE HEATING RUBE OF HEAT EXCHANGERS. AN EQUATION IS PROPOSED FOR CALCG. THE HEAT TRANSFER COEFF. IN THE CASE OF SCALE FORMATION, TAKING INTO ACCOUNT OPERATING TIME, REGIME OF HEAT EXCHANGE, AND PHYS. CHEM. PROPERTIES OF A SCALE. APPLICATION OF THIS EQUATION SUBSTANTIALL INCREASED ACCURACY IN DETG. THE VALUES OF THE HEAT TRANSFER COEFFS. IN THE CASE OF HEATING SOLNS. OF SALTS WITH NEG SOLY. COEFF., WHICH WAS CONFIRMED EXPTL. FOR DESIGNING OF TUBULAR HEAT EXCHANGERS THE MEAN VALUE OF HEAT TRANSFER COEFF. ALONG A HEATING TUBE IS RECOMMENDED INSTEAD OF THE LOCAL VALUE.

UNCLASSIFIED

USSR

UDC 621.791.753.042.93:669.295

MEDOVAR, V. I., GOLUB, V. S., All-Union Scientific Research and Planning Institute for Titanium

"Use of Manual Argon-Arc Welding in the Manufacture of Titanium Structures"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 72, pp 41-42.

Abstract: The experimental production sector of the authors' institute utilizes welding to manufacture columns for chemical processes, galvanic baths, etc. All welding work is performed manually by the argon-arc method using specialized direct current welding units. The equipment used is briefly described. The electrical circuit of the unit automatically delays the arc to allow the protective gas to surround the welding zone before starting welding, starts the welding system only after the protective gas and cooling water are being supplied and disconnects the unit in case of an interruption in the supply of gas or water, excites the welding arc with an initial current of 20 a, then automatically increases it to a set value, controls welding current and continues feeding protective gas after the arc is shut off for the required cooling time. This equipment has been used to produce titanium apparatus which has worked reliably for several years in various branches of industry.
1/1

USSR UDC: 621.372

GOLUB, V. S.

"Analysis of Emitter Followers With Compound Transistors"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz'", 1971, pp 113-124 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D79)

Translation: Various follower circuits with compound transistors are analyzed, and it is shown how r_k and the DC circuits affect the parameters of followers. Computational formulas for synthesis of complex follower circuits are given together with examples. Analysis and computational formulas are presented for the middle frequencies of the passband. Eight illustrations, bibliography of seven titles. Resumé.

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USSR

UDC 621.373.521.1(088.8)

GOLUB, V. S.

"Oscillator with External Excitation"

USSR Author's Certificate No 25022, Filed 2 Apr 68, Published 15 Jan 70 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D320 P)

Translation: This author's certificate introduces an oscillator with external excitation executed from transistors with a transformer input with respect to a two-cycle schematic in the B class mode. In order to improve the stability of the dynamic amplification coefficient, the common point of the counter-included diodes is connected via a limiting resistor to the midpoint of the secondary winding of the input transformer. There is one illustration.

1/1

AA0044796 Golub', Yu.K. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243211 MEASURING THE MAGNETIC SPECTRUM OF PARAMAGNETIC CRYSTALS with improved accuracy of measurement uses the construction shown. The crystal 1 is mounted with adhesive to the piston 2 of a cylindrical resonator, rotated by any suitable mechanism round the horizontal axis. In a line with the cover of the piston, 3 is rigidly fixed an optical tube (for example, from a type RVP-463 surface frequency measuring device). By lamp 5 an image of the element 3 is reflected by mirror 6 through the optical system of 4 on to the object glass 7 of eyepiece 8. 3 and 7 are engraved with graticules. 7 is fastened to an angular measuring device, for example a ST-3 angle plate of a general-purpose microscope, having an error of not more than 15". By comparison of the graticules the true angle of rotation of 3 and 1 is measured. The crystal is orientated in the horizontal plane by rotating the whole apparatus, connected to a second goniometer, for which the angle plate ST-3 may also be used.

11.8.66 as 1097241/26-25.YU.K.GOLUB' et alia.

(15.9.69.) Bul 16/5.5.69. Class 42h.Int.Cl.A 01k.

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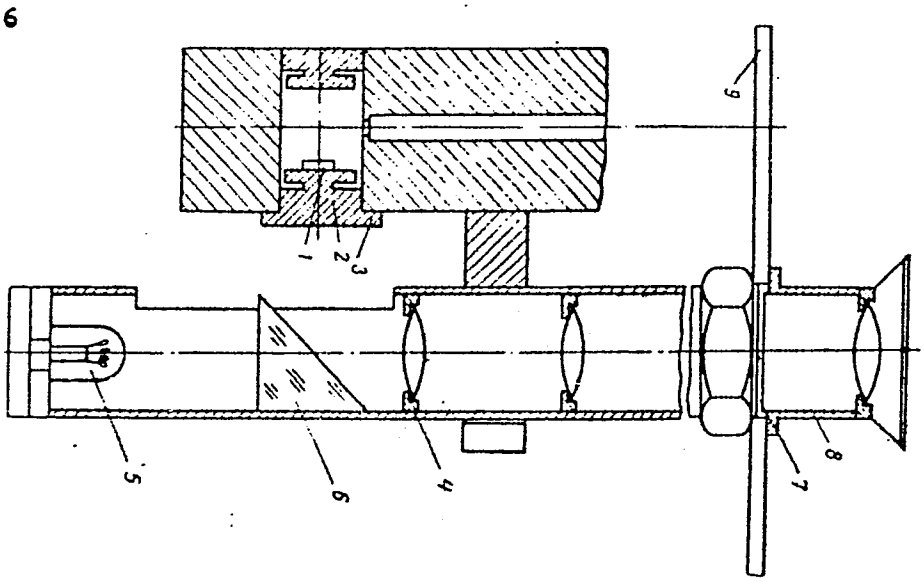
AA0044796



AUTHORS: Golub', Yu. K.; Grigor'yev, N. I.; Gur'yanov, V. G.; Rogachev, V S.

19771624

USSR UDC 621.355.8(088.8)

POZIN, Yu. M., GOLUB, Yu. S., NIKOL'SKIY, V. A.

"Method of Preparation and Use of Alkaline Battery"

USSR Author's Certificate No 300915, Filed 20/01/70, Published 26/05/71, (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 L216 P by the author's).

Translation: A method is suggested for preparation and use of alkaline batteries by formation of charge and discharge cycles, differing in that in order to increase the specific electrical characteristics and produce additional capacitance of the negative electrodes, a discharged battery is pole switched bypassing a quantity of electricity equal to 20-80% of the capacity of the positive electrodes through it.

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GOLUBCHENKO, O.F.

JPRS 57351
27 Oct 72

UDC: 616-084.3-056.78

THE ROLE OF PREVENTIVE PHYSICAL EXAMINATIONS IN DISPENSARY CARE (WITH REFERENCE TO THE ARTICLE BY A.M. BOTVINOV)

[Article by G.F. Golubchenko, Uzbek Scientific Research Institute of Oncology and Radiology (Director: Professor D.M. Abdurasulov); Moscow, Sovetskoye Zdravookhraneniye, Russian, No 9, 1972, submitted 16 April 1972, pp 39-42]

Any investigation directly or indirectly dealing with the role of public health in the national economy, creating stocks of materials and capital equipment, and increasing the productivity of labor merits the most serious attention. In this regard the discussion concerning the significance of preventive physicals in dispensary care of the people, which began on the pages of Sovetskoye Zdravookhraneniye is of great interest. It is quite obvious that in order to implement dispensary care for the entire population of our country, as stipulated in the Program of the CPSU, it is imperative to apply the most rational, scientifically substantiated, and effective work methods.

A.M. Botvinov is correct in observing that "at present we do not yet have a distinct method of performing preventive physical examinations and administering dispensary care."[*]

In the last few years voices have been heard to state that mass physicals have numerous flaws, they are obsolete, and no longer effective (A.M. Botvinov; L.I. Gorbylyuk).

Analysis of the flaws in the team method, made by A.M. Botvinov should have stressed the inexpediency of mass preventive examinations when attempting to cover not only large organized groups, when such examinations are made through the efforts of small therapeutic institutions that are not always properly staffed by all types of specialists, they are not fully equipped with all the necessary diagnostic instrumentation and apparatus, when mass scale physicals are performed by teams on an irregular basis. In other words, we are the ones to impart flaws to the mass scale preventive

*Sovetskoye Zdravookhraneniye, No 10, 1971.

USSR

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POLUKHIN, P. I., GOLUBCHIK, R. M., MILENNYY, K. F., and BLOKHIN, V. V.

"Metal Slip During Cross Rolling in Mills With Various Numbers of Working Rolls"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 142-146

Translation: The article makes a comparison of the kinematic parameters of cross rolling with various numbers of working rolls. The effectiveness of the particular rolling diagrams for different unit reductions is determined from a consideration of the efficiency in the roll barrel using experimental data. Four figures and six bibliographic entries.

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USSR

UDC 621.771.35.001.15

POLUKHIN, P. I., GOLUBCHIK, R. M., MILENNYY, K. F., and SVISTURNOV, Ye. A.

"Specific Normal Pressures and Specific Friction Forces During Cross Rolling on Multiroll Mills"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 278-281

Translation: On the basis of distribution curves for specific normal pressures and specific friction forces in the contact zone between lead test pieces and the roll, a comparison is made for the first time of the power conditions of rolling on two-, three-, and four-roll mills. The dependencies of average specific normal pressure and full metal pressure against the roll on reduction are obtained as a function of the number of working rolls. It is shown, from an analysis of the curves of specific friction forces, that adopting an average value of friction forces for the entire arc of contact instead of considering average values of specific friction forces in the zones of lag and advance decreases the amount of power on the roll. Five figures and ten bibliographic entries.

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USSR

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GOLUBCHIK, R. M., POLUKHIN, P. I., MILENNYY, K. F., and BLOKHIN, V. V.

"Theoretical Questions of the Kinematics of the Process of Cross Rolling"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 146-152

Translation: Metal forming during cross rolling is considered, formulas for the components of the power balance are derived, and an expression is obtained for calculating the efficiency in the roll barrels. Conditions of skidding and minimal efficiency are shown as a function of the parameters of the process. Five figures and seven bibliographic entries.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE CONTAINS A DISCUSSION OF A PROCEDURE FOR DETERMINING THE FORCES ON THE GUIDE TOOL WHEN REDUCING A CONTINUOUS ELASTIC BILLET. A DISC COMPRESSED BY TWO FORCES WITH RESPECT TO THE VERTICAL DIAMETER AND JAMMED BETWEEN TWO ABSOLUTELY RIGID SUPPORTS WITH RESPECT TO HORIZONTAL DIAMETER IS INVESTIGATED. A SCHEME IS PRESENTED FOR DETERMINING THE REACTIVE FORCES UNDER THE EFFECT OF TWO CONCENTRATED FORCES ON THE DISC AND THE LOAD DISTRIBUTION AND PROCEDURE FOR CALCULATING THE STRESSES OCCURRING IN THE DISC. EXPERIMENTAL DATA ON THE METAL PRESSURE ON THE ROLLS WERE OBTAINED. THESE DATA WERE COMPARED WITH THE CALCULATED DATA.

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GOLUBCHIK, Yu. Ya., KRANTS, V. Z.

"A Video Pulse Shaper"

USSR Author's Certificate No 266827, filed 7 Oct 68, published 18 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G212 P)

Translation: This Author's Certificate introduces a video pulse shaper which contains two frequency dividers. The input of one of these dividers is connected directly to the output of a stabilized reference frequency oscillator, while the input of the other divider is connected to the same point through a switching device. The pulse shaper also contains a commutating device. To improve the stability of time parameters of a video pulse train in the case of long pulse durations and repetition periods, the outputs of the frequency dividers are connected to the inputs of a flip-flop whose output is connected to the input of a switching transistor.

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USSR UDC: 621.373.531.3(088.8)

GOLUBCHIKOV, A. M., KOLOMIYTSEV, A. K., LAGUNOVICH, Ye. F., Donetsk Scientific Research and Design and Planning Institute for Automation of Mining Machinery

"A Multichannel Overlapping Pulse Generator"

USSR Author's Certificate No 265182, filed 6 Feb 68, published 12 Jun 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G281 P)

Translation: This Author's Certificate introduces a multichannel overlapping pulse generator which contains a master multivibrator and output cells based on flip-flops with transistors of opposite conductivity type. The device is designed to give a predetermined time overlap of the output pulses. Connected to the collector of the NPN transistor in each output cell of the generator are the input of a coincidence circuit for moving the signal on to the following output channel, and the input of a coincidence circuit for quenching the signal in the preceding channel; the second inputs of the corresponding coincidence circuits are connected together and tied to different legs of the multivibrator, the inputs of the coincidence circuit for moving the signal being connected to the leg of the multivibrator which determines the time of overlap of the pulses.

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USSR UDC 621.771.073.001.5

KOSARIMOV, Ye. N., POLUKHIN, V. P., ZINOV'YEV, A. V., and GOLUBCHIKOV, V. A.

"Calculating the Camber of the Backup Roll Taking Into Account the Unevenness of the Curve of Inter-Roll Pressure"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No. 64, 1970, pp 122-124

Translation: A method is proposed for calculating the camber of the backup roll of a four-high mill, taking into account the uneven distribution of inter-roll pressure over the length of the roll barrels. It is shown that, in the actual range of unevenness of inter-roll pressure, bending deflection may vary by 20 percent at the same pressure on the housing screws.

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USSR UDC: 536.246

BAKALIN, Yu. I., GOLUBENKO, G. G., KOLYKHAN, L. I., SEN'KO, A. S., SOLOV'YEVA, V. N.

"Results of an Experimental Study of Heat Exchange During Boiling of Nitrogen Tetroxide in a Vertical Tube"

V sb. Dissotsiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok (Dissociating Gases as Heat-Transfer Agents and Working Fluids in Power Plants--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 289-293 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 3, Mar 71, Abstract No 3.34.118)

Translation: A description is presented of the experimental installation, measurement procedure and data processing method. Results are given from a study of heat exchange during boiling of N_2O_4 in a vertical tube with natural circulation in the pressure region of 2-50 absolute atmospheres under thermal loads of $(0.4-0.6) \times 10^5$ kcal/m^2·hr. It is noted that heat exchange during boiling of a chemically reacting system differs considerably from heat exchange during boiling of pure inert substances. Three illustrations, bibliography of five titles. Resumé.

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