"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

UDC 621.762.002.5(088.8)

USSR

ARON, P. M., YAMNITSKIY, E. L., KUPMING, S. YA., and ISTOMIN, V. A.

"Apparatus for Treatment of Powdered Materials"

Ussr Authors' Certificate No 259690, Cl. 81e, 11; 21g 31/03. (B 65 j, H 01 F), filed 26 Aug 68, published 2 Jun 70 (from Metallurgiya, No 3, Mar 71, Abstract No 3G472 by O. Padalko)

Translation: The initial charge for thermochemical production of ferrite powder is delivered from a hopper onto a rotating disk and travels on it to the reaction chamber. An ignition device in the chamber submerges into the charge layer and ignites it. When the combustion front goes beyond the confines of the chamber, the drive switches on, and a new charge batch moves into the chamber. Removal of the powder leaving the chamber is effected by a scraper.

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UNCLASSIFIED PROCESSING DATE--11SE70

1/2 014

TITLE--CALCULATION OF THE FORMATION OF PROTONATED COMPLEXES DURING THE CALCULATION OF EQUILIBRIUM CONSTANTS -U-

AUTHOR--KUMOK, V.N., SKORIK, N.A.

K

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2) 291-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COMPLEX COMPOUND, POTENTIOMETRIC TITRATION, CALCIUM COMPOUND, MANGANESE COMPOUND, LEAD COMPOUND, LANTHANUM COMPOUND, EQUILIBRIUM CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0310 STEP NO--UR/0078/70/015/002/0291/0293

CIRC ACCESSION NO--AP0103965

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 014

CIRC ACCESSION NO--AP0103965

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR THE CALCN. OF EQUIL. CONST. OF MA AND MAH COMPLEXES (M EQUALS METAL, A EQUALS LIGAND) AT EVERY POINT OF THE POTENTIOMETRIC TITRN. CURVE. THE VALIDITY OF THE METHOD IS CHECKED ON LA PRIME3 POSITIVE CA PRIME2 POSITIVE, MN PRIME2 POSITIVE, AND PB PRIME2 POSITIVE TARTRATES (TAR) AND ON LA PRIME3 POSITIVE, EDTA COMPLEX. SOLY. PRODUCT (SP) OF LA SUB2 TAR SUB3 TIMES 9H SUB2 O IN 0.1M (H, NA)CLO SUB4 WAS DETD. AT 25DEGREES AND ITS VALUE IS GIVEN AS MINUS LOG SP EQUALS 20.77.

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K

UDC 541.481+546.791.041

USSR

MERKUSHEVA, S. A., KUMOK, V. N., SKORIK, N. A., SHEBERNIKOV, V. V.

"Stability of Complexes of Thorium and Uranium (IV) With Dicarboxylic Acid Anions"

Leningrad, Radiokhimiya, Vol 12, No 1, 1970, pp 175-176

Abstract: A previous article by the authors described methods for the synthesis of basic salts of dicarboxylic acids for cerium (IV), thorium and uranium (IV) and the solubility of these salts in 0.1 M solutions of (H, Na)ClO_4 at 25°C. Salts of succinic, glutaric, adipic and azelaic acids with the anion A^{2-} have the general formula $(MOH)_2A_3 \cdot nH_2O$. The present article makes an analysis of the solubility data with allowance for the formation of two complexes of the type MA^{2+} and MA_2 with stability constants β_1 and β_2 respectively. The values of β_1 and β_2 were calculated by searching for pairs of values of $\log\beta_1$ and $\log\beta_2$ such as would provide minimum variance of $\log SP$ of the salt in a given range, with the solubility product (SP) being

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USSR

MERKUSHEVA, S. A., et al., Radiokhimiya, Vol 12, No 1, 1970, pp 175-178

considered equal to $\Delta H^2 \Delta H^3 / \Delta H^2$: Rare-earth elements display a strong decrease in the stability of complexes of higher dicarboxylic acids as compared with oxalic acid. The same decrease in stability is observed in the case of thorium and uranium (IV), with the exception of azelates. In all cases (except the azelates) $\log \beta_1$ is greater for U^{4+} than for thorium.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

UNCLASSIFIED PROCESSING DATE--27NOV70

1/2 013

TITLE--STABILITY OF COMPLEXES OF THORIUM AND URANIUM IV WITH DICARBOXYLIC ACID ANIONS -U-

AUTHOR-(04)-MERKUSHEVA, S.A., KUMOK, V.N., SKORIK, N.A., SEREBRENNIKOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--RADIO KHIMIYA 1970, 12(1), 175-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COMPLEX COMPOUND, THORIUM COMPOUND, URANIUM COMPOUND, DICARBOXYLIC ACID, ADIPATE, SUCCINATE, STABILITY CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1493 STEP NO--UR/0186/70/012/001/0175/0178

CIRC ACCESSION NO--AP0135154

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

2/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135154

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. DATA WERE USED TO CALC. THE STABILITY CONSTS. BETA SUB1 AND BETA SUB2 OF COMPLEXES OF THE MA PRIME2POSITIVE AND MA SUB2 TYPES, RESP., WHERE M STANDS FOR TETRAVALENT TH OR U AND A IS A DICARBOXYLIC ACID ANION. FOR TH SUCCINATE, TH GLUTARATE, TH ADIPATE, TH AZELAATE, U SUCCINATE, U GLUTARATE, U ADIPATE, AND U AZELAATE COMPLEXES, THE VALUES OF LOG BETA SUB1 (AT 25DEGREES) WERE 8.375, 8.765, 8.422, 9.604, 9.781, 8.812, 9.280, AND 9.078, RESP., AND THE VALUES OF LOG (BETA SUB2-BETA SUB1) WERE 8.434, 8.288, 6.616, 8.473, 8.818, 7.201, 5.867, AND 0.908, RESP.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

Acc. Nr: AP0041736 Abstracting Service: CHEMICAL ABST. Y-70 Ref. Code: UR0459

79605u Features of thermal and chemical (acidic) degradation of poly-1,3-dioxolane. Kumpanenko, E. N.; Korton, T. S.; Varshavskaya, A. I.; Karmilova, L. V.; Enikolopyan, N. S. Inst. Khim. Fiz., Moscow, USSR). Vysokomol. Soedin., Ser. A 1970, 12(1), 229-42 (Russ). The kinetics and compn. of the products of the acid and thermal degradation of poly-1,3-dioxolane (I) at 140-310° were studied. I was prepd. by bulk polymn. of 1,3-dioxolane and had mol. wt. 16-18 × 10^4. Acid degradation was carried out in the presence of H_3PO_4 or picric acid. Initiation of degradation proceeded via "random" homo- or heterolytic cleavage of the chain at the acetal group. The major product of acid degradation was the cyclic monomer, while thermal degradation yielded a wide variety of volatile products including AcH, ethylene oxide, MeOH, and EtOH. Oligomeric fragments with d.p. 5-8 were formed in both cases; those formed by a thermal degradation were linear, but those formed during acidolysis were apparently cyclic. The fraction of monomer in the products decreased with increasing temp. and extent of decompn. Mechanisms for the formation of the major decompn. products are discussed. The activation energy and kinetic chain length for depolymn. (ν) were 17 ± 2 kcal/mole and 13-20, resp., for acidolysis, and 31 ± 2 kcal/mole and 5-8 × 10^{-4}, resp., for thermal cleavage. ν for acidolysis was independent of temp., but ν for thermal cleavage decreased sharply with increasing temp. Depolymn. was not the primary mechanism for thermal cleavage. DBJR

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 036

TITLE--STRUCTURE OF THE POLYMER OF 3,3,3,TRIFLUORO,1,2,EPOXYPROPANE -U-

AUTHOR-(04)-KUMPANENKO, I.V., KAZANSKIY, K.S., PTITSYNA, N.V., KUSHNEREV, M.YA.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 822-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, EPOXY COMPOUND, FLUORINATED ORGANIC COMPOUND, PROPANE, X RAY ANALYSIS, IR SPECTRUM, CRYSTAL LATTICE STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1383 STEP NO--UR/0459/70/012/004/0822/0828

CIRC ACCESSION NO--AP0135097

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

2/2 036 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. X RAY DATA INDICATED THAT POLY(3,3,3,TRIFLUORO,1,2,EPOXYPROPANE) (I) HAD A RHOMBIC LATTICE WITH THE PARAMETERS: ALPHA EQUALS 11.42 PLUS OR MINUS 0.01ANGSTROM; B EQUALS 6.26 PLUS OR MINUS 0.01 ANGSTROM; C EQUALS 6.26 PLUS OR MINUS 0.01 ANGSTROM; AND Q EQUALS 4. THE IR SPECTRA OF I AND THEIR RELATION TO POLYMER STRUCTURE WERE DISCUSSED. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

Biophysics

USSR

UDC 547.953.2

ZILEER, YU. A., DUBUR, G. YA., KUMSAR, K. K., and VELENA, A. KH., Order of Labor Red Banner, Institute of Organic Synthesis, Academy of Sciences, Latvian SSR.

"The Effect of Antioxidants on the Peroxidation of Bimolecular Phospholipid Membranes"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 6(287), 1971, pp 80-82

Abstract: A study was made of possibilities of protecting biological membranes with synthetic peroxidation inhibitors from the adverse effect of oxidation. Protection from oxidation ensures preservation of the structure and function of the membranes and regulates their permeability and enzymatic reactions. Lecithin was used to prepare phospholipid micelles. Micelles were prepared from purified lecithin in 0.15 M KCL solution (15γ/ml lecithin per ml), shaken mechanically for 30 minutes, and left overnight at 4°C. All changes in the concentration of dissolved oxygen were determined by the polarographic method in a glass-cell with a rotating platinum electrode, at 45°C,

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USSR

ZILBER, YU. A., et al., Izvestiya Akademii Nauk Latviyskoy SSR, No 6(287), 1971, pp 80-82

and recorded on EPP-093 automatic recorder. Hemoglobin in a concentration of $2 \cdot 10^{-5}$M was used as catalyst for the oxidizing processes. Antioxidants were 2,6-di-(tert-butyl)-4-methylphenol (1) and 2,2,4-trimethyl-1,2-dihydroquinoline (2). The results showed that phospholipid micelles in the presence of hemoglobin catalyst utilize oxygen intensively. The compound (1) in concentration of 1-5M inhibits the utilization of oxygen two times, and the compound (2) -- almost four times.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC 621.791.754

KUMYSH, I. I., Engineer, Institute of Electric Welding imeni Ye. O. Paton, and SHIRYAYEVA, A. N., Engineer, Central Scientific Research Institute of Ferrous Metallurgy

"Mechanized Welding of a Super Invar Alloy"

Kiev, Avtomaticheskaya Svarka, No 5, May 73, pp 43-44

Abstract: Super invar alloy sheet 4-9 mm thick was welded for the purpose of obtaining welds in which the coefficient of linear expansion was very close to that of the base metal. The alloy had the following composition (in %): 32.5 Ni, 4.3 Co, 0.2 Mn, 0.2 Si, 0.07 C, 0.008 S, and 0.0003 P. Welding rod made from the same heat as the base metal was used. When AH-5 and AH-19 neutral fluxes were used, cracks were found in the seams. When AH-26 and AH-348-A fluxes were used there were no defects. Helium leak testing showed the seams to be vacuum-tight. In comparison with welding under a flux, argon-arc welding is more universal since it permits welding seams in all spacial positions. Consequently, tests were carried out for argon-arc welding of the super invar after it has been electroslag remelted. In this case there were no pores or cracks in the weld seams. 3 figures, 3 tables.

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USSR UDC 669.893'891.053.28

KUMYSH, L. S.

"Highly Active Low-Silicon Barium Deoxidizers"

Sb. tr. TsNII chern. metallurgii (Collected works of the All-Union Scientific Research Institute of Ferrous Metallurgy), 1970, No 75, pp 197-201 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G217)

Translation: A technological process has been developed for making low-silicon master alloys and deoxidizers with Ba and Ca based on Al by the aluminothermal procedure. An aluminum alloy with Ba (the master alloy BA) is made from a mixture of BaO_2 with Al, and the ternary aluminobarium calcium master alloy BAK is made from a mixture of $Ba(NO_3)_2$, CaO and Al. The BA master alloy contains the following (in %): Ba 47-50, Al 50-52, SE 0.2-0.3, and Fe 0.3-0.8. The extraction of Ba is 38-40%. The BAK master alloy contains the following (in %): Ba 20-30, Ca 15-20, and Al, the rest. The extraction of Ba is 40-45%, and Ca, 12-15%. The BAK master alloy is more economical and has a higher deoxidizing capacity. The slags obtained when making BA and BAK master alloys contain up to 50% Ba oxides and the finest master alloy regulus, and it can be used for treating and killing liquid steel. There are 3 tables.

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USSR

UDC 717

KUNYSH, I. S.

"Highly Active Low-Silicon Barium Deoxidizers"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75, Metallurgiya Press, 1970, pp 197-201

Translation: A technology is developed for melting of low-silicon deoxidizer-hardeners with barium and calcium, based on aluminum, by the aluminum-thermal method.

The binary aluminum-barium master alloy, BA, is made of barium peroxide and primary aluminum, while the trinary aluminum-barium-calcium alloy, BAK, is made of barium nitrate, lime, and primary aluminum.

The BA alloy contains 47-50% Ba; 50-52% Al; 0.2-0.3% Si; and 0.3-0.8% Fe. The extraction of barium is 38-40%.

BAK alloy contains 20-30% Ba, 15-20% Ca, remainder -- aluminum. Extraction of barium is 40-45%, calcium 12-15%.

The BAK alloy is more economical and has higher deoxidizing capacity.

The slags produced in melting of BA and BAK contain up to 50% barium oxides and fine granules of the alloy and can be used for treatment or deoxidation of liquid steel. 3 tables.

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USSR UDC 717

KUMYSH, I. S.

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Proizvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75, Metallurgiya Press, 1970, pp 197-201

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USSR UDC 717

KUMYSH, I. S.

"Highly Active Low-Silicon Barium Deoxidizers"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75, Metallurgiya Press, 1970, pp 197-201

Translation: A technology is developed for melting of low-silicon deoxidizer-hardeners with barium and calcium, based on aluminum, by the aluminum-thermal method.

The binary aluminum-barium master alloy, BA, is made of barium peroxide and primary aluminum, while the trinary aluminum-barium-calcium alloy, BAK, is made of barium nitrate, lime, and primary aluminum.

The BA alloy contains 47-50% Ba; 50-52% Al; 0.2-0.3% Si; and 0.3-0.8% Fe. The extraction of barium is 38-40%.

BAK alloy contains 20-30% Ba, 15-20% Ca, remainder -- aluminum. Extraction of barium is 40-45%, calcium 12-15%.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

1/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--COMPLEX ALLOY FOR ALLOYING STEEL -U-

AUTHOR-(02)-KUMYSH, I.S., BOGOLYUBOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,456
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALLOY STEEL, ALUMINUM CONTAINING ALLOY, CARBON ALLOY, IRON CONTAINING ALLOY, NIOBIUM CONTAINING ALLOY, SILICON CONTAINING ALLOY, TITANIUM CONTAINING ALLOY, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1067 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130102
UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

2/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ALLOY HAS THE FOLLOWING COMPN. (IN WT. PERCENT): TI 20-45, NB 10-30, AL 5-15, SI SMALLER THAN OR EQUAL TO 0.1, AND FE THE REMAINDER. FACILITY: BARDIN, I. P., CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF FERROUS METALLURGY.

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KUN, L. A.

JPRS 54729
17 Dec 71

UDC 519.3:62-50

ON THE REGULARIZATION OF THE BELLMAN METHOD IN PROBLEMS OF OPTIMUM RAPID ACTION

[Article by L. A. Kun and Yu. F. Pronezin, Institute of Control Problems, Moscow, Moscow, Doklady Akademii Nauk SSSR, Russian, Vol 200, No 6, 1971, pp 1294-1297]

1. We will discuss the problem of the optimum control of an object whose motion is described by the equation

$$\dot{z} = f(z, u), \quad z \in R^n, \quad u \in U \subset R^n, \tag{1}$$

where R^n = n-dimensional Euclidean space; U = control area; f = local Lipschitz mapping from $R^n \times U$ into R. Let us assume, in addition, that the mapping of f satisfies the Filippov condition [1]:

$$\langle z, f(z, u)\rangle \leq C(1 + |z|^2) \quad \text{for} \quad (z, u) \in R^n \times U,$$

where $\langle z, f(z, u)\rangle$ = scalar product of vectors z and $f(z, u)$; $|z|$ = Euclidean norm; C = some positive number.

We must find, in the class of piecewise-continuous functions, the control that converts object (1) into the source of space R^n's coordinates after a minimum length of time.

As is known [1], the original approach to the solution of the problem of optimum control, which was based on the Bellman equation, had as one of its most essential moments an a priori assumption about the existence of a solution of the Bellman equation that was everywhere continuously differentiable. However, this assumption is extremely restrictive and, as a rule, is not fulfilled. In all the examples presented in [1], in particular, the Bellman function proves to be nondifferentiable at some multiformity (containing entire segments of optimum trajectories). This fact creates fundamental difficulties in using the Bellman equation in optimum control problems.

Boltyanskiy, in [1], gave a proof of the Bellman approach as a sufficient condition of optimality for substantially weaker assumptions relative to the smoothness of the

control

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

Miscellaneous

USSR

UDC 519.283

KUN, L. A., PRONOZIN, Yu. F., Moscow

"On Differential Games. III"

Moscow, Avtomatika i Telemekhanika, No 9, Sep 71, pp 16-22

Abstract: The differential games described in the first and second parts of this paper are analyzed. (For the first two parts of the article, see Avtomatika i Telemekhanika No's 5 and 7, 1971). In particular, the differential game $\mathfrak{J}$ is considered in which the right member f of the equation of motion of the players, and the function g, do not depend on the controlling parameter v of player E. Such a game can be treated as an optimum control problem with generalized Bellman function

$$\mathcal{P}(t, z) = \inf_{u \in \mathcal{U}_p} \mathfrak{J}(t, z, u).$$

A theorem is proved which eliminates the difficulties due to the differentiability of the Bellman equation by reducing solution of the optimum control problem to finding an everywhere continuous, differentiable ε-solution of the Bellman equation rather than its exact solution. In addition, the

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USSR

KUN, L. A., PRONOZIN, Yu. F., Avtomatika i Telemekhanika, No 9, Sep 71, pp 16-22

general case of a differential game with two players is considered. Sufficient conditions of ε-optimality are proposed in the form of differential ε-inequalities (including those for games which are not pseudosaddle games). A sufficient condition is established for the existence of a generalized value in the game. An example is given. The authors thank A. M. Letov for constructive criticism during discussion of the work. Two figures, bibliography of five titles.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC 519.283

KUN, L. A., and PRONOZIN, Yu. F., Moscow

"On Differential Games. I"

Moscow, Avtomatika i Telemekhanika, No 5, May 71, pp 22-30

Abstract: The basic concept to be considered is that of a global strategy, a concept based on the work of Karlin. With the global strategy is associated a tactic. The derivation of these terms is given in detail. The class of permissible strategies includes the set of global strategies satisfying the following conditions: 1) the switch and tactic are independent of game state, and the tactic takes on values of constant local strategies; 2) if any global strategy is part of the permissible state, then any other global strategy with an arbitrary switch independent of state and a constant tactic equal to any tactic of the first strategy is also permissible; 3) any strategy formed by adopting tactics from other permissible strategies, switching from one to another at arbitrary time points, is permissible. These definitions lead to a series of sub-classes of permissible strategies. The optimal strategy is defined in the usual way.

If one player has an optimal strategy in the initial state of the game,

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

KUN, L.A., et al, Avtomatika i Telemekhanika, No 5, May 71, pp 22-30

it is easy to show (1) that if the possibility functions are equal, they are a payoff function which, if differentiable at the starting point, satisfies the Isaacs-Bellman equation; (2) in optimal control theory that the differentiable Bellman function satisfies the Bellman equation. However, there are known cases in optimal control theory in which there are no piecewise continuous optimal controls. Even lacking optimal strategies, however, it is possible to show that the Bellman function satisfies the Bellman equation.

Several properties of the functions which describe the possibilities of each player can also be shown, without assuming the existence of optimal strategies or the equality of these possibility functions.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC 669.292.018.5.537.312.62.621.785

VOROB'YEVA, N. S., KUNAKOV, Ya. N.

"Production and Superconducting Properties of Gallium Coatings on Vanadium Multiple- ore Cable"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 106-111. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5,1971, Abstract No. 5 I751 by the authors).

Translation: A multiple-core microcable of V with wire diameters of 40-100 μ is produced. Modes of deposition of Ga on V are studied. It is demonstrated that the quantity of Ga deposited with hot metalization depends on the configuration of the microcable and the deposition conditions. A heat treatment mode of the microcable coated with Ga is selected for the production of the superconducting compound V3Ga. The superconducting properties are measured. 3 figs; 2 tables; 4 biblio refs.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 537.312.62

VOROB'YEVA, N. S., KUNAKOV, Ya. N., RONAMI, G. N., KUZNETSOVA, S. M.

"Investigation of the Conditions of Formation of Superconducting Compound V_3Ga Made by the Diffusion Method"

Nauchn. tr. N.-i. i proyektn. in-t redkomet. prom-sti (Scientific Works of the Scientific Research and Design Institute of the Rare Metals Industry), 1971, 32, pp 115-123 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D531)

Translation: A heat-treatment cycle is recommended for making V_3Ga superconductor. Three illustrations, two tables, bibliography of fourteen titles.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC 669.293.6.018.5.537.312.62

BARANOV, I. A., KONOVALOV, N. T., KUNAKOV, Ya. N., KAMSKIY, L. Z.

"Development of Superconducting Material of Nb_3Sn for Solenoids"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 120-123. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I778 by the authors).

Translation: A superconductor of Nb_3Sn is developed and manufactured in the form of microcable with Cu coating and heat-resistant enamel. A technology of tinning is developed; the quantity of Sn precipitated on the cable can be adjusted up to 30%. Measurements of the critical temperature and critical current in specimens of multiple-core cable heat-treated at 960±10°C are performed. 1 fig; 1 table; 10 biblio refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC 669.293.5.6,018.5,537.312.62.621.785.362

KUNAKOV, Ya. N.

"Study of Compounds in the Niobium- in System and Production of Superconducting Nb_3Sn Strip"

Nauchn. Tr. N-i. i Proyektn. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 111-115. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I781 by the author).

Translation: Data are presented on the study of intermediate compounds in the Nb-Sn system, produced in diffusion layers with annealing in the 600-1600° interval, and the first results are presented on the production of flexible superconducting strip of Nb_3Sn. 4 figs; 12 biblio refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 537.312.62

VOROB'YEVA, N. S., KUNAKOV, Ya. N.

"Synthesis and Superconducting Properties of Gallium Diffusion Coatings on Vanadium Multiconductor Cable"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 106-111 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D561)

Translation: A vanadium multiple-conductor microcable is produced with wire diameter from 40 to 100 microns. Conditions of deposition of gallium on vanadium are studied. It is shown that the amount of gallium precipitated in hot metallization depends on the configuration of the microcable and the conditions of deposition. Conditions are selected for heat-treating gallium-plated microcable to produce superconducting compound V_3Ga. The superconducting properties are measured. Three illustrations, bibliography of four titles, two tables. Resumé.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 537.312.62

BARANOV, I. A., KONOVALOV, N. T., KUKAKOV, Ya. N., KAMSKIY, L. Z.

"Development of Nb_3Sn Superconducting Material for Solenoids"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 120-123 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D547)

Translation: It is known that three intermediate compounds -- Nb_3Sn, Nb_6Sn_5 and $NbSn_2$ -- are formed in Nb-Sn diffusion layers, and the regions and temperatures of phase existence have also been determined. These data were used in developing the technology of Nb_3Sn superconducting wire. Nb_3Sn superconductor was developed and produced in the form of microcable with copper coating and heat-resistant enamel. The tinning technique is worked out; the amount of tin deposited on the cable may be regulated up to 30 percent by weight. The critical temperature and critical current are measured in multiplier cable heat-treated at 960±10°C. One illustration, one table, bibliography of ten titles.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 537.312.62

KUNAKOV, Ya. N.

"Investigation of Compounds in the Niobium-Tin System and Synthesis of Superconducting Nb_3Sn Tape"

Nauch. tr. N.-i. i proyektn. in-t redkomet. prom-sti (Scientific Works of the Scientific Research and Design Institute of the Rare Metals Industry), 1970, 32, pp 111-115 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D563)

Translation: Data are given from an investigation of intermediate compounds in the niobium-tin system produced in diffusion layers with annealing in the 600-1600°C range. The first results on synthesis of flexible Nb_3Sn superconducting tape are presented. Four illustrations, bibliography of twelve titles.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 539.29:669.293:669.6

BARANOV, I. A., KONOVALOV, N. T., KUNAKOV, Ya. N., and KAMSKIY, L. Z.

"Development of Superconducting Material of Nb_3Sn for Solenoids"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 120-123

Translation: It is known that three intermediate compounds, Nb-Sn, Nb_6Sn_5, and $NbSn_2$, are formed in diffusion layers of Nb-Sn; the areas and temperatures of existence of the phases have also been established. These data were used to develop the technology for a superconducting wire of Nb_3Sn.

A superconductor of Nb_3Sn has been developed and manufactured in the form of a microcable with a copper coating and heat resistant enamel.

A tinning technology is developed; the quantity of tin deposited on the cable can be regulated up to 30 wt.%. Measurements are performed of the critical temperature and critical current in specimens of multiple core cable heat treated at 960 ± 10°C.

1 figure; 1 table; 10 biblio. refs.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 537.312.62:669.871.7:669.292.7

VOROB'YEVA, N. S., and KUNAKOV, Ya. N.

"Production and Superconducting Properties of Diffusion Gallium Coating of Vanadium Multiple-Core Cable"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 106-111

Translation: A multiple core microcable of vanadium is produced with conductor diameters of 40 to 100 microns. The modes of deposition of gallium on vanadium are studied. It is demonstrated that the quantity of gallium deposited by hot metallization depends on the configuration of the microcable and the deposition conditions.

A heat treatment mode is selected for the gallium-coated microcable to produce the superconducting compound V_3Ga. The superconducting properties are measured.

3 figures; 2 tables; 4 biblio. refs.

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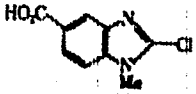
"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

Acc. Nr. AP0045160 Abstracting Service: CHEMICAL ABST. 4170 Ref. Code: UR0409

90369r Substitution of a hydrazine group by chlorine in a benzimidazole series. Mokrushina, G. A.; Kuznetsova, L. V.; Bednyagina, N. P. (Ural. Politekh. Inst. im. Kirova, Sverdlovsk, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1), 131-3 (Russ). Refluxing 1-methyl-2-hydrazino-5-benzimidazolecarboxylic acid (HCl salt m. 309-11°) with $SOCl_2$ gave 1-methyl-2-chloro-5-carboxybenzimidazole (I), m. 197°. This is a peculiar



(I)

nucleophilic displacement in the benzimidazole series. 1-Methyl-2-hydrazinobenzimidazole and 1-benzyl-5-nitro-2-hydrazinobenzimidazole reacted similarly with $SOCl_2$. G. M. Kosolapoff

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USSR UDC: 550.834

LEV, I. S., GRODZENSKIY, V. A., VISHNYAKOV, Ye. P., [redacted], A. A., DUMA-YEVA, L. P., All-Union Scientific Research Institute of Geophysical Methods of Prospecting

"A Statistical Seismic Signal Analyzer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 11, Apr 72, Author's Certificate No 333509, Division G, filed 20Aug70, published 21Mar72, p 183

Translation: This Author's Certificate introduces a statistical seismic signal analyzer which contains a magnetic drum, playback heads, a trigger module, amplifiers and kipp oscillators. As a distinguishing feature of the patent, the effectiveness of processing seismic data is improved by adding a program control unit connected to a trip number counter and a channel commutator. The commutator output is connected to the same counter which is connected in turn to a memory device. A code pulse shaper circuit is connected between the channel commutator and the memory device.

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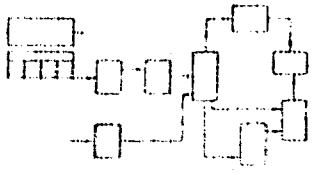
USSR

LEV, I. S. et al., USSR Author's Certificate No 333509



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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 656.7.073.2:621.86

KOZLOV, Ye. I., LEGKOSTUP, S. S., and KUMASHEV, M. N.

Mekhanizatsiya Zagruzki Samoletov Khimikatami (Mechanization of the Chemical Loading of Aircraft), "Transport" Press, 1970, 103 pp,

Translation:

Annotation of the book: The book generalizes the experience gained in kolkhozes, sovkhozes and agricultural aviation units from the use and operation of various types of equipment for mechanizing the preparation and loading of planes and helicopters with chemical fertilizers, toxic chemical dusts, solutions and emulsions. A description is given of new machinery and attachments, as well as the most interesting machines made by efficiency experts. Material is presented on calculating the principal parameters of the operating devices of loaders, and there is a listing of operating and safety rules for the use of chemical loaders.

The book is designed for engineering and flight personnel of agricultural aviation units, as well as for kolkhoz and sovkhoz specialists and mechanizers. Forty-seven illustrations. Twelve tables. Bibliography with eight titles.

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USSR

KOZLOV, Ye. I., et al., Mekhanizatsiya Zagruzki Samoletov Khimikatami, "Transport" Press, 1970, 103 pp.

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USSR

KOZLOV, Ye. I., et al., Mekhanizatsiya Zagruzki Samoletov Khimikatami, "Transport" Press, 1970, 103 pp

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USSR UDC: 621.372.852.3(088.8)

BARLASOV, R. L., DOROGUSHKIN, L. V., KARPUSHIN, P. N., KUNAVIN, V. V., MYASNIKOV, N. I., YAKUNIN, V. A.

"An Automatic Polarization Attenuator"

USSR Author's Certificate No 259198, filed 4 Dec 68, published 28 Apr 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B174 P)

Translation: The proposed attenuator consists of two fixed waveguide adapters, a movable section with an absorbing plate, a readout instrument, a rod linkage and a step-by-step drive motor. The rod linkage is made up of three levers mounted on a common frame. The drive lever is rigidly fixed to the axis of the drive motor, and the driven lever is secured to the axis of the movable section. These levers are hinged together through the third lever. The length of the levers is selected in such a way that the linkage has a transfer ratio determined from calculating the permissible value of signal attenuation per step of the drive motor for the entire range of rotation of the movable section. The attenuator provides a linear change in attenuation. Two illustrations. A. K.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

KUNAYEV, A. (Corresponding Member of the Academy of Sciences Kazakh SSR)

"Basic Trends of Scientific Research and the Objectives of the Institute for Metallurgy and Beneficiation of the Academy of Sciences Kazakh SSR in the Advancement of Nonferrous Metallurgy"

Alma-Ata, Vestnik Akademii nauk Kazakhskoy SSR, Sept 71, no 9, pp 4-10

Abstract: This report was presented at the general session of the Department of Chemical Technology commemorating the 25th anniversary of the Kazakh Academy of Sciences, an advanced and major research center of the republic. Nonferrous metallurgy presently holds a unique position in the Soviet national economy and has become a determining factor in setting new trends in research. The activities of the Institute of Metallurgy and Beneficiation are most effectively reflected in areas such as copper metallurgy covering thermodynamics and other characteristics of raw materials of other smelting products, involving reverbatory melting, a new cyclone process applicable to various materials in molten state and conversion of copper and polymetallic sulfide concentrates. Research in lead metallurgy followed

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USSR

KUNAYEV, A. (Corresponding Member of the Academy of Sciences Kazakh SSR)
Vestnik Akademii nauk Kazakhskoy SSR, Sept 71, no 9, pp 4-10

two directions: 1) improvements in lead production using oxygen, natural gas, and electrothermics and 2) new combined methods in the metallurgy of thiosalts. The former are based on new approaches to the mechanism of oxidation of nonferrous metal sulfides including kinetic regularities in materials processing and phase transformations. The other direction involves thiosalts and their formation by reactions of nonferrous metal compounds with sodium sulfides. In the area of alumina and light metals, the Institute has been working on new combined processes for alumino-silicate raw materials involving hydrochemistry and a new theory of metastable states in real systems. Rare metal metallurgy has seen a large volume of research centering on selenium recovery from sulfatizing roasting sublimates. Experiments are under way on gallium and vanadium separation from alumina products. Research in sorption processes cover physico-chemical properties of ionites, statics of ion-exchange processes and in ion-exchange kinetics. Significant research has been concentrated on

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KUNAYEV, A.(Corresponding Member of the Academy of Sciences Kazakh SSR)
Vestnik Akademii nauk Kazakhskoy SSR, Sept 71, no 9, pp 4-10

titanium with particular emphasis on titanium tetrachloride synthesis by chlorination of granular raw material in fluidized-bed furnaces. Work on ore benefication included new methods of classification, synthesis, and use of ultrasonics for upgrading benefication and cutting expenditures. Other areas of research included the synthesis of super-duty refractories, vacuum metallurgy (refining of nonferrous metals by vacuum distillation), and alloying metals. To summarize the views of the participants, the objectives of the Institute are: over-all utilization of ores and alloying metals in south Kazakhstan, expansion of new raw materials resources from new deposits, increasing the output of copper and lead. In addition to other tasks, the Institute has been planning to concentrate on plasma heating for refining and reduction of metals, underground and bacteriological leaching of polymetallic ores, selection of metals on the basis of molecular membranes, etc.

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USSR

UDC: 669.725.472

YEVSEYEV, Yu. N., BUDON, V. D., ZAZUBIN, A. I., KUNAYEV, A. M.

"Cathode Polarization in a Melt of Lithium and Beryllium Fluorides"

Katodnaya Polyarizatsiya v Rasplave Ftoridov Litiya i Berilliya [English version above], Alma-Ata, 1972, 6 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G193DEP, by the authors).

Translation: A study of the polarization of an Mo cathode in eutectic melts of Li and Be fluorides has shown that electric separation of Be occurs practically without an overvoltage. The Be ions discharge when the cathode potential is reached, equal to the equillibrium potential of a Be electrode in a fluoride melt. Calculation of limiting electrolysis currents according to Fick's law shows that the true D_c lags behing the geometrically calculated value by a factor of 5-8.

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Beryllium

USSR UDC: 669.725.472

BYDON, V. D., YEVSEYEV, Yu. N., ZAZUBIN, A. I., KUNAYEV, A. M.

"Potentials of Beryllium Electrode in a Melt of Lithium and Beryllium Fluorides"

Potentsialy Berilliyevogo Elektroda v Rasplave Ftoridov Litiya i Berilliya [English version above], Alma-Ata, 1972, 6 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1972, Abstract No 8G194DEP, by the authors).

Translation: The potentials of a Be electrode were measured in the system of Li and Be fluorides with a concentration of BeF_2 in the mixture of 30 to 60 mol. % in the 500-800° temperature interval. The temperature dependences of the Be electrode potentials were established for concentrations of 30, 40, 54 and 60 mol. % BeF_2 in a melt of $LiF-BeF_2$, which are described by equations for the ratio in a Cl-Ag comparison electrode: $\phi_{30\%} = 2.247 + 1.8\cdot10^{-4}\cdot T$, v, $\phi_{40\%} = -2.214 + 1.0\cdot10^{-4}\cdot T$, v, $\phi_{54\%} = -2.047 + 2.03\cdot10^{-4}\cdot T$, v., $\phi_{60\%} = -1.920 + 2.07\cdot10^{-4}\cdot T$, v.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

UDC 669.292.053.2

USSR

SUKHARNIKOV, YU. I., KUNAYEV, A. M., and KOLDOBSKAYA, K. G.

"Investigation of the Composition and Structure of the Products of Coreduction of Vanadium Ores and Karatau Phosphorites"

Issledovaniye sostava i struktury produktov sovmestnogo vosstanovleniya vanadiyevykh rud i fosforitov Karatau (cf. English above), Institute of Metallurgy and Beneficiation of the Kazakh Academy of Sciences, Alma-Ata, 1970, 13 pp., ill., bibliogr., 5 nazv. (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G165 DEP)

Translation: Results are presented of an investigation of some features of the process of cereduction of V ore and Karatau phosphorite. The process of formation of the metal phase and change in its composition is considered as far as the reduction of Fe, V, and P oxides is concerned. In the case of coreduction of V ore and phosphorite, the presence of V in the alloy is already observed at 1200°. Alleviated reduction of V in the given case is explained by the presence of large quantities of P, which possesses high bonding to V force, and also by faster and easier formation of the hydroxycarbide phase (due to the presence of ready C mixture and Fe, V, and P oxides in V ore) with the formation of which the reaction of V oxide reduction takes place. The rate constants are determined and the energy of activation of V reduction is calculated. (38 kcal/mole). 8 ill., 2 tables. Authors' abstract

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UDC 669.292.053.24

USSR

SUKHARNIKOV, YU. I., GALYUTIN, V. K., POBORTSEV, M. E., and KUMANEV, A. M.

"Effect of Certain Factors on the Process of Pellet Production During Electrothermic Production of Phosphorus"

O vliyanii nekotorykh faktorov na protsess polucheniya obatyshev pri elektrotermicheskom proizvodstve fosfora (cf. English above), Institute of Metallurgy and Beneficiation of the Kazakh Academy of Sciences, Alma-Ata, 1970, 15 pp, ill., bibliogr., 1 nazv. (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G166 DEP)

Translation: In connection with the development of a new flow chart for combined processing of V ore, which contains 70% SiO_2 and 0.85% V_2O_5, with phosphite in the process of their electrothermic smelting, a question arises regarding the utilization of V ore and phosphorite fines, derived during the preparation of the charge for smelting. A possibility of obtaining pellets (O) from the mixture of V ore and phosphorite fines is considered and the effect of different factors on the O strength is studied. The positive effect of the grain size of the material, the quantity of the binder, and the temperature and the time of sintering on the O strength are shown and a mathematical dependence of the O strength on the above cited factors is obtained. The sintering temperature has the most significant effect on the O strength. 5 ill., 5 tables.

Authors' abstract

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

UDC 681

USSR

KUNAYEV, I. P., DUDKO, L. D., Moscow Higher Technical School imeni N. E. Bauman

"Procedure for Studying the Dynamics of Clockworks for Random External Effects"

Leningrad, Priborostroyeniye, No 10, 1973, pp 74-77

Abstract: A procedure is presented for studying the noiseproofness of clocks. A system of statistical equations of clocks is found and investigated to determine the parameters of the regime of autooscillations of amplitude and frequency under the effect of high-frequency interference of different intensity. In analyzing the noiseproofness of the clock mechanism, the structural schematic known from starting regulator theory [V. A. Shpolyanskiy, et al., Spuskovyye regulyatory priborov vremeni, Moscow, Mashgiz, 1963] was used which is valid for the investigated mechanism of any type and the differential equation describing the dynamics of its autooscillations in general form.

The system of transcendental equations obtained permits investigation of the noiseproofness of the starting regulator, determination of the values of the amplitude and frequency of the autooscillations for different values of the interference and also discovery of the effects of the values of individual parameters of the starting regulator and its autooscillatory mode on the investigated noiseproofness. The most effective method of solving the desired

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

KUNAYEV, I. P., et al., Priborostroyeniye, No 10, 1973, pp 74-77

system of equations is the method of successive approximations; however, in view of the complex nature of the equations, the desired parameters of the autooscillatory regime can be found in practice only on a computer.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 543.544.6:541.49:546.65

KUNBAZAROV, A., SOROCHAN, A. M., and SENYAVIN, M. M.

"Chromatographic Separation of Rare Earth Element Mixtures by Means of Organophosphorus Complexes"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 651-654

Abstract: Conditions for separation of rare earth elements were studied using complex forming agents with two or more phosphonic groups hydroxyethylidene-phosphonic acid - OHEDP, ethylenediaminodiisopropylphosphonic acid - EDDIP, and ethylenediaminotetramethylphosphonic acid EDTP. The experimental system used consisted of cerium-yttrium mixture which was separated by ion exchange chromatography. Stability constants were calculated and checked out experimentally; from these constants coefficients of separation were obtained. It was determined that EDTP was the most effective agent for the separation of test elements. At pH 6.5 the elution curves were completely separated, cerium remaining on the column, yttrium being washed out completely. A shift in the pH in either direction gave less satisfactory results.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--3,3,DICHLORO,4,4,DIAMINODIPHENYLMETHANE -U-

AUTHOR-(03)-UVAROVA, N.N., KURCHENKO, V.I., TIPIKIN, A.A.

COUNTRY OF INFO--USSR

K

SOURCE--GER. OFFEN. 1,800,073

DATE PUBLISHED--21MAY70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, AMINE, BENZENE DERIVATIVE, METHANE, POLYURETHANE RESIN, ORGANIC SYNTHESIS, CHEMICAL PATENT, RUBBER VULCANIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1531 STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128926

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. (I), USEFUL AS VULCANIZING AND HARDENING AGENT FOR URETHANE RUBBERS AND AS AN INTERMEDIATE FOR DYES, WAS PREPD. BY CONDENSATION OF O,CLC SUB6 H SUB4 NH SUB2 WITH CH SUB2 O IN THE PRESENCE OF HCL IN TOLUENE, PHCL, OR CLCH SUB2 CH SUB2 CL. THUS, 31PERCENT HCL WAS ADDED TO O,CLC SUB6 H SUB4 NH SUB2 IN PHCL,H SUB2 O AT 20-50DEGREES, 37PERCENT HCHO WAS ADDED AT 60DEGREES WITHIN 2.5-3 HR, AND THE MIXT. WAS HEATED 5 HR AT 85DEGREES TO GIVE 96.7PERCENT I. FACILITY: SCIENTIFIC RESEARCH INSTITUTE OF CHEMICALS FOR POLYMERIC MATERIALS.

UNCLASSIFIED

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USSR UDC 519.2

KUNCHENKO, YU. P.

"Methods of Finding Estimates of Unknown Parameters obtained by the Method of Maximizing the Volterra Series"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Under Tomsk University), 1971, vyp. 62, pp 255-259 (From RZh-Kibernetika, No 9, Sep 72, Abstract No 9V177)

Translation: Various methods of solving the equation which arises when finding the estimates of an unknown parameter of a random process by the method of the previous paper (see abstract 9V176) are proposed. In particular, a study has been made of the iterative method of estimating parameters based only on knowledge of the moments of a random process.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC 519.2

KUNCHENKO, YU. P.

"Definition of Unknown Parameters of a Random Process by the Method of Maximizing the Volterra Series"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-Technical Institute under Tomsk University), 1971, vyp. 62, pp 232-243 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V176)

Translation: A heuristic description of a method of constructing estimates of an unknown parameter of a random process which is a variation of the method of moments is presented. Let the realization of the random process $y(t)$ be accessible to observation in the segment $[0, T]$, and let the moments of the i-th order be known ($i = 1, \ldots, 2n$)

$$B_i(t_1, \ldots, t_i) = My(t_1)\cdot\ldots\cdot y(t_i)$$

as functions of the parameter α subject to evaluation. As the estimate $\hat{\alpha}$, the solution of the equation

$$\sum_{i=1}^{n} \int_0^T \ldots \int_0^T K_i(t_1, \ldots, t_i) \prod_{j=1}^{i} y(t_j)\,dt_j = \sum_{i=1}^{n} \int_0^T \ldots \int_0^T K_i(t_1, \ldots, t_i)\cdot$$

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$$\cdot B_i(t_1, \ldots, t_i) \prod_{j=1}^{i} dt_j.$$

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

KUNCHENKO, YU. P., Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te, 1971, vyp. 62, pp 232-243

is proposed. The selection of the functions $K_i(t_1, \ldots, t_i)$ $(i = 1, \ldots, n)$ which also depend on the parameter α must be carried out from the additional condition of optimizing the quality of the proposed estimates. In the case, for example, where the mean square deviation $M(\hat{\alpha} - \alpha)^2$ is expressed only in terms of the corresponding moments B_i $(i = 1, \ldots, 2n)$, the functions K_i can also be found by means of them which, generally speaking, leads to the solution of the problems of the variation type. It is demonstrated that the proposed procedure is better than the usual method of moments in the singular problem of determining the dispersion of the gaussian stationary process observed with small noise where the singularity is not trapped by the ordinary method.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 621.396.932.1

KUNCHENKO, Yu. P., PODDUBNYY, V. V.

"On the Potential Accuracy of Measuring the Angular Position and Angular Velocity of a Moving Heat Source"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 264-268 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G64)

Translation: The proposed problem is solved by analyzing the correlation properties of signals received from a heat source by both antennas of a direction finder. It is shown that in the case of a movable source, the problem of direction finding reduces to evaluating the initial time shift of the received signals and the rate of change in this shift, and using these parameters to predict the motion of the source. The accuracy of predicting the angular position of a moving source is determined by the information content of evaluating the delay for a stationary source. Two illustrations, bibliography of two titles. N. S.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 519.2:621.391

KUNCHENKO, Yu. P., PODDUBNYY, V. V.

"On the Potential Accuracy of Measuring the Angular Position and the Angular Velocity of a Moving Heat Source"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 264-268 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V287)

Translation: The results of a paper by one of the authors (abstract 9V283) dealing with analysis of the potential accuracy of taking the bearing of a stationary heat source are generalized to the case of uniform motion. The problem of determining the parameters of motion boils down to finding the optimum simultaneous estimate of the bearing and tangential velocity of the object. Assuming that the observed sample is uncorrelated, the elements of the inverse Fisher's information matrix are determined. The results are illustrated by numerical calculations for Markov signals. V. Brikker.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR UDC: 621.317.616(088.8)

ASABIN, A. P. and KUNDEL', L. K.

"Panoramic Device for Measuring Frequency Characteristics With Raster Scanning"

Avt. sv. SSSR (Author's certificate USSR) Class 21e, 36/03; (G 01 r 25/14), No. 269296, Application 6.02.69, Publication 6.08.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A400P)

Translation: A panoramic device is proposed for measuring frequency characteristics with raster scanning, consisting of a comparator, a summing circuit, and a cathode-ray tube. In the proposed device, for the purpose of simplifying its circuit and increasing the accuracy of measurement, a step-voltage generator with a decoder whose output is connected to the measuring device CRT through the summing circuit, is itself connected to one of the comparator inputs. Z. L.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 612.1-06:612.865/.867

NAVAKATIKYAN, A. O., KUNDIYEV, Yu. I., LYSINA, G. G., TOMASHEVSKAYA, L. I., DERKACH, V. S., KAPSHUK, A. P., KOVALEVA, A. I., STANISLAVSKAYA, TS. D., OSINSKAYA, L. S., and PARLYUK, A. F., Kiev Institute of Industrial Hygiene and Occupational Diseases

"Effect of Mental Work Accompanied by Nervous and Emotional Stress of Varying Degrees on the Cardiovascular System"

Moscow, Kardiologiya, No 3, 1973, pp 50-56

Abstract: In addition to making a statistical analysis of 1,585 cases of myocardial infarction among Kiev workers, the authors ran physiological studies on engineers, typesetters, mathematicians, and neurosurgeons. They found that the effects of mental work on the cardiovascular system vary with the degree of nervous tension and some other factors. The manifestations range from incipient functional disturbances of regulation to severe pathology. Moderate tension elevates blood pressure, the increase in systolic and diastolic pressures being related. Great tension, however, tends to disrupt the relationship probably because the centers regulating vascular tonus become uncoordinated. Intense nervous and emotional strain increases the heart beat as well as the "slow" waves among the periodic constituents of the correlation function of

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USSR

NAVAKATIKYAN, A. O., et al., Kardiologiya, No 3, 1973, pp 50-56

the cardiac rhythm, an indication of an intensification of central neuroendocrine influences on cardiac activity. As the tempo of work and degree of emotional stress increase, the amount of catecholamines and 17-hydroxycorticoids excreted with urine also gradually increases. Thus, tense mental work markedly affects the cardiovascular system. The resulting changes correlate with the functions of the sympathico-adrenalin system and adrenal cortex.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 612.8+612.766.1

NAVAKATYKYAN, O. O., KINDIYEV, Yu. I., LYSYNA, G. G., BUZUNOV, V. P., HRYSHKO, F. I., DERKACH, V. S., KAPSHUK, O. P., KYRYENKO, A. Ye., KARAGASHYAN, A. N., KOVAL'OVA, G. I., RATUSHNA, A. M., TOMASHEVC'KA, L. I., NAGORNA, A. M., and MAYDYKOV, Yu. L., Kiev Institute of the Work Hygiene and Occupational Diseases, Kiev

"Nervous Emotional Stresses as a Problem of Modern Work Physiology"

Kiev, Fiziolohichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

Abstract: The introduction of machines and automatic control instrumentation into production lines at plants and factories and at many other institutions requires of workers rapid coordination of actions combined with mental activity. The volume of information input which requires a combination of physical and mental ability has been increasing tremendously for the last decade. This has produced nervous and emotional stresses and disturbances in the normal functions of many human organs. Analysis of many workers from various brunches of industry as well as people occupied with mental work has shown that modern technology imposes heavy stresses on an individual which are accompanied by abnormal function of the adrenal glands, and hypothalamus, and the hypophysial and sympatho-adrenal systems. Measurements have shown that corticosteroid blood and urine

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USSR

NAVAKATYKYAN, O. O., et al., Fiziolohichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

levels exceed the norm by as much as 42-57% in people under heavy stress. Emotional stress with distortion in the function of many systems were more often encountered among the young (17-18 year olds). These malfunctions included the secretion of adrenalin and noradrenalin, and disturbances in hemodynamics. Shifts in physiological functions among different occupational groups under identical stresses occur at different times and are closely related to age. They were more pronounced among older people (31-40 years old). The cardiovascular system occupies a prominent place in labor physiology, and there are many methods and approaches to study it. Some literature methods and those of the authors are described, including instrumentation. Mental work which is accompanied by nervous-emotional stresses influences profoundly the cardiovascular system within a wide range of deviations, including pathological functional disturbances and hypertension. The same is true for other occupations as well. The authors recommend the rational use of working hours and rest periods to avoid overstresses.

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USSR

UDC 613.6:612.766.1

NAVAKATIKYAN, A. O., KUNDIYEV, Yu. I., AKHRIMENKO, A. P., MAKSIMOVA, O. F., VASILENKO, Yu. I., SAVENKO, N. P., BUZUNOV, V. A., TOMASHEVSKAYA, L. I., and DERKACH, V. S., Institute of Industrial Hygiene and Occupational Diseases, Kiev

"Principles for Quantitative Evaluation of the Difficulty and Strenuousness of Work on the Basis of Physiological Data"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 3-9

Abstract: A four-level classification of jobs by difficulty and stress is proposed on the basis of research conducted by the Institute and the literature data. The criteria used to measure the amount of effort involved as well as the changes therein during the course of the workday include energy consumption (ranging from under 150 kcal/hour for class 1 work, e.g., computer programming, to 351 kcal/hour or more for class 4 work, e.g., steel casting), muscular, cardiovascular, central nervous, and endocrine functions. A table lists average values of several physiological functions in different kinds of work while another evaluates the difficulty and strenuousness of different kinds of jobs (e.g., operation of office machines is classified as class 1 in difficulty and class 2 in strenuousness, lathework 2 and 2, steel casting 4

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USSR

NAVAKATIKYAN, A. O., et al., Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 3-9

and 3). The article also discusses some of the theoretical and practical problems in establishing adequate criteria and in applying them to specific jobs, work conditions, and various groups of people (e.g., adolescents, females, elderly workers).

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP71

TITLE--CATALYTIC ACTION OF PHTHALOCYANINES IN THE OXIDATION OF HYDROGEN SULFIDE IN AQUEOUS SOLUTIONS -U-

AUTHOR--KUNDO, N.N., KEIYER, N.P.

K

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1) 91-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYST ACTIVITY, PHTHALOCYANIDE, CATALYTIC OXIDATION, HYDROGEN SULFIDE, SULFIDE, COBALT COMPLEX, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0197 STEP NO--UR/0195/70/011/001/0091/0099

CIRC ACCESSION NO--AP0106853

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

2/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106853

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CATALYTIC ACTIVITY OF CU, NI, V, FE, ZN, AND CO TETRASULFOPHTHALOCYANINES IN THE OXION. OF H SUB2 S OR SULFIDES IN AQ. SOLN. IS COMPARED TO CATALYTIC ACTIVITY OF THESE METAL SULFATES. THE ACTIVITY OF DIVALENT CATION SULFATES DECREASED IN THE ORDERS: NI LARGER THAN CO LARGER THAN CU LARGER THAN FE LARGER THAN VO LARGER THAN ZN. AMONG THE TETRASULFOPHTHALOCYANINES, THE CO COMPLEX WAS THE MOST ACTIVE CATALYST AND ITS ACTIVITY DECREASED (SIMILAR TO 40 TIMES) WITH INCREASING PH (7.9-11.3). SPECTROSCOPIC STUDY IMPLIES THAT THE OXION. REDN. FORMS OF THESE COMPDS. PARTICIPATE IN THEIR CATALYTIC ACTIVITY. UNDER EXPTL. CONDITIONS, THE CO COMPLEX DOES NOT REACT DIRECTLY WITH THE HS PRIME NEGATIVE OF S PRIME2 NEGATIVE SPECIES.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 547.435 + 577.153.4

KUNDRYUTSKOVA, L. A., MIKHAYLOVA, N. A., SUKHOVA, I. YE., BOGATKOV, S. V., and CHERKASOVA, YE. M., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Cholinesterase Inhibition by Some Amino Alcohol Esters"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 352-355

Abstract: The authors reported for the first time the study of the interaction of amino alcohol benzoates $C_6H_5COOC(Ar)(R)(CH_2)_nNR_2'$ and a number of their analogs with butyryl cholinesterase (I.U.B. 3.1.1.8) (ChE). It was found as a result of preliminary experiments, that the character of the interaction of these substances with ChE depends on the structure of the amino alcohol group on Ar and R. Thus, esters of primary alcohols (Ar=R=H) are hydrolyzed by cholinesterase and display inhibitor properties only in concentrations of 10^{-4} -10^{-3} mol/l, while esters of secondary and tertiary alcohols (Ar=C_6H_5, R = H, C_2H_5) are not hydrolyzed at all by ChE and manifest inhibitor properties in concentrations of $\sim 10^{-6}$ mol/l. In a number of cases, it was found that the

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USSR

KUNDRYUTSKOVA, L. A., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 352-355

hydrolysis rate of butyrylcholine (BuCh) in the presence of inhibitors does not depend on the time of their pre-incubation with ChE (1-30 min.), which confirms the reversible inhibition character. A study was then made of the dependence of the reaction rate on the substrate (BuCh) and inhibitor concentration. It was found that the quantity V_0/V_I within the limits of experimental accuracy does not depend on the substrate concentration, which is characteristic of noncompetitive inhibition. It is suggested that effective inhibition requires a combination of reaction centers in one molecule, i.e. the inhibitor must be bifunctional in order to simultaneously be connected with the anion center and suppress deacylation.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

Kunegin, Ye. P.

JPRS 52318
21 June 72

UDC 621.311.2

STEAM PARAMETERS FOR ATOMIC ELECTRIC STATIONS WITH WATER COOLED REACTORS

[Article* by Ye. P. Kunegin, doctor technical sciences, and A. Ya. Kramerov, candidate of technical sciences; Moscow, Teploenergetika, Russian, No 3, 1972, pp 2-4]

Water-cooled reactors for atomic electric stations predominate in the atomic-power ratings now being started and under construction, and also in the plans for large-scale power development. Yet the presently employed steam parameters in atomic electric stations with water-cooled reactors were established during the earlier stages of development of atomic power. They correspond to the requirements of the current five-year plan, but it is not excluded that for further extensive introduction these parameters may not be optimal at all.

All this points to the advisability of optimizing the parameters of the heat-power cycle of future generations of water-cooled atomic electric stations.

Atomic Electric Stations With Pressure Vessel Reactors

Single-loop atomic electric stations. The overwhelming majority of water-cooled reactors now in operation and under construction generate saturated (or only very slightly superheated) steam of approximate pressure 70 kg/cm^2.

In single-loop atomic electric stations with water-water boiling (pressure-vessel) reactors (VVER or BWR), the water pressure was firmly and rapidly established at the 70 kg/cm^2 level both for reactors installed in small experimental atomic electric stations (of the VK-50 type in the USSR, in Humboldt Bay, Big Rock Point, Vallecitos in the U.S., in Japan, West Germany, etc.), as well as for large second- and third-generation atomic electric stations (Dresden-1, II, III, Garigliano, Oyster Creek, Nine Mile Point, etc.).

* Published for discussion purposes.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 616.992-031.81-036.12

PETRUNINA, M. P., Candidate of Medical Sciences, ARIYEVICH, A. M., Professor, MALKINA, A. Ya., Candidate of Biological Sciences, and [redacted], Candidate of Medical Sciences, Diagnostic Department of the Moscow Institute of Tuberculosis, Institute of Medical Parasitology and Tropical Throat Institute of the Ministry of Health RSFSR, Moscow

"Chronic Disseminated Histoplasmosis"

Moscow, Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

Abstract: A 21-year old female student developed an acute disease involving headache, high fever, and rhinitis. The diagnosis of left maxillary sinusitis was established, and sinusotomy was performed in November 1967. In March 1968, the patient's persistent headache became more severe and aggravated by cough with mucous, pussy, hemorrhagic phlegm. On the basis of clinical observations and X-ray examinations, the diagnosis of infiltrative pneumonic tuberculosis was established, although tuberculosis mycobacteria were not isolated. Administration of streptomycin, tubazid, and PAS was discontinued after a month because of coating and erosion of the tongue and gums. Smears of these organs revealed Candida fungus, and the diagnosis of candidomycosis of the lungs and the mouth was established. Administration of nystatin and levorin improved

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USSR

PETRUNINA, M. P., et al., Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

the patient's overall condition but not that of her lungs. In September 1968, she was hospitalized with sharp pain in the left thorax, cough, and headache, but normal digestion, skin, normal visible mucous membranes, and lymph nodes. X-rays revealed dark areas in the lower portions of the lungs and a moderate opacity of maxillary and frontal sinuses. Subatrophy and hemorrhages were observed in the nasal mucosa. Blood sedimentation rate was 57 mm/hr. No pathogens of systemic mycoses were found in bronchial and sinus wash fluid. However, after sternal puncture, Histoplasma cells were observed in the protoplasm of bone marrow cells. After a 3-week long administration of nystatin, with 5,000,000 units per day, the opaque structure in the left lung was replaced with fibrous tissue. By that time, the patient's headache became intolerable, her maxillary sinuses were uniformly darkened and her nasal mucosa was hyperemic, superficially ulcerated, and covered with an exudate. Puncture of the right maxillary sinus yielded a considerable quantity of grayish-white pus. A sample of that pus was treated with tetracycline and injected intraperitoneally into nine mice. Subsequent necropsy revealed enlargement of the spleen in all animals and the presence of large numbers of Histoplasma capsulatum cells inside reticular tissue cells. Administration

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USSR

PETRUNINA, M. P., et al., Klinicheskaya Meditsina, Vol 49, No 11, 1971, pp 148-150

of amphotericin B (a total of 2,000,000 units) brought no improvement. After a second treatment with nystatin (a total of 60,000,000 units), the dark area in the right lung also changed into fibrous tissue. In June 1969, surgery was performed on the maxillary sinuses: the considerably thickened, hyperplastic, granulated mucosa of the sinuses was removed, and passages communicating with the nasal cavity were created. Histoplasma capsulatum was found in the excised mucosa. After the surgery, the patient's condition significantly improved and remained satisfactory throughout the year of observation.

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USSR

UDC: 669.295

VYATKIN, I. P., ZIMIN, V. M., KUNGINA, N. I., MUSHKOV, S. V., and DZHONS, M. M.

"Lining Smelting of Briquetted Titanium Sponge"

Moscow, Tsvetnyye Metally, No 10, Oct 73, pp 41-42

Abstract: The authors study the possibility of using pressed titanium briquets without presmelting as consumable electrodes. This involved the selection of the optimal technological parameters which would ensure smelting stability. The solution of this problem would make shaped casting inexpensive. The smelting was conducted in a lined vacuum arc furnace designed by VIAM (All-Union Scientific Research Institute of Aviation Materials). The TG-100, TG-120, and TG-ChM grades of titanium sponge were used as the charging material. The sponge was pressed in the B-654 briquet press at 630 tons into briquets of 140 and 160 mm in diameter and 120 mm high. In all more than 50 smelts were conducted. It was shown that sponge quality during the smelting of briquets made from the TG-100, TG-120, and TG-4M grades did not affect smelting. The visually observable gas generation was practically the same or significantly greater than during the smelting of monolithic electrodes. An attempt to reduce gas generation by smelting in a helium atmosphere proved unsuccessful. The pressed electrodes also need more heat than the monolithic electrodes since their thermal conductivity and density are lower. It was also shown that the use of large diameter electrodes is more advantageous. During test-

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USSR

VYATKIN, I. P., et al, Tsvetnyye Metally, No 10, Oct 73, pp 41-42

ing the obtained liquid metal was poured into forms, producing either ingots or shaped parts. Specimens were cut from these and their chemical composition and mechanical properties determined. The corrosion resistance of these specimens was determined using standard methodology in HCl gas and acid media. The corrosion rate was quite high during the first 600 hours and reached maximum at 150-200 hours. Specimens made from TG-ChM corrode more than specimens made from TG-100. As the test duration is increased, the difference in the rate of corrosion diminishes and becomes identical.

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USSR

[illegible]

SOKOLOV, G. A., [illegible], [illegible], [illegible], V. M., [illegible], [illegible], N. Ye., and VLOVIN, V. A., Lipetsk Branch of Moscow Institute of Steels and Alloys; Izhevsk Metallurgical Plant

"Refining Open-Hearth Steel With Synthetic White Slag"

Moscow, Metallurg, No 9, Sep 70, pp 17-19

Abstract: In searching for ways of cutting costs of liquid synthetic slags produced from the costly SiO_2 byproduct, this paper attempts to introduce new compositions of slags designed for out-of-the-furnace refining of steel. The new composition, comprising 45-55% CaO, 17-25% SiO_2, 5-15% [illegible], 7-[illegible] [illegible] and 2-7% CaF_2, appears to possess the most favorable combination of physicochemical properties. Industrial treatment of [illegible] and [illegible] [illegible] open-hearth steels with synthetic slag of this composition reduced the sulfur content in the experimental steel by 55-70%. The final sulfur level in the [illegible] steel was low and conformed with that of electric steel treated with [illegible]. The service characteristics of the experimental steel also [illegible] the level of steels treated with standard liquid synthetic slags. [illegible] slag will make possible the production of tin-quality steel [illegible] per charge. At the Izhevsk Metallurgical Plant the savings per [illegible] amounted to [illegible] rubles.

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Acc. Nr.: AP0046497 Ref. Code: UR0094

USSR UDC 628.977.1:621.316.722

KUNGUS, Yu. A., VOLOSATOV, V. V., VLADENTSEV, V. N., Engineers, and TROSHIN, V. A. Candidate of Technical Sciences, Central Electrical Engineering Research Laboratory for Non-Ferrous Metallurgy

"Thyristor Voltage Regulator for Lighting Systems"

Moscow, Promyshlennaya Energetika (Industrial Power Engineering), No 1, 1970, pp 24-27

Translation: Questions associated with the damage caused by voltage step up in lighting systems are discussed, and a formula for determination of this damage is presented. The possibility of using simple and economical thyristor regulators to maintain voltage constancy in lighting lines is shown. Formulas are given for determining the power factor and efficiency of the regulator and also the changes of these values in regulation. The electric circuit of the thyristor regulator is described, and results of tests of experimental models are presented. (3 illustrations, 4 biblio. ref.)

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DISTRIBUTION FUNCTIONS IN SURFACE LAYERS. IX. DISTRIBUTION FUNCTIONS IN A MULTICOMPONENT LIQUID MIXTURE -U-

AUTHOR-(03)-RUSANOV, A.I., KUNI, F.M., BRODSKAYA, YE.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 756-65

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DISTRIBUTION FUNCTION, FLUID SURFACE, VAN DER WAALS FORCE

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CIRC ACCESSION NO--AP0120643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THE RESULTS OF RECENT THEORETICAL STUDIES ON THE DISTRIBUTION FUNCTIONS IN THE SURFACE LAYERS OF SIMPLE LIQS. (K. AND R., 1969), ASYMPTOTIC FORMULAS WERE OBTAINED FOR THE DISTRIBUTION FUNCTIONS OF COMPONENTS IN MULTICOMPONENT LIQ. SURFACE LAYERS AT LARGE DISTANCES FORM THE BOUNDARY SURFACE. THE PARTICULAR CASE FOR VAN DER WAALS FORCES AND FORCES WHICH TAKEN INTO ACCOUNT THE RETARDATION EFFECTS OF ELECTROMAGNETIC INTERACTIONS OF MOLS. IS CONSIDERED. FACILITY: LININGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PARTITION FUNCTIONS IN SURFACE LAYERS. XI. ASYMPTOTICS OF SINGLE PARTICLE PARTITION FUNCTIONS IN THE SURFACE LAYER OF A LIQUID MIXTURE

AUTHOR-(03)-KUNI, F.M., RUSANOV, A.I., BRODSKAYA, YE.N.

COUNTRY OF INFO--USSR

K

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 553-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTITION COEFFICIENT, FLUID STATE, FLUID SURFACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1379 STEP NO--UR/0076/70/044/003/0553/0559

CIRC ACCESSION NO--AP0128779

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2/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APC128779

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THEORETICAL CONSIDERATIONS, THE ASYMPTOTICS OF SINGLE PARTICLE PARTITION FUNCTIONS AT A LARGE DISTANCE FROM PHASE BOUNDAY IS FOUND. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PARTITION FUNCTIONS IN SURFACE LAYERS. X. PRESSURE TENSOR IN A MULTICOMPONENT LIQUID MIXTURES -U-

AUTHOR-(03)-RUSANOV, A.I., KUNI, F.M., BRODSKAYA, YE.N.

COUNTRY OF INFO--USSR

K

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 766-72

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--FLUID SURFACE, TENSOR, PRESSURE, VAN DER WAALS FORCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1231 STEP NO--UR/0076/70/044/003/0766/0772

CIRC ACCESSION NO--AP0125647

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2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128647

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ASYMPTOTIC FORMULAS FOR THE NORMAL AND TANGENTIAL COMPONENTS OF THE PRESSURE TENSOR IN MULTICOMPONENT LIQ. SURFACE LAYER AT LARGE DISTANCES FROM THE BOUNDARY SURFACE ARE DERIVED IN THE NEXT PART OF THE STUDY ON THE PRESSURE TENSOR IN LIQ. SURFACE LAYERS. THE DERIVATION IS BASED ON THE ASYMPTOTIC EQUATIONS FOR 1, AND 2, PARTIAL DISTRIBUTION FUNCTIONS OF MULTICOMPONENT MIXTS. THE PARTICULAR CASE WAS CONSIDERED OF VAN DER WAALS FORCES AND RETARDATION EFFECTS OF ELECTROMAGNETIC INTERACTIONS OF MOLS. ACTING BETWEEN THE MOLS. OF THE SYSTEM. THE DERIVED ASYMPTOTIC FORMULAS ENABLE THE DETN. OF THE ASYMPTOTIC FUNCTION OF LOCAL TENSION IN THE MULTICOMPONENT SURFACE LAYER AS A CHARACTERISTIC OF ELEMENTARY LAYER TENSION WITH UNIT THICKNESS INSIDE THE SURFACE LAYER. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

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USSR

UDC 621.385.292.8

BABANOV, ZH.N., KOTOV, V.D., KUNIK, S.B.

"Secondary Electron Emitter With Increased Resistance To Electron Bombardment"

V sb. Vopr. elektron.tekhn. (Problems Of Electronics Technology--Collection Of Works), No 2, Saratov, Saratov University, 1971, pp 229-231 (from RZhRElektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A200)

Translation: The technology of a secondary-emission emitter based on platinum--beryllium oxide was developed in order to increase resistance to electron bombardment. An emission layer 6-8 micrometer thick is deposited by ion-plasma sputtering of the components in an argon atmosphere. The maximum secondary emission coefficient equals 3.5 at an energy of the primary electrons of ~600 V. A.B.

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USSR

UDC: 51

OGORODNEYCHUK, I. F., KUNIK, Ye. G., KUZEMIN, A. Ya., OSIYEVSKIY, A. G., GOLOVKO, L. A.

"Methods of Multiple-Criterion Optimization"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Systems and Devices. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 27, pp 43-54 (from RZh-Matematika, No 9, Sep 73, abstract No 9V589 from the authors' abstract)

Translation: A survey is done on a series of methods of solving optimization problems having several quality criteria. As an object of optimization, the authors examine the yearly program of an enterprise with three goal functions (quality criteria). A method is described for solving problems of optimizing an object with many criteria with application of a random search algorithm. Bibliography of 14 titles.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630003-4

USSR

UDC 621.378.33 539.194

KASLIN, V.M., KUN'KOVA, Z.E., PETRASH, G.G.

"Generation In Infrared Region At Molecular Hydrogen Lines With Active Gas Cooling"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11),1972, pp 101-105

Abstract: The experimental results are reported of pulsed generation at the H_2 molecular electron transition $2s\sigma E^1\Sigma^+_g - 2p\sigma B^1\Sigma^+_u$. Curves are shown of the average total power of generation W as a function of the gas pressure p with various voltages at the capacitor and gas temperatures 320° and 160° K. A comparison of the experimental results with the results on generation in N_2 and CO discussed in earlier papers by the authors shows that the basic characteristics of generation in the infrared regions H_2 electron transitions fit into the general laws inherent in pulse gas lasers at molecular electron transitions. The region where generation exists is described by a parameter $\gamma = (V-V_0)/N$ where V is a voltage across a tube, N is the gas density, and V_0 is a constant value. When the gas was cooled down a record peak power of 1.5 kw for such a laser could be achieved. 5 fig. 9 ref. Received by editors, 27 March 1972.

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USSR

UDC: 681.327

VASIL'YEV, V. P., ROMANENKO, Yu. A., [redacted]

"A Step-by-Step Graph Plotter"

USSR Author's Certificate No 267216, filed 29 Sep 67, published 27 Nov 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B460 P)

Translation: The invention is in the class of devices for automatically outlining maps, graphs, and drawings with the aid of a digital computer. Step-by-step graph plotters are known which contain devices for self-contained playback of a magnetic recording (for instance, a standard digital computer magnetic tape store); a two-coordinate drafting device with step-by-step pulse drive and pen module; and also a control device including a reception register, command decoder, graph address setter, address flip-flop, and actuating flip-flop. However, these devices are not very productive, and as a rule do not permit repeated readout from the same zone of the magnetic tape. To reduce the machine time spent on recording and to enable drawing of long and complicated graphs by recording the commands for the graph plotter on mag-

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USSR

VASIL'YEV, V. P. et al., Soviet Patent No 267216

netic tape without spaces and in a definite order with subsequent repeated readout of each zone, the device contains: a synchropulse counter whose input is connected to the output of a pulse-potential switch, while the controlling input is connected to the zero-output terminal of the actuating flip-flop, and the pulse input is connected to the synchropulse output of the self-contained device for playback of the magnetic recording; a commutating flip-flop whose counting output is connected to the zero-output terminal of the actuating flip-flop; a pass counter whose input is connected to the one-output terminal of the commutating flip-flop; a code coincidence circuit with the inputs connected pairwise to the outputs of the synchropulse counter and the pass counter, while the output is connected to the command decoder; and a last pass coincidence counter whose inputs are connected to the corresponding outputs of the pass counter, while the output is connected to the input of a total reset kipp oscillator. The device also has a magnetic tape reverse module which contains a kipp oscillator with the input connected to the one-output terminal of the actuating flip-flop, first and second switches with their pulse inputs connected to the outputs of the kipp oscillator and their controlling inputs connected to the outputs of the commutating flip-

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USSR

VASIL'YEV, V. P. et al., Soviet Patent No 267216

-flop; first and second flip-flops whose opposite inputs are interconnected and tied to the outputs of the first and second switches, while the outputs of the flip-flops are connected to the inputs of first and second amplifiers whose outputs are connected to the corresponding inputs of the tape direction commutator in the self-contained playback device. To cut down drawing time by readout of information from the magnetic tape during both forward and reverse travel, the device contains a readout gating commutator whose input is connected to the output of the commutating flip-flop, while the commutator output is connected to a gating element in the self-contained playback device. To provide reliable actuation of readout within a zone and to synchronize readout with the motion of the magnetic tape, the graph plotter contains a third and a fourth switch with their pulse inputs connected to the outputs of the commands for the beginning and end of the zone in the command decoder, and their controlling inputs connected to the outputs of a recognition flip-flop. The outputs of the switches are interconnected and tied to the pulse inputs of a count switch and a synchronizing switch whose controlling inputs are connected to the outputs of the kipp oscillator; the

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VASIL'YEV, V. P. et al., Soviet Patent No 267216

output of the synchronizing switch is connected to the "reset" input of the synchropulse counter. The graph plotter also contains a scaling circuit whose input is connected to the output of the count switch, while the output is connected to the counting input of the actuating flip-flop; a fifth switch whose pulse input is connected to the zero-output terminal of the actuating flip-flop, while its controlling input is connected to the one-output terminal of the kipp oscillator and its output is connected to the counting input of the recognition flip-flop. To find a given graph from among several graphs recorded on magnetic tape, the plotter contains a sixth switch whose controlling input is connected to the one-output terminal of a search flip-flop, the latter also being connected to the inhibit input of a code comparison circuit, while the output of the sixth switch is connected to the input of the total reset kipp oscillator. The device also contains a kipp oscillator whose input is connected to the zero-output terminal of the actuating flip-flop, while the one-output terminal is connected to the pulse input of the sixth switch, and the zero-output terminal is connected to the inhibit input of the code coincidence circuit. Five illustrations.

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USSR UDC 66.046.51+541.121:536.7+532.72+532.529.6

KUNIN, L. L., GOLOVIN, A. M., SUROVOY, Yu. N., and MOKERIN, V. M.

Problemy degazatsii metallov. Fenomenologicheskaya teoriya (Problems of Metals Degassing. Phenomenological Theory), Moscow, "Nauka" Press, 1972, 327 pp., illustrations, graphs, tables, bibliographic references, 1600 copies printed.

Translation of Annotation: The book discusses the thermodynamic theory of solutions of gas impurities in metals, the phenomenological theory of their diffusion in solids and melts, principles of measuring thermodynamic and kinetic parameters in gas-metal systems, and mathematical description of degassing solids and melts. The monograph also covers problems comprising the theoretical basis for studying and determining gas contents in metals. The book is intended for scientists, engineers, and graduate students and students of senior courses specializing in physical chemistry, as well as for specialists of other areas of science and technology in which the problems of mass transfer of gas contaminants are of fundamental importance.

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USSR

KUNIN, L. L. et al., Problemy degazatsii metallov. Fenomenologicheskaya teoriya, Moscow, "Nauka" Press, 1972.

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KUNIN, L. L. et al., Problemy degazatsii metallov. Fenomenologicheskaya teoriya, Moscow, "Nauka" Press, 1972.

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KUNIN, L. L. et al., Problemy degazatsii metallov. Fenomenologicheskaya teoriya, Moscow, "Nauka" Press, 1972.

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KUNIN, L. L. et al., Problemy degazatsii metallov. Fenomenologicheskaya teoriya, Moscow, "Nauka" Press, 1972.

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"Determination of Oxygen in Electrolytic Powders of Titanium and Titanate Alloys by Impulsive Heating"

Moscow, Zavodskaya Laboratoriya, Vol 37, No 12, 1971, pp 1419—1420

Abstract : The possibility of using the quick method of impulsive heating for solving certain technological problems of powders of titanium and titanate alloys is investigated. The method consists in heating the specimen in a closed graphite crucible up to 3,000 °C for 3 sec. in argon atmosphere. Carbon monoxide, separated from specimens, mixes with argon and is determined by infrared absorption. The duration of a single determination is 7-10 min., the sensitivity is 10-2% by wt. by a weighed amount of 100 μg. The impulsive heating method was applied for the investigation of oxygen distribution in powders of titanium and titanium-aluminum alloy, depending on the size of powder particles. Tabulated investigation results show the dependence of oxygen content in powder of

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unalloyed electrolytic titanium and in titanium-aluminum alloy and of mechanical properties on the fraction size. The mechanical properties measured on specimens produced by vacuum caking at 1,200-1,500°C are also shown. Four tables, ten biblio. refs.

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