

USSR

UDC 669-1:539.375

KASHCHEYEV, VITALITY NIKOLAYEVICH

"Abrasive Breakdown of Solids" (Abrazivnoye razrusheniye tverdykh tel), Moscow, 1970, Scientific Council on Friction and Lubricants), 247 pp, illus, 357-item biblio, 1600 copies printed

Abstract: The monograph discusses the action of a solid mineral grain on the surface of metals and alloys in relation to the hardening of the alloy and the conditions and type of wear. An interpretation is given of the physical process of abrasive wear, and those material characteristics are established which influence wear resistance. The relationship between the wear resistance of alloys and the abrasive capacity of the grain is demonstrated. Practical methods for increasing wear resistance by means of additives are suggested, as well as means of altering the structure of materials subjected to wear. The monograph is intended primarily for technicians engaged in practical work in metallurgy, metal working, machine building and instrument building.

Chapter I. Modern Concepts of Strength of Metals
Chapter II. Interaction of Sliding Surfaces
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KASHCHEYEV, VITALIY NIKOLAYEVICH, Abrasive Breakdown of Solids, Moscow, 1970, Scientific Council on Friction and Lubricants), 247 pp, illus, 357-item biblio, 1600 copies printed

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1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SINGULARITY OF THE ELECTRORESISTANCE OF FERROMAGNETIC METALS AT THE
CURIE POINT -U-
AUTHOR--KASHCHEYEV, V.N. *K*
COUNTRY OF INFO--USSR
SOURCE--PHYS. LETT. A. 1970, 31(3), 140-1
DATE PUBLISHED-----70

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TOPIC TAGS--CURIE POINT, FERROMAGNETIC MATERIAL, ELECTRORESISTANCE

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CIRC ACCESSION NO--AP0108096
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2/2 018

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108096

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SINGULARITY ARISES FROM THE SCATTERING OF CONDUCTION ELECTRONS BY WEAKLY DAMPED PROPAGATING MODES. AN EQUATION WAS DERIVED FOR THE SINGULARITY ON THE BASIS OF THE EXISTENCE OF THESE MODES IN A HEISENBERG PARAMAGENT.

UNCLASSIFIED

USSR

UDC 621.791.16.037

KHOLOPOV, Yu. V. (Cand. of Techn. Sciences), SMIRNOV, A. S., MIRKIN, A. M., KASHCHEYEVA, L. P., IGNAT'YEV, A. S., and ERLIKH, M. G. (Engineers)

"MTU-0,4-4 Ultrasonic Welder for Plastics and Metals"

Moscow, Svarochnoye proizvodstvo, No 5, May 72, pp 47-48

Abstract: The New MTU-0,4-4 welder is a prototype of the MTU-0.4-3 machine with a redesigned welding head furnished with two types of mechanical oscillatory systems. The new unit is suited for welding plastic components in the radio engineering and electronics industry including micromotors, condensers, batteries, filters, cells, etc. The machine will join plastics with metals by pressing them into polymers, and will weld copper, aluminum, and nickel. The MTU-0.4-3 model has been successfully operated for several years at radio engineering plants and has shown yearly savings ranging from 5000 to 10,000 rubles. The technical specifications for the new ultrasonic model are cited. The serial production project has been assigned to the Kaliningrad Plant of Electrical Equipment. (1 illustration)
1/1

USSR

UDC 620.193.3

KASHCHEYEVA, T. E., DUBIKHINA, V. S., GADASINA, L. YU., MESHCHERYAKOVA, I. D., and RUTKOVSKIY, M. L.

"Effect of Oxidizers on Corrosion and Electrochemical Behavior of Nickel-Molybdenum Alloy EP-496 in Hydrochloric Acid"

Moscow, Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 11-15

Abstract: The article describes results of a study of the effect of oxygen and ferric chloride on the corrosion resistance of nickel-molybdenum alloy EP-496 (28 percent Mo, 70 percent Ni, 1.5 percent V, 4 percent Fe) in concentrated (22 percent) hydrochloric acid saturated with air or nitrogen at $P = 1$ atm and a temperature of 20° and 100° , for purposes of determining conditions for the applicability of the alloy in the production of organo-silicon liquids. It was found that the corrosion rate in air-saturated hydrochloric acid is 7 times greater than in deaerated hydrochloric acid; in aerated hydrochloric acid in the gaseous phase the corrosion rate is 2 times greater than it is in the liquid phase. A similar difference was observed under production conditions, particularly in the production of organo-silicon liquid GKZh-94. It is shown that the corrosion rate of alloy EP-496 is determined primarily by the depolarizer concentration and the rate at which

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KASHCHEYEVA, T. P., et al., Zashchita Metallov, Vol 7, No 1, Jan-Feb 71, pp 11-15

it is supplied to the corroding surface. In using the alloy as a construction material particular attention must be given to the absence of oxidizers. Iron impurities cannot be tolerated in concentrated HCl at high temperatures.

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USSR

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UDC 620.193.41

MESHCHERYAKOVA, I. D., KASHCHEYEVA, T. P., and RUTKOVSKIY, M.L.

"Behavior of Titanium in Ethanol-Aqueous Solutions of Hydrogen Chloride"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 286-289

Abstract: An investigation was made of the corrosion and electrochemical behavior of VT-1 titanium in ethanol solutions of HCl containing various amounts of water in order to determine the possibility of using titanium as a structural material for production facilities where the basic aggressive medium is ethanol-aqueous solutions of HCl. The experiments were performed at room temperature in a 20% ethanol solution of HCl without water and with 2-80% water. It was found that titanium is not passivated in a water-free 20% ethanol solution of HCl and that it corrodes by the electrochemical mechanism at a rate of ~ 5 mm/year. In solutions containing 4-6% water, titanium has a tendency toward pitting. A linear relation was observed between the activation potential and the logarithm of the water concentration. Titanium can be used as a structural material in 20% ethanol solutions of HCl containing 9-32% water. In this case the corrosion rate of the titanium does not exceed 0.01 mm/year. The mechanism of the inhibitor effect is discussed briefly.

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Technology of Producing New Materials

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Sintering Titanium Diboride (O.V. Zaverukha)

Removal of the Plasticity of Titanium (G. V. Plyushech)

Study of Solid-Phase Transformation in Tungsten Disulfide (O.S. Yurchenko)

Effect of Alloying Elements on Transformation in Titanium (S.M. Bratun).....

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Rare-Earth Metal Modifiers (V.A. Karchuk)

Increasing the Physical Properties of Titanium (P.I. Chaplygin)

Effect of Scandium, Yttrium, and Zirconium on Properties of Nickel (L.A. Alekseyuk)

Interaction of Titanium with Titanium Carbide (E.V. Kulyshchev)

Fractionation of Zirconium Oxide (A.Y. Shapiroval)

TECHNOLOGY OF PRODUCING NEW MATERIALS

translation of Russian-language collection: Технология производства новых материалов, 1972, Kiev.

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KASHCHUK, V. H.

JPRS 5963
23 AUG 1973

23

USSR

UDC: 669.295.5:669.292/1297:620.193/.196

TEREMETSKIY, V. A., KASHCHUK, V. A.

"Heat Resistance of Binary Alloys of Titanium with the Transition Metals of Groups III and V"

Sb. Nauch. Tr. Tomsk. Inzh.-Stroit. In-t [Collected Scientific Works of Tomsk Institute of Construction Engineering], 1973, No 21, pp 35-39 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8I727, by L. Petrova).

Translation: The influence of the addition of transition metals of group III (0.28% Pr, 0.35% Y, 0.59% La) and group V (0.76% V, 0.45% Nb, 0.41% Ta) of the periodic system on the oxidation properties of Ti at 800° is studied. The content of the metals added corresponded to a concentration near the limit of solubility in α Ti. Y, La and Pr decrease the oxidizability of Ti by 30-35%, Nb and Ta -- by 35-40%. The alloy Ti-0.76% V is oxidized significantly more intensively than Ti. 2 figures, 3 biblio. refs.

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USSR

UDC: 669.296.5:620.193/.196

FILIPPOV, V. F., KASHCHUK, V. A.

"Influence of the Addition of Transition Metals on the Corrosion Resistance of Zirconium"

Sb. Nauch. Tr. Tomsk. Inzh.-Stroit. In-t [Collected Scientific Works of Tomsk Institute of Construction Engineering], 1973, No 21, pp 68-71 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 81729, by L. Petrova).

Translation: The corrosion properties of Zr were studied with the addition of Ti, V, Cr, Mn, Fe, Co, Ni, W, Re, Y, Nb, Mo, Ru, Rh, Pd, Ta, Os, Ir (from 0.05 to 1.6%) in a 50% solution of HNO_3 at 35° 48 g on the basis of weight loss. The greatest increase in the resistance of Zr to corrosion resulted from the addition of Fe, Co, Ni, Ru, Rh, Pd, Os, Ir. The addition of Y, V, Nb and Ta increased the corrosion resistance of Zr less, while Ti, Cr, Mn, Mo, W and Re increase it still less. The corrosion resistance of Zr is discussed on the basis of the electron structure of the metal. 1 table, 4 biblio. refs.

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KASHCHUK, V.I.

SO: JPES 59623
26 JULY 1973

(3)

UDC 669.285.537.32
THERMAL CONDUCTIVITY AND ELECTRICAL PROPERTIES OF TITANIUM ALLOYED WITH VANADIUM AT 100-350°K

Article by V. G. KASHCHUK, S. N. LITVIN, and G. A. KASHCHUK, Ph.D., Chernomorsk, Izv. Akad. Nauk SSSR Metall. Russlan, No 3, 1973, submitted 13 September 1971, pp 80-84

Titanium possesses a successful combination of physical, chemical and mechanical properties. A high specific strength and corrosion resistance open vast possibilities for the use of titanium and its alloys as a reliable structural material. In connection with this there is much interest in studying the effect of alloying with different transition metals on the electro-physical and other properties of titanium over a wide temperature interval. Special interest exists for investigation in the region of alloying its most noticeable. We note that there is a large number of works on the electrical resistance of the alloys of ordinary metals. However the effect of small additions on the electrical properties of transition metals has not been adequately investigated [1]. This is all the more related to the thermal conductivity and thermal end of these metals.

The effect of alloying titanium with vanadium on the electrical resistance, thermal conductivity, and thermal end of titanium in the 100-350 K region was investigated in this work. As initial materials for making the alloys we used

Grades 70-100 titanium sponge with a hardness of 65-103 KPa having the following chemical composition, weight %: Ti-99.5, Fe-0.01, Al-0.3, H-0.011, N-0.01, and Hf-trace; and grade 70-3 electrorefined vanadium (HCP-1217-50) with the following chemical composition, weight %: V-99.5, Fe-0.040, Al-0.01, Si-0.01, Mn-0.01, S-0.005, and C-0.01.

Inputs of the alloys were melted in a laboratory vacuum furnace with a consumable electrode, the 50-mm diameter alloy had been previously ground to a 10-micron fineness. The inputs were remelted twice to obtain a more uniform composition. The initial pressure at the time of melting amounted to 3×10^{-3} mm Hg. The quantity of input element was determined by chemical analysis. Hydrogen content of the inputs was 0.0010-0.0017% Vanadium was introduced into the titanium in form of a mixture in concentrations of 0.02-1.13 wt %. Compositions of the prepared alloys are presented in the table.

Chemical composition of Ti-V alloys

No. Alloy	a) Composition V in alloy		V (H)	b) Composition V in alloy	
	wt %	($\frac{1}{L}$) in alloy		wt %	($\frac{1}{L}$) in alloy
1	0.04	0.02	0.018	0.08	0.018
2	0.1	0.05	0.02	0.16	0.02
3	0.25	0.12	0.218	0.32	0.218
4	0.5	0.25	0.218	0.64	0.218
5	0.75	0.37	0.218	0.96	0.218
6	1.0	0.5	0.218	1.28	0.218

Key: a--Sample number

b--Vanadium content in the alloy

c--Calculated, wt %

d--By chemical analysis

e--Visible

f--Atomic

Electrical samples 4-6 mm in diameter and 15-30 mm long were melted in a furnace for the purpose of investigating the temperature relationship of specific electrical resistance (R), coefficients of thermal conductivity (λ), and thermal emf (E). These samples were annealed in a vacuum of $\sim 10^{-3}$ mm Hg for 1-2 hours at 770-1030 K for the purpose of removing internal stresses and homogenization of the alloys. The effect of annealing was checked by measuring the electrical resistance of the samples at room temperature and at the temperature of liquid nitrogen. Annealing was conducted up to stabilization of

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USSR

1986-07-20

SAMSONOV, G. V., KASHEVA, V. A., and CHIRKOV, A. G., Institute of Problems of Material Science, Academy of Sciences, USSR

"Effect of Transition Metals on the Size of the Titanium Grain"

Moscow, Metallovedeniye i Tekhnicheskaya Obrabotka Metallov, No 11, Nov 79, pp 30-31

Abstract: A study was made of the effect of transition metals on the refinement of the grain of cast titanium alloys. Titanium sponge of the following composition was used as the source material: 0.2% Al; 0.04% Fe; 0.03% Si; 0.01% V; 0.03% Cr; 0.09% Cu; 0.001% N; Mo, Mn and Ni -- traces. Alloys of Ti, Cr, Fe, Co, Nb, La, Y, Zr, Hf, Ta and also of Ru, Rh, Pd, Os and Ir were introduced into titanium in quantities of 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.7, 1.0, 1.1, 1.3, 1.5 wt.%, respectively. The hydrogen content in ingots was 0.004-0.007%. It is shown that, of the transition metals studied, lanthanum, yttrium, nickel, palladium, and platinum are most effective in refining the microstructure of cast titanium.

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USSR

UDC 539.576

KASHELKIN, V. V., SHESTERIKOV, S. A., Chair of the Theory of Plasticity

"Buckling of a Cylindrical Shell of Finite Length Under Creep"

Moscow, Vestnik Moskovskogo universiteta - Matematika, Mekhanika, No. 5,
Sep/Oct 71, pp 60-64

Abstract: The shell is simulated by a two-layered model. Large displacements of points of the two-layered shell loaded by an external hydrodynamic pressure P of length $2L$ are studied. The thickness of each layer is h and the distance between layers is 2δ . Boundary conditions of the following types are considered: hinge support with fixed or movable (along the axis of the shell) hinges and also a rigid seal with fixed or movable ends. The transverse cross section of the shell is in the shape of a circular ring which is approximated by the curve obtained by the conjunction of two circles of different radii. The analysis is carried out for a narrow central section of the shell which is acted on by forces in the plane of the shell and by membrane forces perpendicular to this plane. A system of ordinary nonlinear differential equations is derived describing the deformation. An approximate simplified form of the system is given for shells where the buckling conforms to certain limiting relationships.

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USSR

DOKUKINA, G. A., KASHENTSEV, M. K., and GAVHILENKO, N. G.

"The Effect of Industrial Noise on the Organism"

Aktualn. probl. professionaln. patologii. Resp. Mezhd. sb. (Current Problems in Occupational Pathology. Republic Interdepartmental -- collection of works), 1970, No 1, pp 107-111 (from RZh-Biologiya, No 1, Jan. 71, Abstract No 1P996)

No Abstract

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USSR

UDC 621.315.592

KARPENKO, V.P., KASHERININOV, P.G., MATVEYEV, O.A.

"Surface-Barrier Cadmium Telluride Junction Photomemory"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 937-940

Abstract: The mechanism of a surface-barrier junction photomemory using cadmium telluride is discussed from the theoretical point of view, and an experiment is described in which the surface-barrier junctions in n-CdTe with an initial electron concentration of $2.7 \cdot 10^{16} \text{ cm}^{-3}$ were investigated. The volt-capacitance characteristics of the junction were measured. The volt-capacitance and volt-ampere characteristics of the investigated junctions in the dark were described by ordinary classical expressions for a sharp transition. Curves are presented for the variation of the capacitance of the junctions illuminated by extrinsic light $\lambda = 0.83-1.5$ microns with different illumination intensities.

It was discovered that the capacitance of the surface-barrier junctions created in low-resistance n-CdTe has photosensitivity in the range of extrinsic absorption. After switching off the illumination, the perturbation caused by the extrinsic light is retained for a long time when $T = 300^\circ \text{ K}$ (photomemory). On illumination of the junction storing the perturbation by strongly absorbed

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KARPENKO, V.O., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 937-940

short-wave light the magnitude of the capacitance decreases, and the photomemory disappears. A decrease in the capacitance of such a junction takes place also on illuminating it with light with $h\nu = 1.0-1.2$ electron volts. The observed phenomena are explained by the presence of two groups of impurity levels in the initial material. One group of deep levels is responsible for the photomemory effect of the junctions, and their concentration is equal to $0.96 \cdot 10^{16} \text{ cm}^{-3}$, $\gamma = 1.3 \cdot 10^{-17} \text{ cm}^2$. The second group of shallow levels located at the edge of the valence zone is responsible for the capacitive relaxations on switching off the illumination and the photocurrent when illuminating the junction by light with $h\nu < E_g$.

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1/2 020 UNCLASSIFIED PROCESSING DATE--3000:70
TITLE--ELECTRICAL PROPERTIES OF SURFACE BARRIER P-N JUNCTIONS ON HIGH
RESISTANCE CADMIUM TELLURIDE -U-
AUTHOR--(05)-BOGOMAZOV, A.P., KARPENKO, V.P., KASHERININOV, P.G., MATVEYEV,
U.A., STETSYUK, R.S.
COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 813-14

DATE PUBLISHED-----70

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FIELD, VOLT AMPERE CHARACTERISTIC

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CIRC ACCESSION NO--AP0121534
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DARK CURRENT VOLTAGE
CHARACTERISTICS OF SURFACE BARRIER P-N JUNCTIONS ON HIGH RESISTANCE CDTE
ARE QUADRATIC AND MORE INFLUENCED BY THE ELEC. FIELD IN THE BASE AREA
THAN BY THE RESISTANCE OF THE JUNCTION ITSELF. THE LATTER BECOMES
IMPORTANT WHEN THE BASE RESISTIVITY IS REDUCED BY ILLUMINATION; IN THIS
CASE, THE CURRENT VOLTAGE CURVE IS EXPONENTIAL. FACILITY: FIZ.
TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 547.412

KUKHAR', V. P., KASHEVA, T. N., and KIRSANOV, A. V.

"Reaction of Trichlorophosphazoperchloro Ethane with Aryl Amines and Their Hydrochlorides"

Leningrad, Zhurnal Obschey Khimii, Vol XLIII (CV), No 1, 1973, pp 22-25

Abstract: Hydrochloride salts of aromatic amines and free aromatic amines with $pK_a < 2$ react with trichlorophosphazo perchloro ethane on the

α -dichloromethylene group with the formation of trichlorophosphazo-N-aryl iminotrichloro acetyls. On interaction of trichlorophazo perchloro ethane with aryl amines in a 1:4 ratio, tris(arylamino)phosphazo-N-arylimino trichloroacetyls are formed. Some of the physical properties, the yields and formulas of these compounds are tabulated, and the experimental procedures for obtaining five of them are outlined.

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USSR

UDC 546.185

KUKHAR', V. P., KASHEVA, T. N., and KOZLOV, E. S., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Reaction of Trichlorophosphazoperchloroethane With Ammonium Chloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 743-747

Abstract: Trichlorophosphazoperchloroethane reacts with ammonium chloride forming a four member heterocyclic 2,2-dichloro-4-trichloromethyl-1,3-diaza-2-phosphate, m.p. 83-84°. Evidently the first step in the reaction is the formation of trichlorophosphazoinotrichloroacetyl which then undergoes cyclization. The reaction takes place in 20-25 hrs at 150-170° in absence of a solvent. Catalytic amounts of aluminum chloride shorten the reaction time to 10-12 hours. Diazaphosphete is easily hydrolyzed even with air moisture yielding trichloroacetamide. Reaction of the diazaphosphete with acetic acid goes probably via formation of 2-chloro-4-trichloromethyl-2-oxo-1,3-diaza-2-phosphetene [not isolated] which then converts to N-dichlorophosphonyl-N'-acyltrichloroacetamide, m.p. 207-208°. With formic acid N-dichlorophosphonyltrichloroacetamide, m.p. 202-204° is obtained. The four member ring of the phosphete appears to be planar.

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UDC 547.491.8

KUKHAR', V. P., BUKOVSKII, M. I., KASHEVA, T. N., PALEYCHUK, V. S.,
PETRASHENKO, A. A., SOLODUSHENKOV, S. N., Institute of Organic Chemistry,
Academy of Sciences Ukrainian SSR

"Phosphazo-1,3,5-triazines. IV"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, 1226-1229

Abstract: 2-Azido-4,6-dimethoxy(phenoxy)-1,3,5-triazines easily react with tertiary phosphines and trialkyl phosphites to form 2-phosphazo-4,6-dimethoxy(phenoxy)-1,3,5-triazines. The reaction is exothermic and is completed within 10-15 min. Triphenyl phosphite reacts less rapidly. Tertiary phosphines react easily with azides of diaminotriazines to form 2-phosphazo-4,6-diamino-1,3,5-triazines. The phosphazo compounds are colorless crystals which readily dissolve in alcohol, acetone, methanol, but which are insoluble in water and hexane. They are hydrolyzed in boiling water or in 1N hydrochloric acid. The basicities of the compounds were determined in nitromethane and recalculated to the corresponding values in water. All these compounds were found to be weak bases. Presence of amino or alkylamino groups in the molecule raises the basicity by 3-4 units.

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USSR

UDC 669.715.721.725.295.296.74.26.018.29(033.8

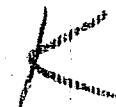
BELOUSOV, N. N., MIKHEYEVA, Ye. N., ZHOLOBOVA, Ye. P., KASHEVNIK, L. Ya.,
DODONOV, A. A., YEGOROVA, V. A., YEVSTRATOV, Yu. A., POPKOVA, V. A., BOTYANOVSKIY,
M. G.

"Aluminum-Based Casting Alloy"

USSR Author's Certificate, No. 253375, Filed, 19/06/67, Published, 8/10/70.
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5
I670P).

Translation: The alloy has the following composition (%): Mg 8-9.5, Be 0.03-0.15,
Ti 0.05-0.15, Zr 0.05-0.2, Mn 0.1-0.3, Cr 0.05-0.15, remainder Al. The alloy has
high technological properties, corrosion resistance, and stability of properties.
In the cast state, the alloy, when cast in a sand mold, has σ_b 18-23 kg/mm², δ 0.7
- 2.5%, a_H 0.2-0.4 kgm/cm²; when cast in a chill mold - σ_b 27-33 kg/mm², δ 4 -
12%, a_H 0.4 - 1.2 kgm/cm².

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1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70
 TITLE---INCREASE IN THE MECHANICAL PROPERTIES OF ZINC CONTAINING SILUMIN
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 AUTHOR-(02)-BELOUSOV, N.N., KASHEVNIK, L.YA. 
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 HIGH PURITY METAL, ALUMINUM ALLOY, SILICON CONTAINING ALLOY, LIQUID
 METAL, METAL REFINING/(U)ALUM ALUMINUM SILICON ALLOY, (U)SILUMIN
 ALUMINUM SILICON ALLOY
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 CIRC ACCESSION NO--AP0118710
 UNCLASSIFIED

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW ALLOY, DESIGNATED AL11M, CONTG. SI 7.9, ZN 13-16, MG 0.4-0.06, CU 0.6-0.9, RE 0.04-0.08, TI 0.04-0.08, ZR 0.04-0.08, AND B 0.03-0.06PERCENT WAS STUDIED. THE ALLOY REQUIRES HIGH PURITY AL (99PERCENT) AS THE STARTING MATERIAL. THE MOLTEN METAL WAS REFINED WITH HEXACHLOROETHANE AND MODIFIED WITH A FLUX CONTG. NACL 62.5, NAF 25, AND KCL 12.5PERCENT. AFTER HEAT TREATMENT, CASTINGS EXHIBITED THE OPTIMUM COMBINATION OF MECH. PROPERTIES. THE MECH. PROPERTIES WERE DETD, FROM MINUS 196DEGREES TO 300DEGREES AND SUITABLE PROPERTIES WERE FOUND IN THE RANGE MINUS 196DEGREES TO 200DEGREES. AFTER HEAT TREATMENT THE YIELD STRENGTH AND ELONGATION OF SAMPLES CUT FROM A CASTING WERE 35-40 KG-MM PRIME2 AND 2-4PERCENT RESP. THE SHRINKAGE, FLUIDITY, AND HOT SHORTNESS OF THIS ALLOY WERE COMPARABLE TO THOSE OF OTHER SILUMINS BUT THE STRENGTH IS 1.5 TIMES GREATER.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--MECHANISM OF THE RADIATION CROSSLINKING OF SOLID RUBBERS -U-
AUTHOR--(05)-KOZLOV, V.T., GURYEV, M.V., YEVSEYEV, A.G., KASHEVSKAYA, N.G.,
ZUBOV, P.I.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 592-601
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--GAMMA RADIATION, POLYMER CROSSLINKING, FREE RADICAL, EPR
SPECTROMETRY, GEL, NATURAL RUBBER, POLYISOPRENE, POLYCHLOROPRENE,
POLYBUTADIENE, BUTADIENE STYRENE RESIN, COPOLYMER, POLYSILOXANE,
CHLOROFLUOROCARBON COMPOUND, FLUORINATED ORGANIC COMPOUND, SYNTHETIC
RUBBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1207 STEP NO--UR/0459/70/012/003/0592/0601
CIRC ACCESSION NO--AP0116672
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF 22 DIFFERENT RUBBERS WERE IRRADIATED BY A PRIME60 CO SOURCE. THE FREE RADICAL YIELDS (G SUBR) WERE DETD. BY EPR SPECTROMETRY. THE CROSSLINK YIELDS (G SUBC) WERE DETD. BY THE SWELLING DEGREE OF THE SAMPLES AND/OR THE GEL FRACTION CONTENTS. FOR MOST OF THE SAMPLES (NATURAL RUBBER, POLYISOPRENES, POLYCHLOROPRENES CONTG. S BONDS, POLYBUTADIENES, BUTADIENE STYRENE COPOLYMERS, BUTADIENE METHYLSTYRENE COPOLYMER, ETHYLENE PROPYLENE COPOLYMERS, POLY(DIMETHYLSILOXANE), POLY(DIMETHYLMETHYLVINYLSILOXANES, POLY (DIMETHYLMETHYLPHENYLSILOXANES), POLY(DIMETHYLDIPHENYLSILOXANE)) G SUBC GREATER THAN G SUBR-2. THE HALOGEN CONTG. RUBBERS (POLY(TRIFLUOROCHLOROETHYLENE), VINYLIDENE FLUORIDE HEXAFLUOROPROPYLENE COPOLYMER, OR VINYLIDENE FLUORIDE TRIFLUOROMETHYL PERFLUOROVINYL ETHER COPOLYMERS) HAD G SUBR-2G SUBC SIMILAR TO 1. THE RADIATION CROSSLINKING OF RUBBERS CONSISTS OF FAST PROCESSES (SIMILAR TO 10 PRIME NEGATIVE 16 SEC) WHICH FOLLOW THE ACTIVATION OR IONIZATION AT LOCATIONS CLOSE TO POTENTIAL CROSSLINKS, AND SLOWER PROCESSES INVOLVING THE TRANSFER OF EXCITONS OR CHARGES. FACILITY: NAUCH.-ISSLED. INST. REZ. PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR

K UDC: 541.64:678.76

KOZLOV, V. T., GUR'YEV, M. V., YEVSEYEV, A. G., KASHEVSKAYA, N. G., ZUBOV, P. I., Scientific Research Institute of the Rubber Industry, Moscow, State Committee for Chemistry; Scientific Research Physico Chemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Investigation of the Mechanism of Radiation Cross-Linking Processes in Hard Rubber"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3, Mar 70, pp 592-601

Abstract: The mechanism of radiation cross-linking was studied at 77°K in 22 elastomer compounds of various structure -- saturated, unsaturated, aromatic and halogen substituted hydrocarbons and polysiloxanes with side groups -CH₃, -CH=CH₂, -C₆H₅ in various combinations and ratios. In nearly all elastomers studied, the cross-link yield was considerably greater than half the radical yield, based on the assumption that two radicals may form a cross link. An exception to this rule is the case of alkyl halide elastomers in which the radical yield is approximately twice the cross-link yield. In many hydrocarbon elastomers, an increase in the capacity of the molecules to form radicals leads to a reduction in the cross-link yield, the ratio of

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USSR

KOZLOV, V. T., et al, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3, Mar 70, pp 592-601

the radical yield to twice the cross-link yield varying from 1/20 to 1/2. In a number of polysiloxanes these ratios vary depending on the presence of isolated double bonds lowers the radical yields and increases the cross-link yields. Both radical and cross-link yields are considerably reduced by aromatic groups, the cross-link yield being reduced to a greater degree. Radiation cross-linking is attributed to a mechanism which takes place during exposure and goes through a number of electron processes. These include rapid processes (of the order of 10^{-10} second) immediately following ionization or excitation of regions in close proximity and oriented for molecular cross linking; the sequence also includes processes which are slowed down by transfer of an exciton or excited charge into these regions. A contribution is also made by processes of the interaction of free radicals and the ions produced when radicals capture charges. The molecular structure of the elastomer determines the relative contribution made by each of these processes to the overall cross-link yield.

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Single Crystals

USSR

UDC 534.29

BELOSTOTSKIY, V. F., KASHEVSKAYA, O. N., and POLOTSKIY, I. G., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Dislocation Damping in Single Crystals of Molybdenum Irradiated by Ultrasound"

Kiev, Metallofizika, No 39, 1972, pp 54-57

Abstract: Dislocation damping in ultrasonically irradiated single crystals of molybdenum was investigated in relation to vibration amplitude, irradiation time, and annealing temperature. High-power ultrasonic oscillations with a frequency of 20 hz were used for irradiation. Measurements were made by the impulse method at a frequency of 10 Mhz. It was shown that with increased amplitude of oscillations the damping level increases but is substantially less than after plastic deformation, yielding a comparable dislocation density. On the other hand, in the irradiation of plastically deformed samples, damping is reduced. The increase in damping occurs in two temperature intervals--75-150 and 250-600°C, between which a peak is situated with a maximum at 210°C. The obtained results are discussed in the limits of the theory Crenato and Lücke. The conclusion is made that ultrasonic irradiation, along with increasing dislocation density, leads to blocking of later point defects more substantially than by plastic deformation. In this aspect, ultrasonic irradiation is analogous to the action of nuclear irradiation or low-temperature annealing. 3 figures, 10 bibliographic references.

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USSR

UDC 539.4.019.3:669.24

POLOTSKIY, I. G., BELOSTOTSKIY, V. F., and KASHEVSKAYA, O. N., Kiev

"Effect of Ultrasonic Irradiation on the Microhardness of Nickel Single Crystals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 71, pp 152-155

Abstract: A study was made of the effect of ultrasonic irradiation on the microhardness of nickel single crystals in relation to the magnitude of strain and irradiation time, and of the thermal stability of the strengthened nickel. Single crystals of nickel were grown by the Chokhral'skiy method in which nickel of 99.95% purity was used. The crystals were cut into flat plates and vacuum annealed at 1050°C to remove internal stresses. Irradiation was done on a unit developed by G. YA. BAZELYUK. Change in microhardness ($\Delta H/H$) to strain ranged from a hardness of zero for 0 to 2 microns strains up to approximately 68 for a strain of 25 microns, where the curve levels off. It was noted that the greater the amount of strain the more rapid the strengthening and achieving of maximum microhardness. Also the thermal stability of strengthened nickel single crystals, as a result of ultrasonic irradiation, is better than after deformation by rolling. Four figures, 11 bibliographic references.

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USSR

UDC 634.852

KASHIEVSKIY, V. V. and CHERNITSER, V. M.

"Some Particulars on the Use of Transposing Units Based on Magnetic Tape for Accelerated Correlation and Spectral Analysis"

Tr. Taganrog. radiotekhn. in-ta (Works of the Taganrog Radio Engineering Institute), 1972, vyp.28, pp 31-42 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 V74)

Translation: This survey is dedicated to the above problem. Various design variants of instruments are studied which are used in the analysis of signals. Original article: four illustrations and 15 bibliographic entries. V.K.

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1/2 010 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ON THE PROBLEM OF SEMIELECTRODE LATERAL AND DIVERGENT LOGGING
SONDES OF THE SAME TYPE AND DIMENSIONS -U-
AUTHOR--KASHIK, A.S. *R*
COUNTRY OF INFO--USSR
SOURCE--NEFTEGAZOVAYA GEOLOGIYA I GEDFIZIKA, NO. 7, P. 45-51, ILLUS, 1969
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--WELL LOGGING, EXPLORATORY DRILLING, MUD, SALINITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1204 STEP NO--UR/0510/69/000/007/0049/0051
CIRC ACCESSION NO--AP0104570
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104570

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT IT IS NOT EFFECTIVE TO USE LATERAL AND DIVERGENT LOGGING SONDES IN CONJUNCTION IN WELLS DRILLED WITH SALINE DRILLING MUDS. A COMBINATION OF SONDES OF SEMIELECTRODE LATERAL LOGGING IS PREFERABLE WHEN P SUBP:P SUBS IS GREATER THAN 1. HOWEVER, IN HIGHLY POROUS RESERVOIRS, ONE DIVERGENT SONDE MIGHT BE VERY EFFECTIVE IF USED IN CONJUNCTION WITH THE LATERAL SONDES.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--RADICAL PROPARGYL EXCHANGE OF HYDROXYETHYL TERTIARY AMINES.
SYNTHESIS OF N, 2 HYDROXYETHYL, PROPARGYLAMINES -U-
AUTHOR--(05)-DMITRIYEVA, Z.T., SHOSTAKOVSKIY, M.F., ATAVIN, A.S., KASHIK,
I.V., TRCFIMEV, B.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 902-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--BROMINATED ORGANIC COMPOUND, TERTIARY AMINE, CHEMICAL
SYNTHESIS, ORGANIC AZO COMPOUND, ETHANOL, BENZENE DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1333 STEP NO--UR/0366/70/006/095/0902/0908
CIRC ACCESSION NO--AP0135007
UNCLASSIFIED

2/2 G11 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0135007
ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. THE REACTION OF RR PRIME1 NCH SUB2
CH SUB2 OH (R AND R PRIME1 GIVEN: ET, ET; CH SUB2 :CHCH SUB2, CH SUB2
:CHCH SUB2; HOCH SUB2 CH SUB2, HOCH SUB2 CH SUB2; CH SUB2:CHCH SUB2, CH
SUB2 CH SUB2 OH; PH, CH SUB2 CH SUB2 OH) WITH HC TRIPLE BOND CCH SUB2 BR
IN COLD KCH SOLN. GAVE 70-90PERCENT RN(CH SUB2 CH SUB2 CHICH SUB2 C
TRIPLE BOND CH (I). HOWEVER, N(CH SUB2 CH SUB2 OH) SUB3 REACTED WITH HC
TRIPLE BOND CCH SUB2 BR TO GIVE HOCH SUB2 CH SUB2 N(CH SUB2 C TRIPLE
BOND CH) SUB2. AT 60-80DEGREES BESIDES I CYCLIC COMPOUNDS., SUCH AS
N,ETHYL,2,VINYL,1,3,OXAZOLIDINE WERE FORMED. SOME I WERE ALSO PREPD. BY
REACTING HC TRIPLE BOND CCH SUB2 BR WITH RNCH SUB2 CH SUB2 OH (R EQUALS
H,ME,CH SUB2 CH SUB2 OH, CH SUB2:CHCH SUB2 CH SUB2, OR PHCH SUB2).
FACILITY: IRKUTSK. INST. ORG. KHIM., IRKUTSK, USSR.

UNCLASSIFIED

USSR

AKIMOVA, A. A., KARPOV, I. K. and KASHIK, S. A.

"Recognition of Geological Objects Belonging to Several Classes on the Basis of a Single Function"

Mat. Modeli v Geol. i Geostatistika [Mathematical Models in Geology and Geostatics -- Collection of Works], Moscow, Nauka Press, 1973, pp 40-44 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V193)

Translation: A group of α a priori possible classes of geological objects $v_1, v_2, \dots, v_\alpha$, are studied, characterized by p properties (for example, the content of chemical compounds, expressed in weight percent). Suppose of a certain set we extract the sample X_1, X_2, \dots, X_k , where $X_i = (X_{i1}, X_{i2}, \dots, X_{ip})$ is a p -dimensional vector. In order to classify the set in question (that is related to one of the classes $v_1, v_2, \dots, v_\alpha$), it is suggested that we use the statistics

$$f = \theta_0 + \theta_1 \bar{X}_1 + \theta_2 \bar{X}_2 + \dots + \theta_p \bar{X}_p,$$

where $\bar{X}_j = \frac{1}{k} \sum_{i=1}^k X_{ij}$. The coefficients $\theta_0, \theta_1, \dots, \theta_p$ are selected on

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USSR

AKIMOVA, A. A., KARPOV, I. K. and KASHIK, S. A., Mat. Modeli v Geol. i Geostatistika, Moscow, Nauka Press, 1973, pp 40-44

the basis of the results of independent observations

$$x^0_1, x^0_2, \dots, x^0_N \quad (1)$$

of geological objects belong to classes $v_1, v_2, \dots, v_\alpha$. The results of observations are p -dimensional vectors and are ordered in sequence (1) so that the results of observations of the geological objects belonging to class v_i precede the results of observations of geological objects belonging to class v_{i+1} .

Suppose n_i the number of observations of geological objects belonging to class v_i . Classes $v_1, v_2, \dots, v_\alpha$ can be assigned the weights $y_1, y_2, \dots, y_\alpha$ respectively.

Coefficients $\theta_0, \theta_1, \dots, \theta_p$ and weights $y_1, y_2, \dots, y_\alpha$ are selected so as to minimize the function

$$\sum_{m=1}^{\alpha} \sum_{l=s(m)+1}^{s(m)+n_m} \left[\theta_0 + \sum_{j=1}^p \theta_j x^0_{lj} - y_m \right]^2,$$

where $s(m) = \sum_{i < m} n_i$.

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CHEMICAL TRANSFORMATIONS

SINGLE-ELECTRON TRANSFER AND CHEMICAL TRANSFORMATIONS
(Conference in Rostov-on-Don)

Article by Gandyata of Chemical Sciences, Z. V. Todress, Moscow,
Vestnik Akademii Nauk SSSR, Russian, No 9, September 1973, pp
102-105]

*De Vries
Retain file
to Physics*

A conference on the role of electron transfers in chemical reactions was held in Rostov-on-Don on 22-25 May. It was organized by the Northern Caucasus Scientific Center of the Higher School; about 40 reports were presented. Participants of the conference were the leading chemical institutes of the High-Leningrad and Gorkiy universities, and also Rostov-on-Don, Moscow, and formation of bonds that is, the rearrangement of the skeletal placement of atoms. It is now considered, however, that the displacement of electrons from one of the reacting molecules to the other. The study of that stage, which has become possible through the use of new instrumental methods of investigation, especially of electron paramagnetic and nuclear magnetic resonance, expands concepts of the reaction mechanism as a sequence of elementary stages known to us.

As a result of electron transfer new particles appear, not known to organic chemistry of the past. The properties of these products were examined in a number of reports. Hemoglobin, cytochrome C and other enzymes with Fe(II) after electron transfer give nonequilibrium forms in which the iron has already gone over into the state Fe(II) but the protein part still retains its prenylous configuration (R. M. Davydov). The transformation of 4-41-dinitro-cis-stilbene into an anion-radical is accompanied by complete cis-trans-isomerization. Destruction of the symmetry of the molecule leads to establishment of equilibrium 4-nitro-cis-stilbene in the presence of electron transfer given a mixture

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KASHIN, A.N.

of nitron-radicals of *cis*- and *trans*-dithionam (Z. V. Todorov),
 In the reports of G. P. Solodovnikov and B. I. Topolov, it was
 shown that the properties of the products of electron transfer
 depend not only on the distribution of electrons over the mole-
 cule but also on the entry of these products into the mole-
 cule of the ionic associates.

Triethylgermyl derivatives of lithium or potassium, as
 well as benzophenone, react in benzene or petroleum
 ether with benzophenone, giving alcoholates of triethylgermyl-substi-
 tuted benzophenone. A completely different product forms in hexane
 ethylaluminum, side by side with benzophenone ketyl. In hexane
 ethylgermyl anion, which reacts further according to a scheme of
 sigma-alkyl-germyl transfer. Heteroallylic organic compounds such as
 bis-(triethylgermyl)mercury or bis-(triethylgermyl)-cadmium
 are capable of participating in electron transfer also in non-
 polar solvents of the type of benzene. If a sufficiently strong
 acceptor, for example tetracyanoethylene, is used (Academul
 clau G. A. Kozlovsky and G. A. Abukhany).

V. I. Kamel'tsi and O. Yu. Onkholovskii revealed the gen-
 eral mechanism of the oxidation of organometallic compounds,
 according to which a single electron is torn away from those
 derivatives and they simultaneously decompose into an organic
 radical and the cation of the metal. The radicals, if they do
 not react chemically, give off still another electron, being
 oxidized to carbocations. The reaction ends with the stage of
 stabilization of those cations, for example, through their re-
 action with molecules of the solvent. The establishment of such
 a mechanism explains the formation of benzyl acetate as the main
 product of the oxidation of benzylmercuracetate by lead tetro-
 acetate in acetic acid. Aliphatic mercury chlorides under the
 same conditions give ethers of acetic acid, peroxides and oxetins.
 The formation of hydrocarbons in that reaction also indicates
 the existence of radicals as intermediates of the oxidation.

The ability of organomercuric compounds to act as elec-
 tron donors was shown on the example of reactions of diaryl mer-
 cury with tetranitromethane (G. A. Shevelov, A. P. Belitskaya,
 et al). Upon reacting with nitronium fluoroborate in sulfolane,
 diaryl mercury gives an aromatic hydrocarbon and (trinitromethyl)-
 mercury as the main product and a certain quantity of ArNO₂.
 G. H. Kozlov, I. P. Boletskaya, and V. I. Stankov. The obtained
 results agree with the hypothesis that in the first stage of the
 reaction the cation-radical of diaryl mercury and the radical Ar
 form. The latter forms through electron transfer either to the
 nitronium cation or to the tetranitromethane. The cation-radical
 of diaryl mercury decomposes, giving the highly reactive radical
 Ar⁺. That radical reacts insignificantly with the lowly reactive

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CONCERNING THE FUNCTIONAL RESTORATIVE TREATMENT OF POLIOMYELITIS
AND CEREBRAL SPASTIC PARALYSIS OUTCOMES IN CHILDREN -U-
AUTHOR--(02)--MININA, R.M., KASHIN, A.D. K
COUNTRY OF INFO--USSR
SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 5, PP 47-50
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--POLIOMYELITIS, THERAPEUTICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1612 STEP NO--UR/0477/70/000/005/0047/0050
CIRC ACCESSION NO--AP0125234
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

GIRC ACCESSION NO--AP0125234

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SPECIALIZED BOARDING SCHOOLS AND CHILDREN'S SANATORIA OF BYELORUSSIA A SYSTEM OF THE FUNCTIONAL RESTORATIVE TREATMENT OF CHILDREN WITH POLIOMYELITIS AND CEREBRAL SPASTIC PARALYSES OUTCOMES HAS BEEN ORGANIZED. CURATIVE EXERCISES, HYDROKINEZOTHERAPY, DIFFERENT KINDS OF MASSAGE HAVE BEEN THE LEADING LINK. A RESTORATIVE TREATMENT IN THESE INSTITUTIONS HAS LED TO DECREASING INVALIDITY AMONG CHILDREN. THE SENIOR SCHOOL CHILDREN HAVE BEGUN TO JOIN THE SOCIAL USEFUL LABOUR. FACILITY: BELORUSSIIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT TRAVMATOLOGII I ORTOPEDII.

UNCLASSIFIED

EQUIPMENT
Aeronautical

USSR

UDC: 621.822.5

BELOUSOV, A. I., RZHEVSKIY, V. P., KASHIN, B. M., RUBINCHIK, Yu. G., Kuybyshev "Order of the Red Banner of Labor" Aviation Institute imeni Academician S. P. Korolev

"A Throttle for a Hydrostatic Bearing"

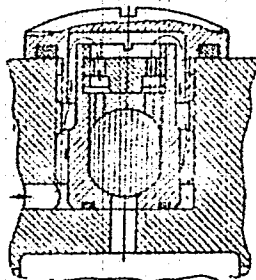
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 73, Author's Certificate No 364773, Division F, filed 18 Dec 70, published 28 Dec 72, p 107

Translation: This Author's Certificate introduces a throttle for a hydrostatic bearing. The device contains an insert of MR porous material accommodated in a housing. As a distinguishing feature of the patent, provision is made for regulating hydraulic characteristics and improving operational properties. The throttle is equipped with a control device made in the form of a washer with channels for passage of lubricant which rests on the porous insert and is compressed by a nut mounted in the housing.

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USSR

BELOUSOV, A. I. et al., USSR Author's Certificate No 364773



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KASHIN, L. A.

Photogrammetry

KASHIN, L. A.

Photogrammetry

JPRS 60001
17 JULY 1970

INTERNATIONAL RELATIONS OF SOVIET
GEOESISISTS AND CARTOGRAPHERS

Article by N. N. Spirskiy, Moscow, Geodesiya i Kartografiya,
Kashin, May 1970, pp 62-69]

The task of intensively studying the natural resources
of the earth would be unthinkable without the modern scientific
investigations, and construction.

Existing methods and rates of mapping the Earth fall
far short of satisfying the demands of science and production.
This leads us to rapidly work out new methods and devices
on the basis of the achievements of electronics, laser tech-
nology, optics, and so forth. Developing complex instruments
and files automated systems requires much time and capital
to achieve the greatest effect, and that also means working
in scientific research and development, it is very important
to use the achievements and discoveries of science and tech-
nology. For this there must be an efficient organization
of international scientific and technical cooperation. The
means and methods of information in scientific and technical
cooperation are of considerable importance. The efficiency
of information exchange depends to a great extent on the
form in which it is presented. That form which makes it possi-
ble to perceive information most fully, reliably, and
accurately, in the shortest period is best. Cartographic
depiction has precisely this character, and as a result
for many years it has been considered the most effective means
of accumulating, reflecting, and transmitting information
about the location and nature of various natural and socio-
economic objects and phenomena. In addition, cartographic
depiction in visual and graphic forms makes it possible for
the essential information to be perceived not only by per-
sons of that nation in whose language the map is created,

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Since 1956, Soviet photographers have been participating in the work of congresses and separate meetings of the International Photographic Society. From 1966 to 1968, the International experts' symposium for determining the accuracy of the coordinates of individual bodies concerned recording to aerial photos of different sizes was conducted. Soviet experts also took part in this symposium. In 1968, in connection with the extensive introduction of photographic methods of operation into various branches of the national economy, the NKV (National Army) created the National Committee of Photographic Workers of the USSR, which was created under the Main Administration of Geodesy and Cartography. The NKV's main task was to open up the work of USSR photographic workers within the country and also to aid the development of photographic work within the country.

In July 1968, at the Eleventh International Space-Framing Conference, the USSR NKV was accepted into membership in the IFO. The Soviet delegation of the Seventh Congress, headed by A. A. Shakhov, chairman of the USSR NKV, took part in the work of the seven IFO commissions. Experts took part presented eight reports to the congress which contained the latest foreign experts. While participating in the congresses and commissions, Soviet photographic workers became more familiar with photographic devices and methods used abroad.

Receiving pictures of the Earth and other planets from cosmic ships, plus the use of heat, radar, and other types of photos create large, complex processing problems. There is no doubt that photographic methods will play a prevailing role in this. This will require complex photographic devices based on electronics, which may be created in considerably shorter periods and with less cost by appropriate use of the possibilities of coordinated work and efficient international scientific and technical cooperation.

Soviet cartographers have participated in many international and regional cartographic conferences, symposia, exhibitions, and have made major scientific and practical contributions to international cooperation and the establishment of cartography in young, developing countries.

For the purpose of expanding international cooperation by Soviet cartographers, in 1968 the USSR National Council of Cartographers was organized. Its primary task was to establish contacts with international and national cartographic societies and committees. The organization

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USSR

UDC: 621.396.677.001.5

ZHELEZNYAK, M. M., KALACHEV, V. N., KASHIN, V. A.

"On the Theory of Statistical Synthesis of Antenna Arrays"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1807-1815

Abstract: A previous paper (V. A. Kashin, Radiotekhnika i Elektronika, 1971, Vol 16, No 11, p 2082) proposed a method of statistical phase synthesis of antenna arrays with discrete phase regulation. There the method was applied to the simplest case of synthesizing the radiation pattern of a square aperture in one of its principal planes. In this paper the method is extended to synthesis of the volumetric radiation pattern of a flat aperture. The technique of synthesis is considered both in the case of cophasal current distribution and in the case where the initial distribution has undesirable phase distortions leading to a rise in the short-range side lobes of the antenna array. A circular flat aperture is considered.

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USSR

UDC 621.396.677.4.001.5

ZHELEZNYAK, M.M., ~~KASHIN, V.A.~~

"Statistical Estimation Of The Attainable Level Of Side Lobes In Phase Antenna Arrays With Nonlinear Initial Phase Advance"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1183-1190

Abstract: The minimum level is estimated of lobes of discrete phasing which it is possible to obtain with the use of a nonlinear initial phase advance [nabeg]. The results of numerical calculations are presented. As the object for the calculations an equidistant array was chosen with a circular aperture and the number of elements $N \approx 3000$. The results of the calculations agree with the preliminary estimations. 3 fig. 3 ref. Received by editors, 7 May 1971.

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- 6 -

USSR

UDC 621.396.67

KASHIN, V. A.

"Synthesis of Antenna Arrays by Means of the Quick Oscillating Phase Method"

Moscow, AN SSSR Radiotekhnika i Elektronika, Vol 15, No 1, 1970, pp 170-172

Abstract: This article deals with phase synthesis of antenna arrays. It presents a simple analytical method for phase synthesis of arrays, based on the properties of a quick oscillating phase distribution. Since the current phases are the controlled parameters in the phasing arrays, it is convenient to transfer the basic burden of synthesis on phase distribution, by appropriately selecting the amplitude distribution. An expression is derived, which represents the phase function having oscillating character. The radiation pattern of Dolf's array with 48 elements and -20 db side lobe level was used as a synthesized diagram. The results of calculations of the given and synthesized patterns are presented in graphs on the db scale. It is concluded, that to prevent the observed high level side lobe in the region of the visible angles, which appears as a result of this method in the $u = 77$ region, it

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USSR

KASHIN, V. A., AN SSSR Radiotekhnika i Elektronika, Vol 15, No 1,
1970, pp 170-172

is necessary to select a smaller array period than the wave half-length. Original article has 2 figures and 9 formulas.

2/2

USSR

UDC 669.787:541.8

ARTEMOV, V. I., BURTSEV, V. T., KASHIN, V. I., and SAKSONOVA, L. N., Moscow

"Investigation of the Solubility of Oxygen in Iron Carbide, Cobalt Carbide, and Nickel Carbide Melts"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 4, Jul/Aug 72, pp 25-31

Abstract: A study was made of the solubility of oxygen in Fe-C-O, Co-C-O, and Ni-C-O melts at 1950°C and $P_{CO}=1$ atm, in order to obtain thermodynamic parameters of the decarburization reaction applicable to electroslog, plasma, and electron-beam remelts. The method of the experiment, which prevented contact between the liquid metal and the refractory lining of the fusion crucible, particularly at higher C concentrations (0.04-5%), is described. Diagrams show the minimum oxygen solubilities of 0.0028% at 3% C for the Fe-C-O system, 0.0010% at 0.6% C for the Co-C-O system, and 0.0010% at 0.3% C for the Ni-C-O system. Values of K_p of the decarburization reaction were determined, and derived e_O^C values are compared with data from other authors.

Five illustrations, one table, twelve bibliographic references.

1/1

Instrumentation and Equipment

USSR

UDC 669.01

TSILOSANI, A. G., KASHIN, V. I., and SAMARIN, A. M., (DECEASED),
Moscow

"Installation for Melting Refractory Metals in a Controlled Atmosphere"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 147-149.

Abstract: A device has been developed for studying processes of melting and interaction of liquid refractory metals with gasses. The metal is melted on an air-cooled base using a gas-stabilized electric arc. The installation is capable of melting the most refractory metals and holding them in the liquid state for as long as necessary for chemical reactions to occur: for example, liquid tungsten was held at 3500°C for 7.5-8.0 min. The device consists of the body, stage supporting metal being studied, upper electrode, electrode movement mechanism, evacuation system, gas mixture preparation and input system, power supply and measurement apparatus.

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USSR

UDC 547.254.9+547.256.83

ZHIL'TSOV, S. F., and KASHIN, V. M., Gor'kiy State Pedagogical Institute
iment M. Gor'kiy

"Reaction of Monoalkoxyderivatives of Organomercury and Organothallium
Compounds With Diethylamine"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, p 2103

Abstract: Earlier research indicates that $RHgOR'$ - and R_2TIOR' -type alkoxyderivatives are readily hydrolyzed to form corresponding $RHgOH$ and R_2TIOH hydroxides. It was therefore expected that these compounds will enter exchange reactions with compounds containing active hydrogen. Specifically, when reactions with diethylamine are involved, it was assumed that they would yield aminoderivatives. The experimental results indicate that propyl radicals disproportionate and that they dehydrogenate the solvent to form propane. The hydrolysis of the nonvolatile residue -- a mixture of organomercury compounds yielded tert.butyl alcohol (23%) and diethylamine (10%). Propylmercury hydroxide which formed as a result of the hydrolysis of the alkoxy- and aminoderivatives was identified (by titration with HCl) as propylmercury chloride. The amount of mercury 1/2

USSR

ZHIL'TSOV, S. F., and KASHIN, V. M., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, p 2103

precipitated by this reaction amounted to 40%. The reaction of alkylmercury t-butoxide with diethylamine yielded an unstable diethylaminoalkylmercury compound which decomposed with precipitation of mercury.

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USSR

UDC: 669.71.046.44

UTKOV, V. A., DAVYDOV, A. D., KASHIN, V. V.

"Strength of Highly Basic Bauxite Sinter"

Prochnost' Vysokoosnovnogo Boksitovogo Aglomerata [English version above], Sverdlovsk, 1973, 14 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G152DEP, by the authors).

Translation: The mechanical properties of sinters of various basicities produced from bauxite with grain sizes 0-10 mm are studied. The minimum of strength with basicity 1.7-1.8, characteristic for ordinary iron ore sinter, is not discovered in bauxite sinter. The strength properties are rather high throughout the entire range of basicity studied, from 1 to 6. As phase analysis shows, there is practically no bicalcium silicate in the bauxite sinters. Bauxite sinters are very slightly damaged during heating and reduction. The influence of storage conditions on the strength of highly basic bauxite sinter is studied.

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USSR

UDC: 669.71.053.21

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LEONT'YEV, L. I., MATYASH, V. G., DAVYDOV, A. D., KASHIN, V. V., UTKOV, V. A., IVANOVA, S. V.

"Reducibility of Highly Basic Bauxite Sinters"

Vosstanovimost' Vysokoosnovnykh Boksitovykh Agglomeratov [English version above], Sverdlovsk, 1973, 9 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G155DEP, by the authors).

Translation: The extraction of moist limestone from blast furnace charges significantly improves the technical and economic indicators of the blast furnace process. The possibility is demonstrated of producing a bauxite sinter with basicity 6.0, allowing complete elimination of limestone in the process of blast furnace melting of bauxites, in order to produce a slag which can be used for the production of Al_2O_3 . The peculiarities of the reduction of the sinter of various compositions under equilibrium and kinetic conditions are studied. Reduction of bauxite sinter with basicity 1.3-6.0 under kinetic and equilibrium conditions has shown that as the basicity increases, reducibility improves. This agrees with the nature of the change of phase composition of sinters: as basicity increases, the content of difficultly reducible

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USSR

Leont'yev, L. I., Matyash, V. G., Davydov, A. D., Kashin, V. V. Utkov, V. A.,
Ivanova, S. V., Vosstanovimost' Vysokoosnovnykh Boksitovykh Aglomeratov,
Sverdlovsk, 1973, 9 pp.

hercynite decreases, while the share of more easily reducible ferrites and
aluminoferrites of Ca increases.

2/2

- 90 -

USSR

UDC 669.295.046.44

UTKOV, V. A., KUDINOV, B. Z., YAKOVLEV, V. A., TRUNOV, G. Z., KASHIN, V. V.,
RENPEL', P. S.

"Dilatometry of Titanium-Vanadium Agglomerate"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSSR (Works of the Institute of
Metallurgy. Ural's Branch of the USSR Academy of Sciences), 1970, vyp. 22,
pp 140-142 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G228)

Translation: The compositional and grain size characteristics of Kachkanarskiy
concentrates determine its capacity for agglomeration. The ore has a high
Fe content and low SiO_2 content. The ore composition is the following (in %):
Fe 59.9, FeO 26.0, SiO_2 5.4, TaO 2.0, V_2O_5 0.66, TiO_2 3.3, MgO 2.6, S 0.004.

The content of fractions in the concentrate is as follows (in %): +0.1 mm
23.3, +0.074 mm 15.7, -0.074 mm 61. This arises from the necessity for fine
crushing of the ore. The temperature level of the sintering process is raised
as a result of less development of the low-melting phases based on Ca, Si, and
Fe oxides and also as a result of the presence of Ti and V oxides. The
agglomerate is inclined toward crack formation as a result of internal stresses
arising during cooling of the formed and hardened mass. There are 2 tables.
1/1

Steels

USSR

UDC 621.785:66.096.5

IVANTSOV, G. I., SINTREMT, M. S., CHUKIN, V. V., and KASHIN, YU. A., Magnitogorsk Mining and Metallurgy Institute imeni G. I. Nosov

"New Quenching Medium"

Moscow, Metallovedeniye, No 5, May 70, pp 54-57

Abstract: To prevent cracking and distortion of steel parts, the quenching medium must have a controlled cooling rate. A medium is proposed which used solid particles and water with air being forced through the porous material as bubbles into a cylinder filled with water and the solid particles. This places the solid particles in a suspended state of high agitation. A small amount of a flotation agent may be added if necessary. In this work aluminum filings, granulated cinders (1.5-2.0 mm mesh), glass marbles (1.5 mm diameter), and flotation additives--pine oil or propylene oxide and butanol (OPSB) in quantities of 0.01 g/l--were used. Upon adding the flotation agent and turning on the air flow, three layers were formed in the cooling medium column: top layer--a froth; middle layer--air-water mixture with a small concentration of rapidly moving particles; and the bottom layer--water-air mixture with a high concentration of slow-moving particles. The cooling rate can be regulated by changing the ratios of solid particles and water and by altering the air flow. The particle-to-water ratios used were 1/10 and 1/5, and the air flow varied from 0.3 to 0.5 l/cm²-min.

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USSR

IVANTSOV, G. I., et al., Metallovedeniye, No 5, May 70, pp 54-57

Bolts and spikes made from 40 Kh steel were heated to 840-860°C and quenched in oil, followed by tempering. The spikes were tempered at 240-280°C to a hardness of 44-56 (Rockwell C) and subjected to a bend angle of 15° without fracture. The bolts were tempered at 500° C to a Brinell hardness of 269-388 with a tensile strength of 120 kg/mm² minimum.

Tests showed that 10 bolts were quenched to 20°C in stirred water and that four of them had cracks. Ten bolts oil quenched to 40°C had no cracks. Of ten bolts quenched in the above-described quenching medium with a 1/10 ratio, one showed cracks; 50 bolts quenched in the medium with a 1/5 ratio and the OPSB flotation agent showed no cracks. The bolts had a uniform sorbite structure and a tensile strength of 125-135 kg/mm².

Quenching the spikes in the new medium resulted in a higher and more uniform hardness and a larger bend angle before fracture (60-100°) than when spikes were quenched in oil.

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172 018 UNCLASSIFIED PROCESSING DATE--13NOV70
 TITLE--THERMAL DECOMPOSITION OF CHLORATES, BROMATES, IODATES,
 PERCHLORATES, AND PEROXIDES OF POTASSIUM, RUBIDIUM, AND CESIUM -U-
 AUTHOR--(03)-BREUSOV, G.N., KASHINA, N.I., REVZINA, Y.V.
 COUNTRY OF INFO--USSR
 SOURCE--ZH. NEORG. KHIM. 1970, 15(3) 612-14
 DATE PUBLISHED--70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--THERMAL DECOMPOSITION, RUBIDIUM COMPOUND, POTASSIUM COMPOUND,
 CESIUM COMPOUND, CHLORATE, BROMATE, PERCHLORATE, IODATE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1994/1872 STEP NO--UR/0078/70/015/003/0612/0614
 CIRC ACCESSION NO--AP0115691
 UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115691

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL DECOMPN. OF M (M EQUALS K, RB, AND CS) CHLORATES, BROMATES, IODATES, PERCHLORATES, AND PERIODATES WERE STUDIED BY DTA, THERMOGRAVIMETRY, AND BY EVOLVED GAS DETECTION. THESE COMPS. DECOMP. WHEN MELTED AND THEIR THERMAL STABILITY INCREASED IN THE ORDER: MIO SUB4 SMALLER THAN MBRO SUB3 SMALLER THAN MCLO SUB3 SMALLER THAN MID SUB3 SMALLER THAN MCIO SUB4. WITH THE EXCEPTION OF PERCHLORATES AND IODATES, ALL THESE COMPS. EVOLVED GREAT ENERGY DURING THE INITIAL CLEAVAGE OF O, WHICH MADE THEM EXPLOSIVE.

UNCLASSIFIED

1/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--SOLUBILITY IN THE SODIUM CESIUM PARALLEL TO CHLORIDE, CHLORATE H
SUB2 O SYSTEM AT 25, 50, AND 75DEGREES --U--
AUTHOR--(02)--ARKHIPOV, S.M., KASHINA, N.I.

COUNTRY OF INFO--USSR

SOURCE--Zh. NEORG. KHIM. 1970, 15(3), 760-4

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORIDE, SOLID SOLUTION, SODIUM COMPOUND, CESIUM COMPOUND,
SOLUBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0713

STEP NO--UR/0078/70/015/003/0760/0764

CIRC ACCESSION NO--AP0126425

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126425

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. OF NaClO SUB3, CsClO SUB3, H SUB2 O AND CsCl, CsClO SUB3, H SUB2 O SYSTEMS WAS STUDIED AT 25DEGREES AND SOLY. ISOTHERMS WERE CONSTRUCTED. SOLY. IN Na PRIME POSITIVE, Cs PRIME POSITIVE PARALLEL TO Cl PRIME NEGATIVE, ClO SUB3 PRIME NEGATIVE MINUS H SUB2 O SYSTEMS WAS DETD. AT 25, 50, AND 75DEGREES AND CRYSTN. FIELDS ARE PRESENTED FOR NaCl, AND CaCl, CsCl AND NaClO SUB3, CsClO SUB3 SOLID SOLNS. THE INVESTIGATED SYSTEMS ARE OF A SIMPLE EUTONIC TYPE. A RESULTS ARE TABULATED.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RB, CS-CL, CLO SUB3 -H SUB2 O SYSTEM AT 25DEGREES -U-
AUTHOR--(03)-ARKHIPOV, S.M., KASHINA, N.I., KUZINA, V.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1640-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TERNARY FLUID SYSTEM, CRYSTALLIZATION, SOLUBILITY, SOLID SOLUTION, AQUEOUS SOLUTION, RUBIDIUM CHLORIDE, CESIUM CHLORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1307 STEP NO--UR/D078/70/015/006/1640/1642
CIRC ACCESSION NO--AP0135061
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135061

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RBCL-CSCL-H SUB2 O SYSTEM WAS STUDIED BY SOLY. METHOD AND BY X RAY DIFFRACTION. THE SYSTEM FORMS A LIMITED SOLY. OF A SERIES OF SOLID SOLN. LIMITS OF CRYSTN. FIELDS OF SOLID SOLNS. OF RBCL O SUB3 WITH CSCL O SUB3, OF CS(RB)CL, AND RB(CS)CL ARE DETD.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PHASES OF VARIABLE COMPOSITION IN A SODIUM CHLORIDE, CESIUM
CHLORIDE, WATER SYSTEM -U-
AUTHOR--(03)-ARKHIPOV, S.M., KASHINA, N.I., KUZINA, V.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1086-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SODIUM CHLORIDE, CESIUM COMPOUND, THERMAL ANALYSIS, X RAY
DIFFRACTION, SOLID SOLUTION, WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1114 STEP NO--UR/0078/70/015/004/1086/1089
CIRC ACCESSION NO--AP0123106
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123106

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY, IN NA₂CO₃,CSCL₂H SUB2 O SYSTEM
WAS DETD. AT 25DEGREES. DTA AND X RAY DIFFRACTION STUDY OF THE SOLID
PHASE OF VARIABLE COMPN. CONTG. SMALLER THAN 33.7 MOLE PERCENT NA₂CO₃
SHOWED THAT IT IS MADE UP OF SUBSTITUTED AND INTERSTITIAL SOLID SOLNS.
OF NA₂CO₃ AND CSCL₂.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--11DEC70
 TITLE--SYNTHESIS AND STUDY OF LONGITUDINAL WAVE ABSORBERS IN RODS AND
 PLATES -U-
 AUTHOR--(03)-KASHINA, V.I., TIUTEKIN, V.V., SHKVARNIKOV, A.P.
 COUNTRY OF INFO--USSR
 SOURCE--AKUSTICHESKII ZHURNAL, VOL. 16, APR.-JUNE 1970, P. 257-263
 DATE PUBLISHED-----70
 SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
 TOPIC TAGS--MATHEMATIC EXPRESSION, ABSORPTION, METAL ROD, FLAT PLATE,
 VIBRATION TRANSMISSION, LONGITUDINAL WAVE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY FICHE NO----FD70/605002/007 STEP NO--UR/0046/70/016/000/0257/0263
 CIRC ACCESSION NO--A0139457
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 018

CIRC. ACCESSION NO--AP0139457
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. INVESTIGATION OF THE SYNTHESIS OF
LONGITUDINAL WAVE ABSORBERS FOR ATTENUATING RESONANCE VIBRATIONS IN RODS
AND PLATES. A TEN ELEMENT OPTIMAL ABSORBER FOR A TWO OCTAVE FREQUENCY
RANGE IS CALCULATED AS AN EXAMPLE. AN EXPERIMENTAL STUDY IS MADE OF A
LONGITUDINAL WAVE ABSORBER WITH AN ABSORPTION COEFFICIENT OF 0.96 TO
0.97 IN A DURALUMIN ROD WITH A THICKNESS OF 5 MM AT FREQUENCIES RANGING
FROM 8 TO 32 KHZ.
INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70
 TITLE--THE DURATION OF PASSIVE IMMUNITY IN PROPHYLAXIS OF TETANUS -U-
 AUTHOR--(05)-MATVEYEV, K.I., KASHINTSEVA, N.S., PETROV, P.N., KASPAROVA,
 YE.M., KHARMOVA, S.A.
 COUNTRY OF INFO--USSR
 SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,
 PP 32-36
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PASSIVE IMMUNITY, PROPHYLAXIS, TETANUS TOXOID, TETANUS

CONTROL MARKING--NO RESTRICTIONS .

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1994/0104

STEP NO--UR/0016/70/000/005/0032/0038

CIRC ACCESSION NO--AP0114500

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114500

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES OF ANTITOXIN TITRE AFTER THE ADMINISTRATION OF 3,000 AU OF ANTITOXIN SERUM WERE STUDIED ON 98 PATIENTS OF THE TRAUMATOLOGICAL DEPARTMENT OF THE SKLIFOSOVSKY INSTITUTE. BLOOD ANTITOXIN TITRE WAS DETERMINED ON THE 2ND, 4TH, 6TH, 8TH, 10TH, 12TH, 15TH, 20TH AND 30TH DAYS. IN THE MAJORITY OF CASES THE ANTITOXIN TITRE REMAINED WITHIN THE RANGE OF 0.01 AU-ML UP TO THE 8TH-12TH DAY. LATER ITS TITRE DISPLAYED A RAPID FALL. TO INCREASE THE EFFICACY OF TETANUS PROPHYLAXIS IN NONIMMUNIZED WOUNDED PERSONS AN ACTIVE PASSIVE PROPHYAXIS WITH THE SERUM AND TOXOID IS NECESSARY. FACILITY: INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII IM. SAMALEI AMN SSSR AND INSTITUT IM. SKLIFOSOVSKOGO, MOSCOW.

UNCLASSIFIED

USSR

UDC: 621.385.6

KAMINSKIY, F. D., KASHIRIN, A. P., LELIOVSKIY, A. F., MATROGOV, Ye. I.,
RYABININ, V. A., TERRA, K. R.

"An Electronic SHF Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 32, 1970, Soviet Patent No 270093, Class 21, field 17 Jul 67, pp 215-216

Abstract: This Author's Certificate introduces: 1. An electronic SHF device (such as a tricde) containing an electron-optical system which is part of the vacuum input and half-wave short-circuited output (anode) resonators and which is made in the form of individual cells, each consisting of a cathode and grid operating into a common anode. As a distinguishing feature of the patent, the reliability is improved and the output power of the device is increased by making vacuum-tight coupling apertures for energy output in one of the walls of the output resonator located at a high-frequency voltage node symmetric with the axis of the device. 2. A modification of this device in which the distinguishing feature is that control of the width of the frequency passband is provided by installing a rotating disc at the energy output point on the axis of the device with apertures identical in size and shape to the coupling apertures, and in the same position relative to the axis of the device.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/6

238325 HYDRAULIC PRESS for straightening forging of large dimensions and various shape consists of columns 1 with connecting traverse 2 on the side of which is mounted the auxiliary table 3. The clamp 4 is hydraulically pressurised and can be varied in position through the teeth 3 of the V section and used for holding the forgings. For the straightening of shafts the table has supports 7 and striker 8 which is mounted on the traverse 8 on the end of the hydraulic cylinder plunger 9. The slide block 10 is activated by 6 through the intermediate mechanism 11.
 3.6.67. as 1161876/25-27. L.E TIMOF et al.
 Izhor A.A Zhdanov Works. (3.7.69.) Bul.9/
 20.2.69. Class 49h. Int.Cl. B23k.

18

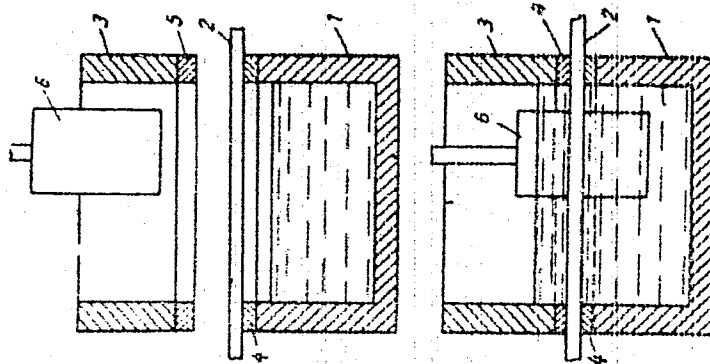
AUTHORS: Timofeyev, L. I.; Smirnov, V. I.; and Kashirin,

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L. V.
Izhorskiy Zavod imeni A. A. Zhdanova

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AAJ038807



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19740015

KASHIRIN, V. S.

UFRS 57517
15 Nov 72

- 58 -

UDC 617-001.26-092.9-035.4:618-025.9-092
POSSIBLE ROLE OF ANTITISSUE AUTOMATONIDES IN THE PROTECTIVE REACTION OF
LOCAL SHIELDING DURING TOTAL IRRADIATION

Article by N. N. Klemarskaya and V. S. Kashirin, Moscow, Kuznetsovskiy
Biologiya i Meditsina, Moscow, No. 10, 1972, pp. 15-18, 15
pp 3-04, submitted for publication 16 August 1971

Abstract: Experiments on 15 white rats indicated that shielding of one hind leg considerably increases the number of antibodies eluted from the muscle tissue mass during the first 15 minutes after irradiation. Shielding of the upper abdominal section, the most effective method for partial body protection, also induces a significant increase in the number of autoantibodies in the blood, spleen and muscle tissue and an increase in the number of circumbody-forming cells in the blood and liver. An increase in the number of normal auto-antibodies during early post-irradiation stages exerts a protective effect since they have the capacity of binding and rendering harmless tissue decay products which emerge under the influence of ionizing radiation.

Most authors who have studied the influence of shielding of different parts of the animal body during total irradiation have directed their main attention on the possibility of migration of antigenic cells from the unirradiated part of the body (M. V. Dzhigalov et al; G. S. Streltsov). However, certain facts indicate a need for finding other methods for explaining the favorable effect of local shielding. It is known that with removal of the shielded organ the effect does not disappear during the first hours after total irradiation (Sobolev).

Our earlier study of the effect of shielding of the hind extremities and tail of rats revealed that in protected animals at the end of radiation sickness the formation of leukolytins and normal autoantibodies is considerably reduced (N. N. Klemarskaya, 1967). However,

USSR

UDC: 519.2

KASHIRSKAYA, N. A.

"A Multichannel Queuing System With Limited Dwell Time and a Limited Number of Waiting Spots With Regard to the Possibility of Failure and Subsequent Restoration of Servers"

Probl. sistemotekhniki--sbornik (Problems of Systems Analysis--collection of works), vyp. 2, n. p., "Sudostroyeniye", 1972, pp 78-91 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V96 from the author's foreword)

Translation: Let n be a linear queuing system with a limited time of stay in the system and a limited number of waiting spots N . A Poisson stream of customers with parameter λ arrives at the input of the system. The time for serving a customer is distributed by an exponential law with parameter μ . The time of stay of a customer in the system ξ is limited by a random quantity distributed by an exponential law with parameter ν . The servers may be put out of commission both in the busy period and in the free state, and the no-failure time is distributed by an exponential law with parameters α_1 and α_2 respectively.
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USSR

KASHIRSKAYA, N. A., Probl. sistemotekhniki, vyp. 2, 1972, pp 78-91

It is assumed that $\alpha_1 = \epsilon\alpha$, $\alpha_2 = \epsilon\alpha_2$, where ϵ is a small parameter close to zero. The recovery time ξ_1 is distributed by an exponential law with parameter β . It is assumed that restoration of a server begins immediately. The given system has the following queue discipline. When a customer arrives at the input of the system, serving begins immediately, if there is at least one free channel in proper working order. When all channels are busy or being restored, the customer stands in line if its length does not exceed $N - 1$. The customer is lost in the following cases: a) there are already N customers in the line at the time of arrival of a customer in the system; b) a customer waits for service longer than ξ_1 ; c) the customer has already been served, but the time of his stay in the system has exceeded ξ ; d) the server has gone out of commission during service. The customers are served in the order in which they arrive in the system. In the described queuing system, stationary distributions are found in the paper for the probabilities of queue length, waiting time for the beginning of service, and some other characteristics.

2/2

USSR

UDC: 534.222.2

KASHIRSKIY, A. V., ORLENKO, L. P., and OKHITIN, V. N.

"Effect of the Equations of State on the Dispersion of Detonation Products"

Moscow, Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2, 1973, pp 165-170

Abstract: Results are given in this paper of the numerical solution of problems of the dispersion of detonation products for various forms of the equation of state. Recognizing that a number of different equations of state have been advanced by the literature on detonation products, the authors select the simplest form of the equation which provides sufficient accuracy for the practical solution of problems on detonation product dispersion. An expression for the logarithmic slope of the isentrope is also obtained. Curves are plotted for the pressure, density, and mass velocity spectra for plane, cylindrical, and spherical detonation waves. The analysis shows that the equation of state in simple form and the expression obtained for the isentrope can be used for computing explosion problems with a sufficient degree of accuracy.

1/1

USSR

UDC: 621.372

~~KASHIRSKIY, I. S.~~

"An Iteration Method for Optimizing Electronic Circuits"

Avtomatiz. proyektir. v elektronike. Resp. mezhved. nauchn.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 2, pp 78-84 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A50)

Translation: A method of "steep descents" is described which is suitable for solving the general problem of optimizing electronic circuits. The method has a high rate of convergence in minimization of single-extremum and multiple-extremum functions with "steep descents". Three illustrations, three tables, bibliography of seven titles. Resumé.

1/1

USSR

UDC 62-505:621.396.6.001.2

KASHIRSKIY, I. S.

"Method of Iteration Optimization of Radio Circuits"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 78-84

Abstract: A method of "steep descents" is described which is suitable for solving the general problem of optimizing radio circuits. The method has a high rate of convergence in the case of minimizing one-extremum and multiple-extremum functions with "steep descents". Three tables, three illustrations, bibliography of seven titles.

1/1

- 20 -

USSR

UDC 549.746

INDOLEV, L. N., ZHDANOV, YU. YA., KASHIRTSOVA, K. I., SUKTEV, V. S., and DEL'YANIDI, K. I., Institute of Geology, Yakutsk Branch, Siberian Department of the Academy of Sciences USSR

"Magnesium and Aluminum Hydrocarbonates -- the New Mineral Indifirite"

Zapiski Vsesoyuznogo Mineralogicheskogo Obshchestva, 2nd Series, No 2, 1971, pp 178-183

Abstract: A new mineral has been found along the Indifirka river in North-east Yakutia (near the Arctic Circle). Called "indifirite," the mineral is a rosette-like divergent, randomly arranged aggregate. In the center of the rosette there are occasionally fine "seed" hips. In the fine cracks, fan-shaped deposits are cleaved by a mass of very fine fibers, needles, or lamina about 1 mm in length. Indifirite is snow-white, and has a glossy luster with a silky cast. The hardness is about 2. The lamina and fibers are elastic. The specific weight is 1.6 ± 0.1 .

Indifirite is not radioactive and is optically anisotropic. It is insoluble in water, alcohol, and ammonia. In acids and KOH it dissolves instantly, with the formation of odorless gas bubbles. Chemical analysis gave the following composition, (in wt.%): MgO, 12.08%; Al_2O_3 , 14.58%; CaO 1/2

USSR

INDOLEV, L. N., et al., Zapiski Vsesoyusnogo Mineralogicheskogo Obshchestva, 2nd Series, No 2, 1971, pp 178-183

0.45% Fe₂O₃, 0.64% CO₂, 24.18%; H₂O, 44.36%; SO₃, 0.45%.

Electron microscopic pictures revealed elongated tabular forms with uneven edges. Fine material was noted in the crystalline spaces and dehydration of the mineral under vacuum was observed. The parameters of the dehydrated crystals were found to be for c, $6.23 \pm 0.02\text{\AA}$ lengthwise and $3.16 \pm 0.02\text{\AA}$ crosswise, which was close to that of artinite. Debye powder patterns for the untreated mineral did not match any known mineral or synthetic compound. Heat treatment at 100°C also gave an original Debye pattern, but material heat treated at 900°C showed a spinel-type pattern which is natural for a magnesium-aluminum hydrocarbonate. Heat loss curves showed endothermic minima at 120°, 160°, and 215°C. Very little change in weight was noted above 200°C. A very slight endothermic effect was noted at 550°C for two of three samples. The peaks suggested loss of water of crystallization, hydroxyl water, and dissociation of complex carbonates. Infra-red spectra confirmed the proposed structure of the new mineral. Comparisons were also made with other water-containing magnesium or magnesium-aluminum carbonates.

2/2

USSR

UDC: 681.325.3

KHOLKIN, I. I., NOVICHKOV, V. S., KASHITSYN, Ye. M.

"On Improving the Dynamic Properties of Frequency-Code Converters Which Measure Signals from Differential String Pickups"

Tr. Ryazansk. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1970, vyp. 18, pp 93-96 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A173)

Translation: An effective means for reducing dynamic errors of frequency-code converters for string pickups of the differential type is multiplication of the frequencies to be measured. A digital two-channel device for multiplication of pulse-frequency signals is considered which is based on the principle of filling the period of the frequency to be converted. The device was used in a self-adaptive smoothing converter which measured frequency signals from precision differential string accelerometers. Two illustrations, bibliography of three titles. V. M.

1/1

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USSR

UDC: 517.95.32

KASHKAKHA, V. E., DANYLYUK, I. I., Corresponding Member of the Academy of Sciences of the UkrSSR, Institute of Applied Mathematics and Mechanics, Academy of Sciences of the UkrSSR

"Concerning a Nonlinear Spatial Problem With Free Boundary"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A: Fizyko-Tekhnichni ta Matematychni Nauky, No 2, Feb 73, pp 119-123

Abstract: In the problem it is required to determine the infinite cylindrical region D_0 of arbitrary cross section extending downward and bounded from above by an unknown surface S on the basis of the conditions: 1) a solution exists in D_0 for the equation $(e^{au}u_x)_x + (e^{bu}u_y)_y + (e^{cu}u_z)_z = 0$, $q = \text{const} > 0$, which vanishes as $z \rightarrow -\infty$; 2) the heat transfer condition $u_n + \alpha u = 0$, $\alpha = \text{const} > 0$ is satisfied on the lateral surface ∂D_0 ; 3) the two conditions $u = 1$, $|\text{grad} u| = Q$ are satisfied on S , where $Q(x, y, z)$ is a given function. This problem arises in investigation of the three-dimensional quasi-stationary Stefan problem, where $Q(x, y, z)$ describes the heat flux from the side of the liquid phase. The problem is reduced to a variational problem for some integral functional with variable region of integration, and a theorem of uniqueness

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USSR

KASHKAKHA, V. E., DANYLYUK, I. I., *Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A: Fizyko-Tekhnichni ta Matematychni Nauky*, Feb 73, pp 119-123

is proved on this basis: if $Q_z(x,y,z)$ is non-negative, then in the class of functions which satisfies the condition that $u_z(x,y,z)$ is positive the problem can have no more than a single solution. A description is given of the corresponding Ritz method, the first approximations are calculated, and approximation formulas are indicated for the free boundary.

2/2

- 27 -

USSR

UDC 621.371.334

KASHKAN, A. A. and POLISHCHUK, Yu. M.

"Kirchhoff Diffraction in a Nonuniform Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 2 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 2--collection of works) "Nauka," 1972 pp 102-106 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A358)

Translation: The diffraction field of a system of parallel absorbing half-planes in a nonuniform atmosphere, whose field of dielectric permeability fluctuations is assumed statistically uniform and isotropic, is examined. Two illustrations, bibliography of eight. A. L.

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USSR

UDC 539.192

DEMENT'YEV, V. A., KONDRATOV, O. I., GRIBOV, L. A., (Dept, of Physics) KASHKAN, L. I., (Belorussian State University)

"Program for Solving the Problems of Multiatomic Molecule Oscillation Modes on 'Minsk-22' Computer"

Moscow, Izvestiya Timirayzevskoy Sel'skohozyaystvennoy Akademii, No 2, 1970, pp 203-214

Abstract: The algorithm and the program for solving the direct spectral problem of the theory of oscillatory spectra of multiatomic molecules (up to 27 atoms) on the "Minsk-22" electronic computer are described in detail. The program consists of four logically independent sections; 1) the formation of matrices (up to 81st order) of molecule kinetic T_p and potential U_q energy in the natural and symmetry coordinates; 2) the determination of oscillation frequencies and modes in natural and symmetry coordinates with automatic search and elimination of dependent coordinates; 3) the reduction of the oscillatory mode in natural coordinates to zero amplitudes of normal oscillatory modes; 4) determination of atoms displacement corresponding to zero amplitudes of normal

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USSR

DEMENT'YEV, V. A., et al., Moscow, Izvestiya Timirayzevskoy Sel'skokozyaystvennoy Akademii, No 2, 1970, pp 203-214

oscillatory modes. An example of the preparation and recording of the initial data for determining the oscillatory mode of a multiatomic molecule of ethane (C_2H_6) is presented. Original article has two figures, ten formulas and three tables.

2/2

Magnesium

USSR

UDC 669.721.472(088.8)

ZUYEV, N. M., KASHKAROV, A. Z., IVANOV, A. B., KOLESNIKOV, A. V., and GOLUBEV, A. A.

"Method of Transporting Electrolytes for the Production of Magnesium

USSR Author's certificate No. 263894, Filed 21/10/68, Published 8/06/70,
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract
No. 1 G170 P)

Translation: The method includes utilization of a pipeline and pump. In order to avoid expending electric power to heat the pipelines by using the heat of the exothermic reaction occurring upon mixing of the circulating electrolyte with $MgCl_2$, the circulating electrolyte is fed to a mixer for enrichment with magnesium chloride through a pipe contained in a trough, while the electrolyte enriched with magnesium chloride is returned from the mixer to the electrolyzers through the trough.

1/1

Magnesium

UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., KASHKAROV, A. Z., DONSKIKH, P. A., KOLESNIKOV, A. V., COLUBEV, A. A., SPRYGIN, A. I., KOLESNIKOV, V. A., and KUZ'MIN, V. V., All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry, and Berezniki Titanium-Magnesium Combine.

"Device for Conveying Liquid Electrolyte and Magnesium"

USSR Authors' Certificate No 259396, Cl. 40c, 3/02; 40c, 3/08, (C 22d), filed 21 Oct 68, published 28 Apr 70 (from *RZh-Metallurgiya*, No 12, Dec 70, Abstract No 12 G250 P)

Translation: In order to utilize the heat of the exothermic reactions taking place during the mixing of reversible electrolyte with $MgCl_2$ and to preclude the consumption of electric energy for heating the main conveyer lines, a pipeline for conveying the reversible electrolyte and metallic magnesium was installed inside a trough-shaped channel to convey a magnesium chloride-enriched electrolyte, the pipeline being connected at one end with the last electrolyzer of the flow line, and at the other with a mixer, while the trough-shaped channel is connected with the lead electrolyzer and the mixer.

1/1

1/2 035 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--INVESTIGATION OF COSMIC RAY INDUCED TRACKS IN METEORITIC MINERALS
-U-
AUTHOR--(05)-KASHKAROV, L.L., GENAEVA, L.I., MALISHEV, V.V., SATAROVA,
L.K., LAVRUKHINA, A.K. K
COUNTRY OF INFO--USSR, HUNGARY
SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, LITH, BUDAPEST, HUNGARY,
AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS. VOLUME 1 ORIGIN AND GALACTIC
DATE PUBLISHED-----7C

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ASTRONOMY, ASTROPHYSICS,
ATMOSPHERIC SCIENCES
TOPIC TAGS--METEORITE, MINERAL, COSMIC RAY, NUCLEUS, PROTON, TRACK
ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605061/803 STEP NO--HU/2506/70/029/000/0449/0452

CIRC ACCESSION NO--AT0144425

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144425

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. TWO BASIC COSMIC RAY TRACK SOURCES ARE CONSIDERED: HEAVY PRIMARIES (Z GREATER THAN 22) AND SECONDARY SPALLATION AND FISSION PRODUCTS BY HIGH ENERGY PROTON INTERACTIONS IN METEORIC CONSTITUENTS. WE PRESENT HERE EXPERIMENTAL DATA ON CALIBRATION OF TRACK LENGTHS IN METEORITIC SILICATE MINERALS. THE INVESTIGATED MINERALS WERE IRRADIATED IN THE HEAVY ION AND HIGH ENERGY PROTON ACCELERATORS IN DUBNA. FINALLY WE REPORT THE RESULTS OF MEASURING FOSSIL TRACK DENSITIES AND LENGTH DISTRIBUTION IN OLIVINE CRYSTALS SAMPLED FROM SEVERAL REGIONS OF THE PALLASITE LLIMAES. THE RELATION V_{H-VH} COSMIC RAY NUCLEI APPROXIMATELY 2 TIMES 0.0001 WAS OBTAINED. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT GEOKHIMII I ANALITICHESKOI KHIMII, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.039.553:621.382.3

POTEMKIN, V. V., KASHKAROV, P. K.

"Effect of Neutron Irradiation on the Low-Frequency Noise Properties of MDS Transistors"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1995-1996

Abstract: The MDS transistor is a unipolar device. This is the reason for its weak sensitivity to any kind of structural defect. With this in mind, the authors investigated the effect of neutron bombardment on the current-voltage and noise curves of MDS transistors. Devices with an induced P-channel were studied with two types of dielectrics: silicon nitride and silicon dioxide. The current-voltage characteristic was almost unchanged by exposure to a neutron flux of 10^{12} - 10^{13} neutrons per sq. cm at an energy of 14 MeV. The threshold voltage was raised by only 0.3-0.5 V. Noise properties were considerably altered. Internal noises were tripled on the average in devices with both types of dielectric. It was also found that the noise spectra of MDS transistors are changed by neutron irradiation, especially low-noise devices with silicon nitride dielectric. In conclusion the authors thank Ya. A. Fedotov, O. V. Sopov and G. Ye. Belovitskiy for assistance and interest in the work.

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Construction

USSR

UDC 624.131.537:626.82.06-15

YEVDOKIMOV, P. D., Professor, Doctor of Technical Sciences, APTEKAR', L. D.,
Candidate of Technical Sciences and KASHKAROV, P. N., LIPOVETSKAYA, T. F.,
and KONDRAT'YEVA, K. B., Engineers

"Experimental Studies to Determine the Stability of the Building of Nizhne-
Kamskaya Hydroelectric Power Station"

Gidrotekhnicheskoye Stroitel'stvo, No 3, 1972, pp 11-15.

Abstract: Results are reported from field tests of the shear strength of
the foundation of the Nizhne-Kamskaya hydraulic electric power station power
house. Experiments on shear of stamps performed in the construction trench
at the level of the structure were used as a basis for the design charac-
teristics of foundation soil strength for the power house and to establish
possible types of deformation of the foundation upon shifting of the struc-
ture under the engineering and geological conditions of the site.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF THE ACTIVITY OF ISOENZYMES BY AGAR GEL
ELECTROPHORESIS -U-
AUTHOR-(04)-SURINOV, B.P., KASHKIN, K.P., BOCHKOVA, D.N., KUZINA, A.A.
COUNTRY OF INFO--USSR
SOURCE--LAB. DELO 1970, (4), 240-3 (RUSS)
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ISOENZYME, AGAR, ELECTROPHORESIS, RAT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0966 STEP NO--UR/9099/70/000/004/0240/0243
CIRC ACCESSION NO--AP0133052
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133052
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HORIZONTAL AGAR GEL
ELECTROPHORESIS OF RAT LIVER TISSUE YIELDED 9 BANDS OF ESTERASE, 4 OF
ACID PHOSPHATASE, AND 2 OF ASPARTATE AMINOTRANSFERASE, AND RAT BLOOD
SERUM YIELDED 12 BANDS OF PROTEIN AND 3 BANDS OF ALK. PHOSPHATASE. THE
3 ALK. PHOSPHATASE BANDS WERE VERY CLOSE TOGETHER, AND WERE PROBABLY NOT
ISOENZYMES BUT ARTIFACTS. FACILITY: LAB. RADIAT. IMMUNOL., INST.
MED. RADIOL., OBNINSK, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--IMMUNOCHEMICAL AND ELECTROPHORETIC STUDY OF MULTIPLE FORMS OF
ESTERASES OF CARBONIC ACID ESTERS IN RATS -U-
AUTHOR-(03)-KASHKIN, K.P., SURINOV, B.P., BOCHKOVA, D.N.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,
NR 6, PP 39-42
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESTERASE, LIVER, DIGESTIVE SYSTEM, PANCREAS, LUNG, SPLEEN,
BRAIN, BLOOD SERUM, CHOLINESTERASE, ISDENZYME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0680

STEP NO--UR/0219/70/049/006/0039/0042

CIRC ACCESSION NO--AP0131283

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131283

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON AUGUST RATS INVOLVING THE USE OF ENZYMOELECTROPHORESIS IN AGAR GEL THE AUTHORS INVESTIGATED THE SPECTRUM OF ESTERASES OF CARBONIC ACID ESTERS OF THE HYALOPLASMA OF CELLS OF THE LIVER, MUCOUS MEMBRANE OF THE STOMACH, SMALL AND LARGE INTESTINE, PANCREAS, LUNGS, KIDNEYS, SPLEEN, TESTES, BRAIN AND BLOOD SERUM. USING THE DIFFERENCES IN THE SENSITIVITY OF ESTERASES OF DIVERSE TYPE TO THE EFFECT OF A NUMBER OF INHIBITORS (ORGANOPHOSPHATES, SULFHYDRYL REAGENTS, PROSERINE, CUSO SUB4) AMONG RAT TISSUE ESTERASES THE AUTHORS REVEALED UP TO 7-8 ISOFORMS OF ACETYLESTERASES AND 6-7 CARBOXYLESTERASES, IN THE BLOOD SERUM ALSO ARYLESTERASE AND TWO CHOLINESTERASES. IT IS SHOWN THAT IRRESPECTIVE OF THE ORIGIN THE ORGANS, DEVELOPING FROM THE SAME AND DIFFERENT EMBRYONIC SHEATHS, ARE DISTINGUISHED BY A DEFINITE SPECTRUM AND A RELATIVE ACTIVITY OF ISOFORMS OF DIVERSE TYPES OF ESTERASES. THE MOST COMPLEX SET OF ACETYL AND CARBOXYLESTERASES AND HIGH SPECIFIC ESTERASE ACTIVITY ARE REFERRED TO CELLS OF ORGANS OF ENDODERMAL ORIGIN AND, IN PARTICULAR, BY HYALOPLASMA OF CELLS OF THE MUCOSA OF THE STOMACH, SMALL INTESTINE AND LIVER OF RATS. WITH THE AID OF RABBIT PRECIPITATING SERA AGAINST THE HYALOPLASMA OF CELLS OF A NUMBER OF RAT ORGANS. IN THE COMPOSITION OF ISOFORMS OF RAT ESTERASES THERE WERE REVEALED ORGANOSPECIFIC COMPONENTS AND ISOENZYMES ANTIGENS PREVALENTLY CONTAINING IN CERTAIN SUBCELLULAR STRUCTURES MANY OR SOME ORGANS. FACILITY: INSTITUTE OF MEDICAL RADIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, OBNINSK.

UNCLASSIFIED