

Acc. Nr:

00048940

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

UR0079

U

100209e Synthesis and properties of potassiumcumyl- and potassium-tert-butyl peroxides. Sokolov, N. A.; Ussov, L. G.; Shushunov, V. A. (Nauch.-Issled. Inst. Khim. Gork. Gos. Univ. im. Lobachevskogo, Gorky, USSR). Zh. Obshch. Khim. 1970, 40(1), 200-12 (Russ). Treating 2.9 g perox. KNH<sub>4</sub> in MePh with 3.04 g PhCMe<sub>2</sub>O<sub>2</sub>H gave 92% PhCMe<sub>2</sub>O<sub>2</sub>K (I); prep'd. in heptane and treated with PhCMe<sub>2</sub>O<sub>2</sub>H, this salt formed a 1:1 complex, a hygroscopic solid. In C<sub>6</sub>H<sub>6</sub>, I trimerizes. Similarly was prep'd. Me<sub>2</sub>CO<sub>2</sub>K and its 1:1 complex with Me<sub>2</sub>CO<sub>2</sub>H., and 1:2 complex with the peroxide. Treating PhCMe<sub>2</sub>O<sub>2</sub>K with H<sub>2</sub>O-MePh gave a cryst. dihydrate, also formed from similar reaction of dry KOH with the peroxide in MePh.

G. M. Kosolapoff

REEL/FAME  
19800712

7 ch

172 039

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--PHOTOEFFECT IN METAL FREE PHTHALOCYANINE CRYSTALS -U-

AUTHOR--(02)-USOV, N.N., BENDERSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 2, PP 535-543

DATE PUBLISHED-----70

u

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PHOTOELECTRIC EFFECT, DRIFT MOBILITY, ORGANIC CRYSTAL,  
ELECTRON MOBILITY, HOLE MOBILITY, PHTHALOCYANINE, QUANTUM YIELD,  
EXCITON, LASER PULSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/1068

STEP NO--GE/0030/70/037/002/0535/0543

CIRC ACCESSION NO--AP0107577

UNCLASSIFIED

2/2 039

CIRC ACCESSION NO--AP0107577

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DRIFT MOBILITIES OF ELECTRONS (0.43 TO 0.70 CM PRIME<sup>2</sup> V PRIME NEGATIVE<sup>1</sup> S PRIME NEGATIVE<sup>1</sup>) AND HOLES (0.24 TO 0.56 CM PRIME<sup>2</sup> V PRIME NEGATIVE<sup>1</sup> S PRIME NEGATIVE<sup>1</sup>) IN THOROUGHLY PURIFIED METAL FREE PHTHALOCYANINE CRYSTALS HAVE BEEN MEASURED BY ILLUMINATION WITH SHORT LIGHT PULSES. THE MOBILITIES OF CARRIERS OF BOTH SIGN DIMINISH WITH INCREASING TEMPERATURE: MU IS SIMILAR TO T PRIME NEGATIVE<sup>1</sup>N, N EQUALS 1.3 TO 1.5 FOR HOLES, N EQUALS 1.5 TO 1.9 FOR ELECTRONS. THE QUANTUM YIELDS OF HOLES AND ELECTRONS ARE EQUAL IN MAGNITUDE (7 MINUS OR PLUS 6 TIMES 10 PRIME NEGATIVE<sup>5</sup> AT 295DEGREEK) AND INCREASE EXPONENTIALLY WITH TEMPERATURE. PROBABLY, THE GENERATION OF PHOTOCARRIERS IS CAUSED BY THERMAL DISSOCIATION OF SINGLET EXCITONS. THE DIFFERENCE BETWEEN THE ENERGY GAP AND THE SINGLET EXCITON ENERGY IS EQUAL TO THE ACTIVATION ENERGY OF QUANTUM YIELD (0.19 EV). UNDER THE GIANT RUBY LASER PULSE THE PHOTOCURRENT IN PURE CRYSTALS IS A LINEAR FUNCTION OF LIGHT INTENSITY, WHEREAS IN CRYSTALS CONTAINING IMPURITIES THE SQUARE DEPENDENCE IS OBSERVED. THE MECHANISM OF CHARGE CARRIER PRODUCTION UNDER HIGH LIGHT INTENSITY IS PROBABLY THE SINGLET EXCITON ANNIHILATION, THE RATE CONSTANT BEING 4 TIMES 10 PRIME NEGATIVE<sup>15</sup> TO 8 TIMES 10 PRIME NEGATIVE<sup>14</sup> CM PRIME<sup>3</sup> S PRIME NEGATIVE<sup>1</sup>. FACILITY: INSTITUTE OF CHEMICAL PHYSICS, ACADEMY OF SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

142 009  
UNCLASSIFIED  
TITLE--QUASI CONTINUOUS SPECTRUM OF LOCAL LEVELS IN LAYERS OF  
PHthalOCYANINES -U-  
AUTHOR--USOV, N.N., BENDERSKIY, V.A. PROCESSING DATE--11SEPT70  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 405-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SPECTROSCOPIC ANALYSIS, ORGANIC NITROGEN COMPOUND,  
PHthalOCYANINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAme--1989/0583  
CIRC ACCESSION NO--AP0107180  
STEP NO--UR/0449/70/004/002/0405/0407  
UNCLASSIFIED

Z/2 009

CIRC ACCESSION NO--AP0107180

UNCLASSIFIED

PROCESSING DATE--11SEP70

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

ABSTRACT. EARLIER WORK BY U. AND B. (1966, 1968, 1969) ON THE SENSITIZATION OF PHTHALOCYANINE IS REVIEWED.

UNCLASSIFIED

0123

024

UNCLASSIFIED

TITLE--SELECTION RULE FOR THE INELASTIC SCATTERING OF NEUTRONS IN CRYSTALS  
 HAVING THE WURTZITE STRUCTURE -U-

PROCESSING DATE--27NOV70

AUTHOR--(02)--USOV, O.A., KOTOV, B.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(5), 830-6

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NEUTRON SCATTERING, INELASTIC SCATTERING, GROUP THEORY,  
 CRYSTAL STRUCTURE, SELECTION RULE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1002

CIRC ACCESSION NO--AP0136429

STEP NO--UR/0449/70/004/005/0830/0836

UNCLASSIFIED

u

2/2 024

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136429

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GROUP THEORY METHODS WERE USED TO OBTAIN SELECTION RULES FOR THE INELASTIC SCATTERING OF NEUTRONS IN CRYSTALS WITH THE WURTZITE STRUCTURE. THE SELECTION RULES FOR ALL POLYTYPES OF THE WURTZITE STRUCTURE ARE DETD. BY THE POLYTYPE WITH THE SMALLEST UNIT CELL, I.E. 2H. Leningrad, USSR.

FACILITY: INST. POLUPROV.,

UNCLASSIFIED

Acc. Nr:

AP0053448

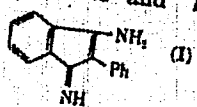
Abstracting Service:  
CHEMICAL ABST

U 5110

Ref. Code:

WR 0366

111132a Cyclic  $\beta$ -aminovinylimines. X. Synthesis of unsymmetrical 2-substituted 1-imino-3-aminoindenes. [Sov. V. A.; Nakele, V.; Freimanis, I. (Inst. Org. Sin., Riga, USSR). *Zh. Org. Khim.* 1970, 6(2), 384-9 (Russ)]. The reaction of 2-(R-substituted)-1-amino-3-ethoxyindene salts (R is Ph or Me) with PhNH<sub>2</sub> gave unsym. 2-(R-substituted)-1-imino-3-anilinoindene salts, which on basification are converted to the corresponding bases. The amine exchange (B. Eistert, *et al.* 1955) between PhNH<sub>2</sub> and 1-imino-2-phenyl-3-aminoindene (I) gave 1-imino-2-phenyl-3-anilinoindene and 1-phenylimino-2-phenyl-



3-anilinoindene (II). Heating II with AcONH<sub>2</sub> gave 3-amino-2-phenylindone and a small amt. of I. The alkylation of II or I with triethyloxonium fluoroborate gave 1-phenylimino-2-phenyl-3-ethylphenylaminoindene or 1-imino-2-phenyl-3-ethylaminoindene.  
CPJR

REEL/FRAME  
19830473

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USSR

UDC 546.26.:536.21

VOJGA, V. I., FROLOV, V. I. and USOV, V. K.

"Thermoconductivity of a Carbon Fiber"

Moscow, Neorganicheskiye Materialy, Vol 9, No 4, Apr 73, pp 712-713

Abstract: Results are presented of measuring the coefficient of thermoconductivity of a carbon fiber, produced by carbonization of polyacrylonitrile in the 80-320° K temperature interval. The samples of carbon fibers were sequentially heat-treated at 1400, 2600, and 2800°C. The amount of nitrogen in a sample heated at 1400°C did not exceed 0.2% and at 2800°C--10<sup>-4</sup>%. It was found that in the investigated temperature interval the thermoconductivity of a carbon fiber increases smoothly with increased temperature. In the heat treatment of carbon fibers the size of defect-free regions in the crystal lattice increases sharply, reaching the values of grain size characteristic for polycrystalline graphites. In the process of calculating grain sizes it was noted that the temperature at the start of the phonon-phonon interaction varies from 250°K for a sample heat treated at 1400°C down to 130°K for a sample heat treated at 2800°C. For most polycrystalline graphites this temperature is found in the limits of 110-130°K. 1 figure, 5 bibliographic references.

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USSR

UDC 612.822.3.05

USOV, V. V., PROTASOV, V. A., BELAYEV, V. V., ANNARAUD, D. K., and  
CHEREPANOV, I. M., Laboratory for Computer Methods, Department of Applied  
Neurophysiology, Institute of Experimental Medicine, Academy of Medical  
Sciences USSR, Leningrad

"A Helical Electrode for Electrophysiological Studies of the Deep Structures  
of the Brain"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenova, Vol 59, No 11,  
Nov 73, pp 1764-1765

Abstract: Since helical electrodes have been successfully employed for long-term stimulation of smooth musculature, a similar electrode has been constructed for recording the biopotentials of the deep structures in the brain. The coiled electrode contains within it a guiding rod and the entire assembly is located within a hypodermic needle-like device for introducing the electrode. Once it is located in the desired region and the inner rod removed, the helical nature of the polyfluoroethylene-insulated electrode possesses sufficient elasticity to permit the outer tissues to heal around it and thus fix it. No additional outer fixation of the electrode is necessary.

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017  
 TITLE--SHOWER SPARK CHAMBERS FOR RECORDING PARTICLES FLYING AT LOW ANGLES  
 TO A BREMSSTRAHLUNG -U-  
 AUTHOR--(04)-KRYSHKIN, V.I., RYBAKOVA, N.A., STERLIGOV, A.G., USOV, YU.P.  
 COUNTRY OF INFO--USSR  
 SOURCE--PRIB. TEKH. EKSP. 1970, 1, 54-7  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--PHYSICS  
 TOPIC TAGS--SPARK CHAMBER, CASCADE, BREMSSTRAHLUNG, SMALL ANGLE  
 SCATTERING, ELECTRODE DESIGN, PION, ELECTRON POSITRON PAIR, SYNCHROTRON  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1991/1076  
 CIRC ACCESSION NO--AP0110766  
 STEP NO--UR/0120/70/001/000/0054/0057  
 UNCLASSIFIED

PROCESSING DATE--16OCT70  
 UNCLASSIFIED  
 O.E.

017

CIRC ACCESSION NO--AP0110766  
ABSTRACT/EXTRACT--(U) GP-0-  
REGISTRATION OF PARTICLES LEAVING THE TARGET AT SMALL ANGLES WITH  
RESPECT TO THE BREMSSTRAHLUNG. THE APP. IS EQUIPPED WITH SHOWER SPARK  
CHAMBERS WHICH HAVE OPENINGS ACTING AS CHANNELS FOR THE BREMSSTRAHLUNG.  
IT IS DESIGNED FOR PARTICLES FLYING AT 2-15DEGREES. THE MIDDLE  
ELECTRODE OF THE 1ST CHAMBER AND 1ST 3 ELECTRODES OF THE 2ND CHAMBER ARE  
MADE OF PB, THE REMAINING ELECTRODES OF DURALUMIN. THE APP. WAS USED TO  
DET. THE LIFETIME OF A NEUTRAL PION AND THE ANGLE DISTRIBUTION OF E  
PRIME NEGATIVE MINUS E PRIME POSITIVE PAIRS IN THE 1.5-GEV E  
SYNCHROTRON.  
ELEKTRON, AVTOMAT., TOMSK, USSR.

UNCLASSIFIED

PROCESSING DATE--16OCT70

UNCLASSIFIED

UDC 669.295.48

USSR

SKVORTSOV, Yu. N., MOROZOV, Ye. I., USOV, V. N.

"Briquetting of Titanium Alloy Chips"

Tekhnol. Legk. Splavov. Nauch.-tekhn. Byul. VILSa [Technology of Light Alloys, Scientific and Technical Bulletin of All-Union Institute of Light Alloys], No 5, 1971, p 112, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G266 by G. Svodtseva).

Translation: Chips of Ti alloys were pressed on vertical and horizontal hydraulic presses with specific pressure 4-9.5 t/cm<sup>2</sup>, briquette diameter 80-120 mm. With a specific pressure of 9 t/cm<sup>2</sup>, briquette density was 3.6-3.8 g/cm<sup>3</sup>, loose residue 0.1-0.3%. The briquettes produced were added to the charge: 36% during smelting of ingots of Vt1-1 alloy and 40% during smelting of ingots of OT4 alloy.

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- 45 -

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--USE OF GAS LIQUID CHROMATOGRAPHY FOR THE ANALYSIS OF ADIPONITRILE  
AND HEXAMETHYLENEDIAMINE OBTAINED FROM ADIPIC ACID -U-  
AUTHOR-(04)-USOVA, E.P., MITINA, L.I., MILYUKOVA, YU.F., ZNAMENSKAYA, A.P.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 571-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--GAS CHROMATOGRAPHY, ADIPONITRILE, HEXAMETHYLENEDIAMINE, ADIPIC  
ACID, CYCLOPENTANE, KETONE, CYANIDE, ORGANIC OXIDE, BENZENE, PYRIDINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/0003 STEP NO--UR/0075/70/025/003/0571/0575  
CIRC ACCESSION NO--AP0132303  
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AP0132303  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAS LIQ. CHROMATOG. WAS USED TO  
ANALYZE ADIPONITRILE AND HEXAMETHYLENEDIAMINE OBTAINED FROM ADIPIC ACID.  
OPTIMUM CONDITIONS HAVE BEEN FOUND FOR THE QUANT. DETN. OF  
CYCLOPENTANE, CYCLOPENTYLIDENECYCLOPENTANONE, 2,CYANOCYCLOPENTANONE,  
BIPHENYL, DIPHENYL OXIDE, TRIS(TRIMETHYLENE)BENZENE,  
1,CYANO,2,AMINOCYCLOPENTENE. 3,4,5,6,BIS(TRIMETHYLENE),2,  
AMINOPYRIDINE, 3,4,5,6,BIS(TRIMETHYLENE),2,BUTYLPYRIDINE, DELTA  
CYANOVALERAMIDE IN ADIPONITRILE. THE MOST UNIVERSAL STATIONARY PHASE  
WAS 20PERCENT POLYETHYLENE GLYCOL ON CELITE IN A 2 M COLUMN. LESS  
VOLATILE COMPS. WERE SEPD. ON A 1 M COLUMN WITH 5PERCENT POLYETHYLENE  
GLYCOL ON CELITE AT 190DEGREES. FACILITY; STATE SCI.-RES. DES.  
INST. NITROGEN IND. ORG. SYN. PROD., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 911.3.616.9.576.895.42(478.9)

USPENSKAYA, I. G., and KONOVALOV, Yu. N.

"Focus of Ixodes apronophrus Ticks on the Prut River Islands"

V sb. Parazity zhivotnykh i rast. (Parasites of animals and plants -- collection of works), vyp. 5, Kishinev, AS Moldavian SSR, 1970, pp 88-96 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.71)

Translation: In Moldavia I. apronophorus ticks live on floating islands in an atmosphere of absolute humidity. The distribution has a focal character. The tick is very numerous; in the summer 78-100% of the rodents are infected by these ticks. Tick hosts on the Prut River Islands are 11 rodent species.

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USSR

UDC 669.14.018.8

BABAKOV, A. A., LAPIN, P. G., UL'YANIN, YE. A., USPENSKAYA, I. K., and FEDOROVA, V. I.,

"Influence of Nitrogen on the Properties of Chrome-Nickel-Manganese Steel With Molybdenum at Low Temperatures"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 113-116

Translation: The influence of nitrogen on the mechanical properties of 000Kh20G10N6M2 steel is studied in the 20-253°C temperature range. It is demonstrated that the limiting permissible quantity of nitrogen in the steel is 0.4%. Further increases in the quantity of nitrogen cause a decrease in ductility and impact toughness of the steel at low temperatures.

Introduction of nitrogen to the steel produced an increase in strength at 20°C to  $\sigma_b$  850 Mn/m<sup>2</sup> (85 kg/m<sup>2</sup>);  $\sigma_T \geq 450$  Mn/m<sup>2</sup> (45 kg/mm<sup>2</sup>). 2 figures.

1/1

- 31 -

1/2 008 UNCLASSIFIED PROCESSING DATE--13NGV70  
TITLE--FORMATION OF TEREPHTHALIC AND ISOPHTHALIC ACID DICHLORIDES DURING  
THE REACTION OF 1,4, AND 1,3,BIS(TRICHLOROMETHYL) BENZENES WITH ACETIC  
AUTHOR--(03)-USPENSKAYA, I.N., MAKSIČEVA, A.I., MOISAREV, G.V.  
COUNTRY OF INFO--USSR, FRANCE *ll*  
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1027-32  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ACID CATALYSIS, CHEMICAL SYNTHESIS, PHTHALIC ACID, CARBOXYLIC  
ACID CHLORIDE, ACETIC ACID, BENZENE DERIVATIVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/1279 STEP NO--UR/0366/70/006/005/1027/1032  
CIRC ACCESSION NO--AP0134953

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIPC ACCESSION NO--AP0134953  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION PERFORMED AS  
DESCRIBED EARLIER (FRENCH 820,697) WITH H SUB2 SO SUB4 AS THE CATALYST  
GIVES A MIXT. OF PRODUCTS DIFFICULT TO PURIFY. THE USE OF FECL SUB3 AND  
1:2 C SUB6 H SUB4 (CCL SUB3) SUB2-1,4-ACOH OR C SUB6 H SUB4 (CCL SUB3)  
SUB2-1,3-ACOH RATIOS GAVE 95-7PERCENT C SUB6 H SUB4 (COCL) SUB2-1,4 OR C  
SUB6 H SUB4 (COCL) SUB2-1,3. ACCL, ALSO FORMED IN THE REACTION, IS  
EASILY REMOVED BY DISTN. A REACTION SCHEME WAS GIVEN.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PREPARATION OF AROMATIC ACID CHLORIDES -U-  
AUTHOR--(03)-USPENSKAYA, I.N., MOTSAREV, G.V., BONDAREVA, G.G.  
COUNTRY OF INFO--USSR *u*  
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(5), 328-32  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL PRODUCTION, CHLORINATED AROMATIC COMPOUND, BENZENE  
DERIVATIVE, ACID CHLORIDE, CHEMICAL SYNTHESIS  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3008/0859 STEP NO--UR/0064/70/046/005/0328/0332  
CIRC ACCESSION NO--AP0137887

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0137887  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS, INCLUDING INDUSTRIAL ONES  
BASED ON MONO AND BIS(TRICHLOROMETHYL) BENZENES, FOR PREPF. AROMATIC  
ACID CHLORIDES ARE REVIEWED.

UNCLASSIFIED

USSR

UDC 546.26

DERYAGIN, B. V., FEDOSEYEV, D. V., and USPENSKAYA, K. S., Institute of Physical Chemistry, Acad. Sc. USSR, Moscow

"Diamond Synthesis. I. Kinetic and Diffusion Zones of Diamond Synthesis From Gaseous Methane"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 24-27

Abstract: Diamond which under normal conditions is a metastable form of carbon may be grown from carbon-containing gases under reduced pressures. In this paper the kinetics of diamond synthesis from methane is reported. An equation was derived for diamond growth in the kinetic zone of the process. Comparable expressions have been obtained for the diffusion, transition and kinetic zone. Experimental data showed no difference between the specific growth rates on synthetic and natural diamonds under comparable conditions. The rate of growth decreases with time due to the blocking action exerted on the surface of the diamond by the non-diamond carbon. The agreement between the experimental data and the theoretically calculated ones was very good.

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USSR

UDC 546.26

FEDOSEYEV, D. V., DERYAGIN, B. V., VARNIN, V. P., and USPENSKAYA, K. S.,  
Institute of Physical Chemistry, Acad. Sc. USSR, Moscow

"Diamond Synthesis. II. Diamond Synthesis From Methane in the Diffusion  
Zone"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 28-31

Abstract: The transition from the kinetic zone to the diffusion zone is affected by temperature, by the thickness of the powder layer, its dispersion and dilution by the reaction product of methane decomposition -- i.e., hydrogen. Hydrogen slows down the growth of diamond, but even more so it slows down the formation of soot, so that the original process is prolonged. A similar effect is achieved by limiting the consumption of methane. The rate of growth of diamond powder of various degrees of dispersion was determined. Experimental data obtained agree with the calculated values obtained from the equation of diffusion kinetics.

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--DEOXYRIBONUCLEASE ACTIVITY IN THE URINE OF RATS INJURED BY  
POLONIUM-210 AND TREATED WITH OXATHIOL -U-  
AUTHOR--(02)-~~USPENSKAYA, M.S.~~, IZERGINA, A.G.  
COUNTRY OF INFO--USSR *U*  
SOURCE--RADIOBIOLOGIYA 1970, 10(1), 153  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DEOXYRIBONUCLEASE, ENZYME ACTIVITY, POLONIUM ISOTOPE, URINE,  
EXCRETION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/0467 STEP NO--UR/0205/70/010/001/0153/0153  
CIRC ACCESSION NO--AP0121141  
UNCLASSIFIED



2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SINGLE S.C. INJECTION OF PRIME210 PO (0.1 MCI-KG) INTO RATS INCREASED DNASE II ACTIVITY IN URINE BY 39, 45, 58, AND 65PERCENT ON THE 3RD, 5TH, 7TH, AND 9TH DAY POSTINJECTION. APPLICATION OF OXATHIOL ACCELERATED THE EXCRETION OF PRIME210 PO AND REDUCED DNASE ACTIVITY LEVEL IN URINE TO NORMAL. INJECTION OF OXATHIOL INTO CONTROL ANIMALS DID NOT CHANGE THE DNASE LEVEL IN THE URINE. FACILITY: INST. BIOFIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 577.1:612.12:015

USPENSKAYA, M.S., IZERGINA, A.G. (Editorial board of the journal Radiobiologiya (Radiobiology), USSR Academy of Sciences)

"Desoxyribonucleasic Activity in Urea of Rats Subjected to Polonium-210 and Treated With Oxathiol"

Dezoksiribonukleaznaya aktivnost' v moche krys, porazhennykh poloniyem-210 i lechennykh oksatiolom (cf English above), Moscow, 1969, u pp, ill., bibliography: 15 entries (from RZh-Biologicheskaya Khimiya, No 12, 25 Jun 70, Abstract No 12F2874, Authors' Abstract)

Translation: Experiments were conducted on three groups of rats. The first group of animals was given  $Po^{210}$  once, subcutaneously at a dose of 0.1 millicurie/kg of body weight, which induced development of acute radiation sickness and death of the animals in 9-11 days. The second group of rats was injected with  $Po$  at the same dose; an hour later they were subjected to treatment with oxathiol (I). (I) was administered subcutaneously in the form of a 5 percent aqueous solution at a dose of 100 mg/kg of body weight over a period of 30-62 days with interruptions. The mean lifespan of the treated rats was 138 days. The third group was administered only (I) in the same scheme as with second-group rats. It was established that  $Po^{210}$  administered to rats induces a regular rise in the activity of DNA-ase of II in urea in 3, 5, 7, and 9 days for 39, 45, 58, and 65 percent, respectively. Use of the drug preparation (I), by accelerating excretion of

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USSR

USPENSKAYA, M.S., et al, Moscow, 1969, 7 pp, ill., bibliography: 15 entries  
(from RZh-Biologicheskaya Khimiya, No 12, 25 Jun 70, Abstract No 12F2874

polonium from the organism, promotes maintenance of the activity level of DNA-ase  
in urea within normal limits. Administration of (I) to intact rates does not  
induce substantial changes in the activity of DNA-ase in urea.

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- 77 -

USSR

UDC 613.647:621.396.932

GORBONOSOVA, N. B., and USPENSKAYA, N. V., Institute of Labor Hygiene and Occupational Diseases, Leningrad

"Health Status of Ship Radio Operators"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1971, pp 41-44

Abstract: Examination of 100 radio operators working on ships from 5 to 20 years revealed a high incidence of neurological (46), cardiovascular (25), otorhinolaryngological (20), pulmonary (6), and gastroenterological (5) diseases, whereas in a control group of 45 sailors (all conditions the same except for exposure to high-frequency electromagnetic fields) there were 11 cases of neurological diseases and 2 cases of cardiovascular diseases and no other pathology. Irritability, headaches, insomnia, pain in the heart, and hidrosis were common subjective complaints. The findings indicate that many radio operators suffer from a definite symptom complex consisting of neurological, circulatory, degenerative, and hematological disorders. The fact that they occur more frequently than in other ship personnel and that they increase with length of service suggest that they are the result of prolonged chronic exposure to an occupational factor.

1/1

USSR

UDC 595.786:614.449

~~USPENSKAYA, N. V.~~, and VASYURIN, S. T., Central Asian Scientific Research Institute  
of Phytopathology, Tashkent

"Chemosterilant Food Bait as a Possible Means of Controlling the Turnip Moth  
(*Agrotis segetum*)"

Moscow, Zoologicheskii Zhurnal, Vol 49, No 7, Jul 70, pp 1088-1090

Abstract: Feed boxes containing 0.1% Thio-TEPA (thiophosphamide) solution, 10% fermenting molasses solution, and 0.005% eosin (to serve as a marker) were set out on the Lenin farm in Syr-Dar'ya Oblast, Uzbek SSR in 1968 to attract male turnip moths. Of the virgin females mated with males caught on the experimental plot, an average of 35% in June and July and 23% in August and September laid eggs which were more than 90% nonviable. By comparison, only 11 to 20% of the eggs laid by females mated with males caught on the control plot were nonviable.

1/1

USSR

UDC 576.8.093.1:576.858.8

KOZIOV, L. P., KOLOBAYEV, V. A., and USEPENSKAYA, R. S.

"Isolation and Purification of Potato Virus K for Serological Investigations"

Moscow, Biologicheskiye Nauki, No 10(94), 1971, pp 123-125

Abstract: A new method of isolating the pure potato virus K is described. Juice pressed from young leaves of the De Barno strain, which had been infected with virus K, was mixed with ether and centrifuged to separate most of the host proteins. The virus and the remaining plant proteins in the aqueous phase were precipitated with polyethylene glycol. The sediment was dissolved in a phosphate buffer, dialyzed against the same buffer, and filtered through granulated agar columns. The various fractions were collected separately and analyzed by means of ultraviolet spectrophotometry and serological tests. Fractions with an absorption peak at 2,600 angstroms contains virus K but no host proteins. This new method is recommended for industrial production of the pure virus for the purpose of investigating the antigen and manufacturing an antiserum that is specific against potato virus K.

1/1

USPENSKAYA, V. A.

UTRS 55687  
12:00 1972

UDC 612.461.214:629.78.048:628.312.2:547.495.2:543  
DETERMINING UREA IN WATER-BEARING WASTES USING N-DIMETHYLAMINOBENZALDEHYDE  
[Article by V. A. Uspenskaya and V. B. Gaydadyanov; Moscow, Kosmicheskaya Biologiya i Meditsina, 1971, Vol. 6, No 1, pp 86-88, 1972, submitted for publication 27 January 1971]

Analysis of urine components is becoming particularly timely in relation to the development of systems for regenerating drinking water from the products of man's vital functions. As is well known, among the metabolic body wastes excreted in the urine the most important is the end product of protein metabolism, urea, whose content in the daily urine volume is 20-30 g. Among the commonly accepted methods for a quantitative determination of urea in the urine are the urease method (Convey's method), hypobromite method (Borodin's method), and colorimetric methods with the use of diacetylmoxime and n-dimethylaminobenzaldehyde.

In the standard determination of the urea content in the samples it is necessary to use a sufficiently sensitive and precise analytical method requiring an insignificant time expenditure. In this case it is colorimetric analytical methods which are most suitable. However, determination of urea using diacetylmoxime does not satisfy the imposed requirements due to an instability of the forming color complex, which has a negative effect on the reproducibility of the results.

The spectrophotometric method based on the use of n-dimethylaminobenzaldehyde proposed by Witt and Chirip for determining urea in pure solutions, was later used by Brown in developing a blood analysis method. Thereafter this method for determining urea in the blood and urine was modified by Lavine, et al., and by a number of other researchers (Witt, et al.; Roijer and Tax; Yatsidia, et al.). Orzelski demonstrated that the presence of uric acid, creatinine, hippuric acid, ammonium salts, and amino acids does not hinder determination of urea with the use of n-dimethylaminobenzaldehyde.

The mentioned authors employed different methods in deproteinizing and bleaching samples. Only Geiger excluded these procedures because he determined urea in the urine of human subjects taking sulfa drugs.

USPENSKAYA, V. A.

Life Support Systems

CALEEN

SO: JPRS 54216  
03 NOV 71

UDC 612.396.015.36:613.693

EFFECT OF MONOSACCHARIDES ON THE REACTION OF CONDENSATION OF FORMALDEHYDE INTO CARBOHYDRATES

(LIFE SUPPORT SYSTEMS) 610/757

[Article by V. A. Uspenskaya, O. V. Krylov, and Yu. Ye. Sinyak, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 4, pp 9-16, 1971, submitted for publication 28 January 1970]

Abstract: The effect of monosaccharides of different structure on the catalytic synthesis of carbohydrates from formaldehyde was investigated. Monosaccharides with the least number of carbon atoms and monosaccharides containing keto groups were shown to have the highest capacity as cocatalysts of the synthesis. Optimal activity for arabinose, fructose and glucose was found. According to chromatographic data, use of monosaccharides as cocatalysts brought about no difference in the chemical composition of synthetic carbohydrates. An equation describing the effect of the concentration of an organic cocatalyst on the rate of formaldehyde condensation to carbohydrates is derived.

Due to the need for restricting the weight and size of life support systems during the execution of prolonged flights, during recent years ever-increasing attention has been devoted to physicochemical methods for reproducing carbohydrates aboard a spacecraft (Aherlof; Yu. Ye. Sinyak, 1964, 1968; Drake, Shapira). The production of formaldehyde is an essential stage in the theoretically possible systems for synthesizing carbohydrates proposed by the authors. The condensation of formaldehyde into sugars constitutes the final stage in a complete chain of chemical transformations from the products of man's vital functions to the production of one of the principal nutritional groups.

According to data from a number of investigations (Schmalhaus; A. M. Kurin, 1937, 1939, 1940; Langenbek; S. A. Balezin; I. I. Orestov; Weiss), the reaction of condensation of formaldehyde into sugars (A. M. Butlerov, 1861) has an autocatalytic nature. In our earlier studies (Yu. Ye. Sinyak and V. A. Uspenskaya; O. V. Krylov, et al.) of the conditions for the condensation of formaldehyde into carbohydrates in dependence in various parameters (temperature, time, reaction medium, quantitative relationships of the reacting



1/2 011  
UNCLASSIFIED  
PROCESSING DATE--30OCT70  
TITLE--CATALYTIC SYNTHESIS OF CARBOHYDRATES FROM FORMALDEHYDE -U-  
AUTHOR--(04)--KRYLOV, O.V., SINYAK, YU.YE., USPENSKAYA, V.A., SHULGINA, I.L.  
COUNTRY OF INFO--USSR  
SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN. FEB. 1970, P. 6-11  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CARBOHYDRATE, CHEMICAL SYNTHESIS, FORMALDEHYDE, CATALYTIC ORGANIC SYNTHESIS, CHROMATOGRAPHY, CALCIUM COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0067  
STEP NO--UR/0453/70/004/000/0006/0011  
CIRC ACCESSION NO--AP0119063  
UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AP0119063

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECTS OF THE TEMPERATURE, SOLVENT, AND FORMALDEHYDE AND CATALYST CONCENTRATION ON THE YIELD AND COMPOSITION OF MONOSACCHARIDES PRODUCED BY FORMALDEHYDE CONDENSATION. THE EXISTENCE OF A DIRECT RELATION BETWEEN THE RATES OF THIS REACTION AND THE CONCENTRATIONS OF FORMALDEHYDE AND CATALYST COULD NOT BE ESTABLISHED. A HIGHER YIELD OF MONOSACCHARIDES WAS OBTAINED IN AN ALCOHOL MEDIUM. CHROMATOGRAPHY INDICATES THAT MOST OF THE PRODUCTS ARE ALDOPENTOSE AND ALDOHEXOSE. THE EQUATION OF AUTOCATALYSIS DESCRIBES SATISFACTORILY THE KINETICS OF THIS REACTION. THE ACTIVATION ENERGY OF THE REACTION IN THE PRESENCE OF CALCIUM HYDROXIDE IS 11.3 KCAL/MOL.

UNCLASSIFIED

USSR

UDC: 621.375.82

MOROZOV, B. N., TATARENKOV, V. M., USPENSKIY, A. V.

"Using the Saturation Effect for Stabilization and Absolute Measurement of Laser Power"

Metrologiya, 1973, No 3, pp 38-45 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1131 by the authors)

Translation: It is shown that the dependence of spectral characteristics of a medium on the power of transmitted laser emission can be used for stabilization and absolute measurement of laser power. Specific circuits are considered, and the accuracy of the method and range of the measurements are evaluated.

1/1

USSR

USPENSKIY, A. V., FEDOROV, V. V.

"The Statement and Problems of Planning Experiments for Certain Inverse Problems of Mathematical Physics"

Priblizh. metody resheniya zadach optimal'n. upr. i nekot. nekorrekt. obratn. zadach [Approximate Methods of Solution of Problems of Optimal Control and Certain Incorrect Inverse Problems -- Collection of Works] Moscow, Moscow University Press, 1972, pp 82-97 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V290 by the authors)

Translation: Mathematical methods of experimental planning are presently rather widely used in the solution of classical problems of regression. This article presents a statement of a problem of experimental planning arising in the study of certain inverse problems of mathematical physics. The formulation of the inverse problem, containing unknown parameters, considers the random experimental noise. The concept of the experimental plan is introduced, methods of construction of optimal plans are discussed.

1/1

USSR

UDC 621.375.826.001

MUKHAMEDGALIYEVA, A. F., TATARENKOV, V. M., TITOV, A. N., USPENSKIY, A. V.

"Study of the Lamb Trough in the Determination of the Radiation Width of the Transition Line  $3S_2-3P_4$  of the  $Ne^{20}$  Atom"

Tr. VNIi fiz.-tekhn. i radiotekhn. izmereniy (Works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, No. 3(33), pp 281-290 (from Referativnyy Zhurnal, Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.62)

Translation: The width and relative size of the Lamb trough  $\lambda = 3.39 \mu$  were studied as a function of the intensity of the saturating field on the gas pressure. It was shown that the relative size of the trough as a function of the field intensity has a maximum with a magnitude decreasing with an increase in the pressure. The radiation width of the  $3S_2-3P_4$  transition of the  $Ne^{20}$  atom ( $24 \pm 6$  MHz) and the broadening of the homogeneous line by pressure ( $150 \pm 40$  MHz/mm Hg) were determined. The shift in the maximum of the output power of the generator with an increase in pressure in an amplifier tube was measured and was  $16 \pm 2$  MHz/mm Hg for isotopically pure  $Ne^{20}$  and  $33 \pm 3$  MHz/mm Hg for a natural mixture of the isotopes. 5 ill., 8 ref.  
1/1

USSR

*u* UDC 621.373:530.145.6

USPENSKIY, A. V.

"Feasibility of Realizing Three Stable States in Semiconductor Lasers With Nonhomogeneous Excitation"

V sb. Probl. peredachi inform. lazern. izluch. (Problems of Transmitting Information by Laser Emission--collection of works), Kiev, 1969, pp 562-567 (from RSA-radiotekhnika, No 10, Oct 70, Abstract No 10D197)

Translation: It is shown that in semiconductor lasers of the slit type in the bistable (rigid) state which takes place with nonhomogeneous excitation of the laser sections, there is a third, unstable, state in addition to the two stable ones. It is shown that this state may also be stable under certain conditions. One illustration, bibliography of four titles. N. S.

1/1

- 169 -

USPENSKIY A.V.

Bayanov, It. L., Zabila, G. A.	Reception of Optical Radiation Phase Modulated by a Superhigh-Frequency Signal .....	306
Popov, L. It.	Parametric Optical Signal Limiter .....	308
Gusev, V. G.	Study of the Effect of Multimode Laser Emission on the Reception of Phase Modulated Signals...	311
Korshunov, I. P.	Study of the Basic Parameters of Light-Guide Communications Lines .....	315
Gertsenshteyn, F. E.	Gas Lenses for Optical Beam Wave Guides .....	323
Hoyskapaty, O. I.	Structural Characteristics of Antennas for Photon Interference Transmission Systems .....	331
Khromov, A. B., Fab- ricov, V. A., Klyukina, L. M.	Temperature Conditions of Thin Perromagnetic Films when Recording Images by Laser Emission	340
Klyukin, L. M., Fabricov, V. A., Khromov, A. B.	Thin Magnetic Films in Laser Beam Information Transmission Systems .....	350
Men'shikh, O. F.	Method of Precision Diagnosis of Small Disturbances of the Optical Activity and Indices of Refraction of Optically Transparent Media using Laser Radiation .....	364
Men'shikh, O. F.	Procedure for Optical Differentiation of Ampli- fude Modulated Coherent Radiation .....	371
Mel'shikh, O. F.	Study of the Optical Properties of Substances Based on the Inverse Faraday Effect .....	375
Nikitin, V. V., Nemoylov, V. D.	Study of Logical Elements Based on a Scintila- tor Laser Photodiode .....	380
Uspenskiy, A. V.	Possibility of Realizing Three Stable States in a Semiconductor Laser with Nonuniform Exci- tation .....	385
Devyagin, I. A., Kotov, V. V., Olozhenko, Yu. L.	Two-dimensional Scanning of an Optical Beam by Light Refraction in an Ultrasonic Field ...	389
Devyagin, I. A., Kotov, V. V., Olozhenko, Yu. L.	Laser System Ensuring that an Image of an Object will be Obtained on a Display Screen ...	395

95

TECHNICAL TRANSLATION

AKM / FSTC-HT-23-2015-72

29 Oct 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION  
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,  
SEPTEMBER 1968

FOREIGN TITLE: ПРОБЛЕМ ПЕРЕДАЧИ ИНФОРМАЦИИ ЛАЗЕРНЫМ ИЛЛУМЕНТИМ

AUTHOR: I. A. DERUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY  
IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACST

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Full Page



c. Nr.: **AP0028774**

Ref. Code: UR 0050

PRIMARY SOURCE: *Meteorologiya i Gidrologiya*, 1970, Nr 1,  
pp 11-18

AUTHOR: Uspenskiy, B. D. *M*

QUANTITATIVE FORECAST OF CONTINUOUS AND SHOWER PRECIPITATION

In the article a method of quantitative short-range forecast of continuous and shower precipitation is considered on the basis of observational data for five levels of the atmosphere. This method is based on numerical forecast of fields of surface pressure and four isobaric surfaces. Forecasts of temperature and moisture with the accounting of their transformation changes, as well as forecasts of precipitation amount are precomputed by a computer or with the help of aerological diagrams and auxiliary graphs. Results of experimental forecasts of air pressure, temperature and humidity and that of the amount of continuous and shower precipitation give an idea about their quality.

REEL/FRAME  
**19680211**

*12 107*

USSR

UDC 550.834

USPENSKIY, B. G., FREMD, V. M.

"A Seismograph"

USSR Author's Certificate No 347708, Filed 08/01/71, Otkrytiya, Izobreteniya Promyshlennye Obraztsy Tovarnye Znaki, No 24, Moscow, 1972, p 150.

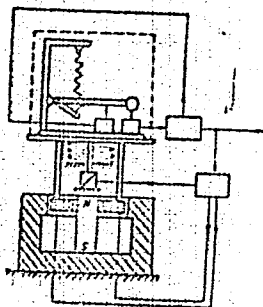
Translation: A seismograph, containing a pendulum with one degree of freedom, a sensor of the movement of the inert mass relative to the base of the seismograph, a sensor signal amplifier-converter, a device damping the mechanical oscillations of the systems in the drive and feedback branches, differing in that in order to improve stability and linearity of the measurement channel, decrease sensitivity to external and internal signals of non-seismic origin and expand the frequency range of the soil displacements recorded, including in the direction of longer periods, longer than the natural oscillating period of the pendulum used, it is equipped with a device to compensate for the motion of the base under the influence of movements of the soil, including a compensating seismograph output converter, converting the output to proportional base displacement, containing a non-moving part rigidly connected to the soil and a moving part rigidly connected to the base, the moving part of the converter being equipped with an elastic  
1/2

USSR

UDC 550.834

USPENSKIY, B. G., FREMD, V. M., USSR Author's Certificate No 347708, Filed 08/01/71, Otkrytiya, Izobreteniya Promyshlennye Obraztsy Tovarnye Znaki, No 24, Moscow, 1972, p 150.

spring for connection to the soil.



2/2

- 169 -

USSR

UDC: 621.319.4(088.8)

BUDKIN, I. A., ALEKSEYEV, V. L., STAZHKOV, V. N., KORNEYEV, A. D.,  
USPENSKIY, D. N., KOSHURO, V. A., BUDIN, V. I.

"A Case for Flat Capacitors"

USSR Author's Certificate No 283414, filed 12 May 69, published 10 Dec 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V387 P)

Translation: This Author's Certificate introduces a casing for flat capacitors of fixed value. The cartridge is made in the form of a ruler with reinforcing ribs fitted with locators for the capacitor leads. As a distinguishing feature of the patent, in order to improve the reliability of locating the leads, the casing is equipped with H-shaped transverse guide bridges and longitudinally oriented lobes.

1/1

- 69 -

USSR

UDC: 621.319.4(088.8)

PSHENICHNYY, I. S., BUDKIN, I. A., ALEKSEYEV, V. L., STAZHKOV, V. N.,  
KORNEYEV, A. D., ~~USPENSKIY, D. N.~~

"A Device for Testing Capacitors With Respect to Electric Parameters"

USSR Author's Certificate No 283416, filed 17 Apr 69, published 10 Dec 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V384 P)

Translation: This Author's Certificate introduces a device for testing capacitors with respect to electric parameters. The device consists of a vibration hopper with power supply, a transport mechanism, contact groups, and memory and sorting elements. As a distinguishing feature of the patent, automatic operation of the device is provided by making the memory element in the form of a light display panel with signal lamps in a number corresponding to the number of capacitors to be tested, and the analyzing element is a pointer with a photocell located above the lamps and kinematically coupled to the transport disc and providing electrical control of the sorting unit.

1/1

- 106 -

USSR

UDC 614.449.542.615.285.42

USPENSKIY, I. V., and OBLESOVA, L. N., (BARMINA), Entomology Department, Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow.

"The Need for the Prolonged Residual Effect of Acaricides in Ixodes Persulcatus Control"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 4, Jul/Aug 71, pp 465-469

Abstract: Since the sensitivity of engorged larvae and nymphs to acaricides is significantly lower than that of hungry ones, studies were conducted to determine effective control of engorged ticks. The duration of acaricidal effectiveness on hungry ticks in natural conditions was also studied. Research was conducted in 1968-1969 a tickborne encephalitis focus in the southern part of Krasnoyarskiy Kray (Western Sayan). Results showed that in areas sprayed with DDT, 40-50% of hungry ticks were killed, and during the second season 25-40% were killed. During the research year not more than 25-30% of engorged larval were affected, while in the second season engorged larvae were not affected at all. Engorged nymphs were totally unaffected during both seasons. The acaricidal effect of DDT in the second season, after single  
1/2

USSR

USPENSKIY, I. V., and OBLESOVA, L. N., Meditsinskaya Parazitologiya i Parasitarnyye Bolezni, Vol 40, No 4, Jul/Aug 71, pp 465-369

spraying is sufficient for elimination of the whole hungry and active population of ticks. Any preparation that loses its effect in the second season cannot be successful against *I. persulcatus*.

2/2

- 57 -

USSR

UDC 911.3.616.9.576.895.42(42+57)

BABENKO, L. V., NAUMOV, R. L., USPENSKIY, I. V., MERINOV, V. A., RUBINA, M. A., VASIL'YEVA, I. S., IOFFE, I. D., OBLESOVA, L. N., and RAZUMOVA, I. V.

"A Biological Study of Ixodes Ticks -- Disease Vectors -- and a Scientific Study of Countermeasures in Natural Foci"

V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich. med., 1970 (Proceedings on the Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No. 1.36.67)

Translation: This study has four objectives: a) study of the ecology and population biology of the prevalent Ixodes and Dermacentor tick species; b) complex study of biological laws in natural foci of tickborne encephalitis and in one focus of Asian tickborne rickettsiosis (in Krasnoyarskiy Kray); c) study and practice of countermeasures against tickborne encephalitis for residents of large, newly-constructed housing developments in the hill rayons of Krasnoyarskiy Kray; and d) study of the effect of pesticides on ticks (I. persulcatus, for example). A proposal is advanced for research on the

1/2



USSR

BABENKO, L. V., et al, V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich. med., 1970 (Proceedings on the Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.67)

characteristics of the population biology, morphology, and physiology of ticks within various geographic conditions.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECTIVENESS OF THE USE OF SOME COMPOUNDS AS ACARICIDES IN FOCI OF  
TICK BORNE ENCEPHALITIS. COMMUNICATION II -U-  
AUTHOR--(02)-USPENSKIY, I.V., BARMINA, L.N.  
COUNTRY OF INFO--USSR *u*  
SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL  
39, NR 1, PP 66-72  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ENCEPHALITIS, TICK, ORGANIC PHOSPHORUS INSECTICIDE, ODT  
INSECTICIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/0084 STEP NO--UR/0358/70/039/001/0066/0072  
CIRC ACCESSION NO--AP0103764  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103764

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THE RESULTS OF THE FIRST YEAR OF STUDIES (USPENSKY, BARMINA, 1968) THE AUTHORS CONTINUED INVESTIGATIONS AIMED AT ESTABLISHING SUITABILITY OF ORGANOPHOSPHORUS COMPOUNDS OPC; FOR CONTROL OF THE VECTOR OF TICK BORNE ENCEPHALITIS. IT WAS FOUND THAT THE ACARICIDES UNDER TESTS (CARBOPHOS, METHYLNITROPHOS, METATIONE, FENTHIONE) IN DOSAGES OF 0.125 0.5KG HECTAR SHOWED HIGH EFFECTIVENESS IN THE SEASON OF TREATMENT. THESE AMOUNTS IN GENERAL CORRESPOND TO THE EFFECTIVE DOSAGES OF DDT ESTABLISHED BY THE AUTHORS. IN THE SECOND SEASON AFTER A SINGLE TREATMENT WITH OPC COMPLETE RESTORATION OF THE ABUNDANCE OF ACTIVE ADULT TICKS WAS OBSERVED REGARDLESS OF THE SIZE OF A DOSAGES ONE YEAR AFTER TREATMENT WITH DDT A SIGNIFICANT EFFECT OF ERADICATION OF THE VECTOR PERSISTED. THE PAPER DISCUSSES THE CAUSES OF RESTORATION OF THE ABUNDANCE OF TICKS AFTER TREATMENT, THE PATTERNS OF THE RESIDUAL EFFECT OF ACARICIDES, THE METHODOICAL ASPECTS OF THE TRIALS. THE MAIN CONCLUSION IS THAT OPC MAY BE USED ONLY WHEN ONE SEASON ERADICATION OF TICKS IN TAIGA FOCI OF TICK BORNE ENCEPHALITIS IS NECESSARY BECAUSE THEY ARE NO GOOD FOR LONG TERM SANITATION OF THE TERRITORY. RECOMMENDATIONS FOR THE USE OF NEW ACARICIDES GIVEN ON THE BASIS OF ONLY ONE YEAR TRIALS SHOULD BE CONSIDERED MORE CAREFULLY.

UNCLASSIFIED

USSR

UDG 539.12.08

KEIRIM-MARKUS, I. B., KOROLEVA, T. V., KRAYTOR, S. N., and USPENSKIY, L. N.

"The Characteristics of the DINA Personal Neutron Track Dosimeter"

Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 11-15

Abstract: The characteristics of the DINA personal neutron dosimeter, consisting of track detectors of fission fragments from  $\text{Np}^{237}$  beyond a  $0.1 \text{ g/cm}^2 \text{ BiO}$  filter and  $\text{U}^{235}$ , are investigated. They include the sensitivity of the dosimeter, its reading dependences on the distance from the human body surface and the radiation incidence angle, and the influence of the neutron spectrum on the track level. The characteristics of the DINA personal neutron track dosimeter are shown for five types of neutron spectra and dosimeter locations. The average value of the track level,  $2.3 \text{ mrad/track}$ , has a dispersion of  $\pm 6\%$  and is shown to correspond to the calculated value of  $2.2 \text{ mrad/track} \cdot \text{mg Np}^{237}$ . Four figures, two tables, six formulas, fourteen bibliographic references.

1/1

1/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70  
EV-10 MEV NEUTRONS -U-

TITLE--SENSITIVITY OF SPHERICAL DETECTORS FOR 0.4

AUTHOR--(05)-ANDREYEVA, L.S., KEIRIMMARKUS, I.B., USPENSKIY, L.N.,  
FILYUSHKIN, I.V., CHERNOV, YE.N.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 72-5

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NEUTRON DETECTOR, THERMAL NEUTRON, POLYETHYLENE, NEUTRON  
SPECTRUM, FAST NEUTRON, VAN DE GRAAFF ACCELERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1072

STEP NO--UR/0120/70/001/000/0072/0075

CIRC ACCESSION NO--AP0110762

UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AP0110762  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. EXPTL. DATA WERE OBTAINED TO DET.  
THE SENSITIVITY OF A THERMAL N DETECTOR WITH SPHERICAL POLYETHYLENE  
MODERATORS (P EQUALS 0.94 G-CM PRIME3) OF DIFFERENT DIMENSIONS  
(4.86-24.1 G-CM PRIME2) IN THE N ENERGY RANGE FROM THERMAL TO 10 MEV.  
THE MEASUREMENTS IN THE LOW ENERGY REGION WERE CONDUCTED IN A PULSATING  
FAST REACTOR ACCORDING TO TIME OF FLIGHT AND IN THE HIGH ENERGY REGION  
IN A VAN DE GRAAFF ACCELERATOR. OPTIMUM DIMENSIONS WERE SELECTED FOR  
THE MODERATORS BASED ON THESE MEASUREMENTS. FACILITY: INST.  
BIOFIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.967:551.501.81

USPENSKIY, M. V., PONOMAREV, Ye. A., SHAFTAN, V. A., MAKRYGIN, A. M.

"On the Sensitivity of an Incoherent Radar Station for Detecting Radio Reflections from a Polar Aurora"

V sb. Issled. po geomagnetizmu. Aeron. i fiz. Solntsa (Research on Geomagnetism. Aeronomy and Solar Physics--collection of works), Vyp. 13, Irkutsk, 1970, pp 150-160 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G57)

Translation: The authors study the sensitivity (energy potential) of an incoherent radar station operating in the mode of search, detection and automatic registration of radio reflections from a polar aurora as a function of the parameters of the radiated signal, the characteristics of the reflections, and methods of registration. Resumé.

1/1

- 125 -

USSR

UDC 517.947

USPENSKIY, S. V., Institute of Mathematics, Siberian Department of the Academy of Sciences USSR, Novosibirsk

"Differential Properties of the Solutions of a Class of Partial Differential Equations in Unbounded Regions"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 61-64

Abstract: The solutions of the equation

$$P(D) = f \tag{1}$$

in the entire Euclidean space  $E_k$  are studied. The condition is imposed on the operator  $P(D)$  that its characteristic polynomial  $\tilde{P}(it)$  can be represented in the form

$$P(it) = \prod_{v=1}^n P_v(it_v) = \prod_{v=1}^n P_v(it_{i_1} \dots i_{k_v}),$$

where for each  $v = 1, \dots, n$   $P_v$  is a polynomial with constant coefficients of  $k_v$  variables ( $k_v$  may be less than the dimensionality of the space  $E_k$ )

1/2



USSR

USPENSKIY, S. V., Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 61-64

and satisfies the following conditions: (a)  $P_\nu(it_\nu) \neq 0$  at real points for  $|t_\nu| = \sum_{i=1}^{k_\nu} |t_{s_i \nu}| \neq 0$ ; (b)  $P_\nu(it_\nu)$  is quasihomogeneous: i.e., for any  $\lambda > 0$  the condition

$$P_\nu(i\lambda^{\alpha_\nu} t_\nu) = P_\nu(it_\nu \lambda^{\alpha_{s_1 \nu}} \dots \lambda^{\alpha_{s_{k_\nu} \nu}}) = \lambda P_\nu(it_\nu) \quad \text{is}$$

satisfied.

Included in this class of operators are elliptical, parabolic, and, in the case  $k = 2$ , hyperbolic homogeneous operators. It is assumed that the operator  $P(D)$  is defined on the set of functions which at infinity increase no faster than exponentially and locally exhibit all derivatives summable in  $L_p$ ,  $1 < p < \infty$ , which enter into  $P(D)$ . The basic problem solved is to show the existence of a solution of equation (1) satisfying the exact two-sided evaluations of the imbedding theorem type both in  $L_p$  norms and in Hölder norms on the entire Euclidean space  $E_k$ . Also given is an effective method for separating from the region of definition of the operator  $P(D)$  those functions for which this evaluation holds.

2/2

Acc. Nr.

AP0048803

Abstracting Service:  
CHEMICAL ABST.

5-70

Ref. Code

UR0077

4

91045u Effect of the chemical structure of the thermoplastic binding layer on the nitrogen diffusion permeability of films. Nagornyi, V. I.; Maslovskaya, R. S.; Uspenskii, V. I. (Vses. Gos. Nauch.-Issled. Proekt. Inst. Khim. Fotogr. Prom., Moscow, USSR). *Zh. Nauch. Prikl. Fotogr. Kinematogr.* 1970, 15(1), 63-5 (Russ). The N diffusion and permeability coeffs. of CH<sub>2</sub>:CHCN (I)-Me methacrylate (II)-CH<sub>2</sub>:CCl<sub>2</sub> (III) terpolymer (IV) films contg. different ratios of monomers were detd. and their dependence on temp. and phys. state investigated. IV films contg. the following I-II-III ratios (wt. %) were studied: 20:0:80; 19:10:71; 15:16:69; 14:25:61; 13:35:51. Samples with approx. the same mol. wt. were chosen. Increasing the amt. of II in the IV chains raised the glass temp. ( $T_g$ ), and increased the permeability coeff. ( $P$ ), apparently because N penetration in IV depends on structure (form and special orientation of the mols., size of the side chains, and interactions of the IV mols.). Introduction of even 10% II increased the N diffusion coeff. ( $D$ ) by a factor of 2, while addn. of 35% II raised  $D$  by a factor of 7. The rates of diffusion and permeability of all films increased with temp., and discontinuities were obsd. at  $T_g$ . Thus, above and below  $T_g$ , the curves  $\log P = f(T)$  and  $\log D = f(T)$  were linear. The change in photographic characteristics of the vesicular layers derived from IV is detd. chiefly by the change in the diffusion properties of the binder.

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REEL/FRA  
19800566

Acc. Nr: AP0051904

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Ref. Code: UR04K

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 2, pp2326

( CHANGES OF THE DUODENAL MUCOSA POLYSACCHARIDES  
IN PATIENTS WITH ULCER DISEASE

V. M. Uspenskiy (Leningrad)

Investigation of 95 males (age: 18—39 years) indicates that mucin formation and mucin content of the duodenal mucosa depends on the state of the acid-forming gastric function and character of the disease. Characteristic of patients with duodenal ulcer is association of morphological changes of the mucous membrane with a reduction of the mucin-forming function, secretion of neutral and acid mucopolysaccharides.

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REEL/FRAME  
19820387

*blh*  
2

USPENSKIY, Yu. N.

THE EFFECT OF PROTEOLYTIC ENZYMES ON DEVELOPMENT AND COURSE OF EXPERIMENTAL PNEUMOCOCCIOSIS

Article by Yu. N. <sup>AK</sup>Uspenskiy, V. B. <sup>AK</sup>Lavushkina, T. A. <sup>AK</sup>Kononova, Institute of Industrial Hygiene and Occupational Diseases, USSR Academy of Medical Sciences, Moscow, Moscow, Vsesoyuznyi Nauchno-Issledovatskiy Tsentr SSSR, Kazan, No 7, 1971, pp 88-90

SO: JPRS 54153  
24 SEP 71

UDC: 616.24-001.65-092.9-085.333:577.156

On the basis of the literature as well as of our previous investigations which revealed the regulatory influence of proteolytic enzymes on Uspenskiy, and G.S. Tseytlin, 1968; 1969), we decided to investigate the effect of proteolytic enzymes on the development and course of experimental pneumococciosis. Induced by dust from tungsten-cobalt alloys with diamond. For this purpose we prepared a mixture of proteolytic enzymes consisting of 1 Sigma, trypsin, 5 Sigma, chymotrypsin, and 50 grams pancreatin which was administered by intubation (one gram of mixture per ten rats) and by mouth (one gram of mixture per 200 ml of drinking water per ten rats).

In all we performed seven series of experiments on 300 albino rats. In the first through fifth series (210 rats) the animals were exposed to quartz dust. The control consisted of 45 rats.

In the first and second series (untreated animals), quartz dust (SiO<sub>2</sub>) rats inhaled the same dust in a concentration of 150050 mg/cubic meter for six months. In the third series quartz dust was administered, as in the first series, once (60 rats), but throughout the observation period (12 months) the animals also received a mixture of enzymes with their drinking water. In the 4th series, 40 rats inhaled a mixture of quartz and enzymes for six months.

In the 5th series (70 rats), in addition to inhalation (for six months) of a mixture of quartz and enzymes, the animals received a set of enzymes with their water for 12 months.

In the 6th series, 25 animals were subjected once to the hyperthermal action of tungsten-cobalt alloy with 5% diamond in a dosage of 50 mg. In the 7th series, 30 animals were exposed to the same dust, in the same manner, and

1/2 025

TITLE--HELICOPTER CONTROL IN DIVERSE ATMOSPHERIC CONDITIONS -U- UNCLASSIFIED PROCESSING DATE--11SEP70

AUTHOR--USTENKO, A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AVIATSIYA I KOSMONAVTIKA, NO 2, 1970, PP 14-15

DATE PUBLISHED-----70

SUBJECT AREAS--AERONAUTICS

TOPIC TAGS--HELICOPTER CONTROL EQUIPMENT, HELICOPTER ROTOR, HELICOPTER PERFORMANCE, ATMOSPHERIC CONDITION, AIRCRAFT PILOT, PILOT TRAINING/(U)M11 HELICOPTER, (U)M12 HELICOPTER, (U)M14 HELICOPTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1415

STEP NO--UR/0209/70/000/002/0014/0015

CIRC ACCESSION NO--AP0104729

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104729

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF CHANGES OF AIR TEMPERATURE AND PRESSURE ON THE VARIOUS FLIGHT MODES OF MI1, MI2, AND MI4 HELICOPTERS ARE DISCUSSED FOR THE PURPOSE OF IMPROVING PILOT MEASURES TO BE TAKEN WHEN CHANGES IN THE ABOVE METEOROLOGICAL CONDITIONS ARE ENCOUNTERED. THREE GRAPHS ARE PRESENTED FOR THE ABOVE HELICOPTERS, REFLECTING POSSIBLE BLADE PITCH AND RPM VALUES IN COORDINATES OF THE PARAMETER  $\lambda$  (RATIO OF AVAILABLE POWER TO REQUIRED POWER FOR CONSTANT PITCH AND RPM) AND ALTITUDE. THE GRAPHS ALSO EXPRESS LIMITATIONS IN CONTROL ACTUATOR DEFLECTION AND MAXIMUM RPM. THE AUTHOR PRESENTS TWO EXAMPLES FOR MI4 HELICOPTERS GOING TO AND OPERATING FROM ALTITUDES OF 4500 M. A THIRD EXAMPLE INVESTIGATES HELICOPTER CONTROL CHARACTERISTICS DURING DESCENT AND LANDING AND AUTOROTATION. KNOWING THE ALTITUDE CHARACTERISTICS OF ENGINES IN VARIOUS ATMOSPHERIC CONDITIONS, THE METHODS DESCRIBED CAN BE USED IN PLOTTING PITCH RPM GRAPHS FOR OTHER TYPES OF HELICOPTERS.

UNCLASSIFIED

USSR

UDC 616.993.1(477.84)

MAYEVSKIY, A. G., USTENKO, A. N., and VOLYK, A. D., Ternopol'skaya Oblast'  
Sanitary-Epidemiological Station, Ternopol'

"Some Data on the Incidence of Toxoplasmosis Among the Population of Ternopol-  
skaya Oblast"

Kiev, Vrachebnoye Delo, No 5, May 71, pp 145-146

Abstract: Intracutaneous allergy tests for toxoplasmosis carried out in Ternopolskaya Oblast' yielded positive results in 45.8% of cases. The ratio of positive results in these tests increased from 12% for subjects in the age group up to 15 years to 36.6% for persons 31-55 years old. Among pregnant women tested for toxoplasmosis by the complement fixation reaction during 1962-1965, 19.1% showed a positive reaction. Complement fixation tests indicated that toxoplasmosis occurred predominantly in May-July. The rural population was affected to the greatest extent, but the infection also occurred among persons living in cities who had contact with animals and animal products. Toxoplasmosis is a disease with a natural focus that affects wild and domestic animals including rodents, from which the disease is transmitted to human beings. Results obtained in a study conducted at toxoplasmosis foci indicated that consumption of food products such as milk, raw eggs, etc., played a

1/2

USSR

MAYEVSKIY, A. G., et al., Vrachebnoye Delo, No 5, May 71, pp 145-146

major role in the infection of humans. At 42 foci of acquired toxoplasmosis investigated in 1963, domestic animals (cats, dogs, etc) formed the source of infection of humans in 11 cases. Cases of congenital toxoplasmosis were found.

2/2

- 54 -



1/2 027  
 TITLE—CHARACTERISTICS OF THE SCATTERING OF COHERENT OPTICAL WAVES AT A  
 CURVED ROUGH SURFACE —U—  
 AUTHOR—USTENKO, E.P.  
 COUNTRY OF INFO—USSR  
 SOURCE—OPTIKA I SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 759-761  
 DATE PUBLISHED—APR70  
 SUBJECT AREAS—PHYSICS  
 TOPIC TAGS—SURFACE ROUGHNESS, LIGHT SCATTERING, AUTOCORRELATION FUNCTION,  
 LIGHT POLARIZATION, CONVEX BODY  
 CONTROL MARKING—NO RESTRICTIONS  
 DOCUMENT CLASS—UNCLASSIFIED  
 PROXY REEL/FRAME—2000/1224  
 CIRC ACCESSION NO—AP0124878  
 STEP NO—UR/0051/70/028/000/0759/0761  
 UNCLASSIFIED

2/2 027

CIRC ACCESSION NO--AP0124878

UNCLASSIFIED

PROCESSING DATE--30OCT70

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

ABSTRACT. ANALYSIS OF THE COHERENCE CHARACTERISTICS OF ORTHOGONALLY POLARIZED COMPONENTS OF LIGHT SCATTERED AT THE SURFACE ROUGHNESSES OF A CONVEX BODY. EXPRESSIONS FOR THE THREE DIMENSIONAL AUTOCORRELATION FUNCTIONS OF THE LIGHT COMPONENTS ARE DERIVED. IT IS SHOWN THAT THE EXPERIMENTALLY FINDING, ACCORDING TO WHICH THE STATISTICAL PROPERTIES OF SCATTERED LIGHT ARE INDEPENDENT OF THE CURVATURE OF THE BODY, CANNOT BE EXPLAINED WITHIN THE FRAMEWORK OF KIRCHOFF'S APPROXIMATION.

UNCLASSIFIED

USSR

UDC 621.396.6-181.5

GORZYUSHKIN, M. I., KRYLOVA, I. A., PETIN, Yu. A., SEMENOVA, N. V.,  
USTILKO, V. Ye.

"Combining MOS and Bipolar Transistors in Integrated Circuits"

Elektron. tekhnika. Nauch.-tekh. sb. Mikroelektronika (Electronic  
Technology. Scientific and Technical Collection. Microelectronics),  
1971, vyp. 1(27), pp 53-58 (from MZh-Radiotekhnika, No 6, Aug 71,  
Abstract No 84246)

Translation: The authors consider the possibilities of developing combination integrated elements based on MOS and bipolar transistors. Circuit characteristics may be appreciably improved by combining these devices in integrated circuits. The special technological characteristics of making integrated circuits combining MOS and bipolar transistors are described, and it is shown that the processes of making them are compatible. The characteristics of P-channel MOS and NPN bipolar transistors are presented for units made under compatible conditions on II-type epitaxial films with insulating junctions. Resumé.  
1/1

1/2 040  
UNCLASSIFIED  
TITLE--ENERGY BALANCE OF AVERAGE AND PULSATING MOTION IN ANNULAR TURBULENT  
FLOWS -U- PROCESSING DATE--04DEC70  
AUTHOR--(02)-USTIMENKO, B.P., ZMEYKOV, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--INZHENERNO-FIZICHESKII ZHURNAL, VOL. 18, APR. 1970, P. 664-670  
DATE PUBLISHED----APR70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--TURBULENT FLOW, SHEAR STRESS, CYLINDRIC FLOW  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1750 STEP NO--UR/0170/70/018/000/0664/0670  
CIRC ACCESSION NO--AP0125368  
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0125368

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE ENERGY BALANCE OF AVERAGED AND PULSATING MOTIONS IN THE GAP BETWEEN TWO COAXIAL ROTATING CYLINDERS, ON THE BASIS OF TURBULENT ENERGY EQUATIONS CONTAINING TERMS ASSOCIATED WITH THE GENERATION AND DISSIPATION OF THE ENERGY OF PULSATING MOTION IN THE MAIN REGION OF THE FLOW. THE PRINCIPAL ENERGY BALANCE COMPONENTS ARE DETERMINED WITH THE AID OF EXPERIMENTAL DATA, AND THE ROLE OF THESE COMPONENTS IN THE VARIOUS REGIONS OF THE FLOW IS EXAMINED. IT IS SHOWN THAT FOR A CHANNEL WITH A ROTATING INNER CYLINDER, THE KINETIC ENERGY OF AVERAGED MOTION NEAR THE MOVING WALL INCREASES DUE TO THE WORK OF VISCOUS SHEAR STRESS. WITH INCREASING DISTANCE FROM THE WALL, THE FLOW IS DECELERATED DUE TO THE ACTION OF TURBULENT SHEAR STRESS. AT THE OUTER NONROTATING WALL, THE INCREASE IN KINETIC ENERGY DUE TO TURBULENT FRICTION IS COMPENSATED FOR BY THE GENERATION OF TURBULENT ENERGY AND BY THE WORK OF VISCOUS FORCES. FOR AN OUTER ROTATING CYLINDER, THE DISTRIBUTION OF THE ENERGY BALANCE COMPONENTS IS MUCH MORE COMPLICATED. NO RELIABLE ESTIMATES OF THE ENERGY BALANCE CAN BE OBTAINED ON THE BASIS OF THE ANNULAR FLOW EQUATIONS, IN THIS CASE. FACILITY: KAZAKHSKII NAUCHNO-ISSLEDOVATEL'SKII INSTITUTE ENERGETIKI, ALMA-ATA KAZAKH SSR.

UNCLASSIFIED

USSR

UDC:533.601.1

USTIMENKO, B. P., TKATSKAYA, O. S., YERSHIN, Sh. A.

"Some Results of Investigation of the Aerodynamics of a Twisted Gas Flame"

Probl. Teploenerg. i Prikl. Teplofiz. [Problems of Thermal Power Engineering and Applied Heat Physics -- Collection of Works], No 9, Alma-Ata, Nauka Press, 1973, pp 91-99 (Translated from Referativnyy Zhurnal Aviatzionnyye i Raketnyye Dvigateli, No 11, 1973, Abstract No 11.34.42, from the resume)

Translation: The regularities of development of turbulent twisted flames are studied with various values of the twisting parameter ( $0.08 \leq S \leq 0.51$ ) and wake parameter ( $0 \leq m \leq 1.0$ ). The axial and tangential velocity fields, excess static pressure field and excess temperature field are presented in detail. The results of experiments for a slightly twisted flame are compared with calculated values using the method of the equivalent problem from the theory of heat conductivity and agreement is good. 7 Figures; 4 Biblio. Refs.

1/1

USSR

UDC: 536.24:532.54

BUKHMEN, M. A., USTIMENKO, B. P.

"Investigation of Aerodynamics and Heat Exchange of Twisted Flows Developing in a Restricted Space"

V sb. Teplo- i masscobmena (Heat- and Mass-Transfer--collection of works), T. 1, Minsk, 1972, pp 90-97 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B787)

Translation: An experimental study of the principles governing a twisted flow was made based on the example of flow in cylindrical cyclone chambers. For purposes of generalization, this material is compared with previously found data on flow in tubes, curved channels, and the gaps between rotating cylinders. The study of aerodynamics and heat exchange was done on a cyclone chamber model with one-, two- and four-way airfeed over a Reynolds number range from  $2.1 \cdot 10^5$  to  $1.5 \cdot 10^6$  and parameter  $\omega$  (equal to the ratio of the flow temperature  $T_+$  to the wall temperature  $T_0$ ) from 1.0 to 2.3.

1/1

USSR

UDC 621.178.372:669.14.018.8

ZOTEYEV, V. S., USTIMENKO, M. YU., GUDKOV, A. A., and BALASHOV, L. V.,  
Central Scientific Research Institute of Ferrous Metallurgy

"Static and Fatigue Strength of Alloy KhN40MDTYu (EP543) After Different  
Strengthening Modes"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73,  
pp 68-70

Abstract: The effect of plastic deformation and subsequent aging on the static and fatigue strength of alloy EP543 (author's certificate No 172869) was investigated. The alloy had the following chemical composition (in %): 0.04 C (max), 0.8 Si (max), 0.8 Mn (max), 0.02 S (max), 0.035 P (max), 14-17 Cr, 39-42 Ni, 4.5-6.0 Mo, 2.5-3.2 Ti, 0.7-1.2 Al, and 2.7-3.3 Cu (per ChMTU-1-988-70). After standard heat treatment and aging (quench from 1050-1100°C, aged at 750°C for 5-15 hours the tensile strength was greater than or equal to 110 kgf/mm<sup>2</sup>, and yield strength was greater than or equal to 65 kgf/mm<sup>2</sup>. Plastic deformation was done by two methods: rolling with completion at 900-925°C, ensuring absence of recrystallization (mode I) and static tension at room temperature (mode II). It was found that the strength

- 38 -



USSR

ZOTEYEV, V. S., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug73, pp 68-70

of alloy EP543 can be substantially increased by high-temperature deformation with completion at those temperatures when the recrystallization process does not occur and aging (mode I), or by plastic deformation at room temperature (10-20%) (mode II). The most effective treatment was mode I, where fatigue strength is increased by approximately 100% in comparison with the initial alloy state. Three figures, two bibliographic references.

2/2

USSR

UDC 620.193.28

ZAKHAROV, YU. V., MYASNIKOV, YU. F., UL'YANIN, YE. A., VASIL'YEV, P. YE.,  
and USTIENKO, M. YU., Central Scientific Research Institute of Ferrous  
Metallurgy imeni I. P. Bardin

"Investigation of High-Strength Steels and Alloys for Work in Humid Hydrogen  
Sulfide"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 61-63

Abstract: The tendency to failure under the action of hydrogen sulfide was investigated on 40Kh and 65G structural steels. 4Kh13 and Kh16N7M2Yu stainless steel subjected to martensitic transformation, and dispersion-hardened KhN40LDTYu (EP543) austenitic steel. Cylindrical specimens of 40Kh and 4Kh13 steels and EP-543 alloy were over a period of one month. The test results revealed that 40Kh and 4Kh13 steels in the hardened state ( $R_c > 30$ ) are highly inclined to cracking in the presence of humid hydrogen sulfide, whereas the EP-543 alloy is stable. Laboratory tests under similar conditions revealed a high stability of austenitic dispersion-hardened EP437B alloy on a nickel base. One figure, twelve bibliographic references.

1/1

- 39 -

USSR

UDC 669.15'24'26'28.001.5

GULYAYEV, A. P., SMIRNOVA, A. V., and USTIMENKO, M. YU.

"Influence of Aging on Properties, Structure, and Phase Composition of OKhN40MDTYu (EP543) Alloy"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 102-108

Translation: The influence of the temperature of the end of deformation and subsequent heat treatment on the structure and mechanical properties of EP543 high-strength corrosion-resistant alloy is studied. Investigation of the mechanical properties demonstrated that a decrease in the temperature of the end of deformation, cooling after deformation in air (catathermic aging), and additional isothermic aging lead to a significant increase in the strength properties of the alloy. 3 figures; 2 tables; 6 biblio. refs.

1/1

- 33 -

USSR

UDC 669.1.017:621.771.8:669.15'24'26'-194

GOLOVANENKO, S. A., MEANDROV, L. V., PERSHINA, N. F., and USHIMENKO, V. A.

"Structure of Two-Layer Corrosion-Resistant Steel"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],  
No 77, Metallurgiya Press, 1970, pp 172-177

Translation: The influence of technological factors on the structure and properties of large bimetallic sheets with a clad layer of chrome-nickel and chrome-nickel-molybdenum steels was studied.

It was established that the technological specifics related to the production of very thick two-layer corrosion-resistant sheets influence the changes in structure and properties.

Methods are recommended for reducing the required corrosion properties of the bimetal. 5 figures; 1 table.

USSR

UDC 621.771:621.783

USTIENKO, V. A., KOLOGRIVOV, N. P., KRYLOVSKIY, A. P., SKRIMENTOV, V. M.,  
TKACHEV, A. V., and CHERVIYAKOV, V. V.

"Rolling of Sheets Plated With OKh23N28M3D3T Steel"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-  
Oct 70, pp 81-82

Abstract: A description is given of new technological process of rolling cor-  
rosion-resistant sandwich sheets plated with OKh23N28M3D3T (EI943) complex alloy  
steel. The sheets are used for manufacturing containers for stacking and trans-  
porting highpurity acids. The chemical compositions of the basic metal (20K  
steel) and the plating metal are given. Data on the strength properties of the  
two steels are also given. The shearing strength along the welding plane sub-  
stantially exceeds the minimum GOST 10885-64 value ( $15 \text{ kg/mm}^2$ ). The high ad-  
hesion strength of the layers was confirmed by bending tests. The results show  
the feasibility of using this technology for the mass production of large-size  
sheets with a plating layer which completely satisfy the requirements of GOST  
10885-64.

1/1

- 73 -

USSR

UDC:621.771.8

GOLOVANENKO, S. A., MEANDROV, L. V., USTIMENKO, V. A., TKACHEVA, A. V., and  
CHERVYAKOVA, V. V.

"Mechanical Properties of Steel + Nickel and Steel + Monel Bimetals"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],  
No 77, Metallurgiya Press, 1970, pp 164-170

Translation: The strength and plasticity characteristics of bimetals were determined during tensile testing in the 20-1200°C temperature interval and impact testing between -60 and +20°C.

In the hot-rolled state, steel + nickel and steel + monel bimetals have mechanical properties as good as the properties of the base layer (steel), while their impact toughness is significantly better.

The dependence of adhesion strength of the layers on degree of deformation and state of the contact surface is obtained. 4 figures; 3 biblio. refs.

1/1

USSR

UDC 669.14.018.25:621.762

DOROFYEV, Yu. G., PETROV, A. K., TSIPUNOV, A. G., USTIMENKO, V. I.  
MARINENKO, L. G., BATENEVA, M. K., and ORLOV, Yu. G., Novochebarkassk Polytechnic  
Institute, Ukrainian Scientific Research Institute of Special Steel

"Structure and Properties of R18 Cermet Steel"

Kiev, Poroshkovaya Metallurgiya, No 2 (122), Feb 73, pp 56-60

Abstract: Results are presented of investigations of the production of R18 high-speed cermet steel from pulverized powders by the method of dynamic hot-pressing. Steel productions using plasticizers and production in thin-sheet metal containers are investigated. The established optimum conditions for dynamic hot-pressing of R18 steel are as follows: heating temperature 1250-1280°C, reduced pressing work 25-30 kgm/cm<sup>2</sup>, aging time 10 min. The produced steel was practically without pores, it had a homogeneous microgranular structure corresponding to the structure of hardened steel, and it was without carbide liquation. Cutters of R18 cermet steel had a resistance twice as high as that of standard R18 steel. Three figures, seven bibliographic references.

1/1

18

USSR

UDC 621.396.622

OLENSKIY, V. A., USTIMENKO, V. M.

"Amplification and Efficiency of a Nonregenerative Parametric Frequency Converter with a High Signal Level"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi Vyp. 2  
(Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute, Vyp. 2), Leningrad, 1970, pp 175-179 (from RZh-Radio-tekhnika, No 8, Aug 70, Abstract No 8 D262)

Translation: Equations are obtained which describe a nonregenerative frequency converter during operation in the high signal mode. Formulas are presented for the amplification coefficient and efficiency in the matching mode with respect to the pumping generator circuit. It is demonstrated that the amplification coefficient and the efficiency depend on the power level of the input signal.

1/1



USSR

U

DOBRYKH, G. V., USTIMENKO, V. M.

UDC 621.375.8

"Consideration of Reflections in Parametric Devices"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-ta svyazi. Vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 3), 1970, Leningrad, pp 185-190 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D265)

Translation: A wave transmission matrix was compiled for a multifrequency parametric device of arbitrary structure. The formulas for conversion to the wave transmission matrix of an equivalent four-terminal network are obtained in the two-frequency mode. The expressions for the amplification coefficients of a transfer amplifier and a reflecting amplifier considering reflections from loads in the difference and signal frequency channel are presented.

Waveguides

USSR

UDC: 621.372.822

KRAVCHENKO, V. F., KARETNIKOV, S. N., ~~USTIMENKO, V. V.~~, KAR-  
MAKULOV, V. S.

"Experimental Investigation of Scattering and Transmission of  
Electromagnetic Waves by Spherical Nonhomogeneities in a Rec-  
tangular Waveguide"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radio  
Engineering. Republic Thematic Interdepartmental Scientific  
and Technical Collection), 1971, vyp. 17, pp 39-44 (from RZh-  
-Radiotekhnika, No 3, Mar 72, Abstract No 3B110)

Translation: In connection with the proposed method of cal-  
culation, which is used in solving internal problems of elec-  
trodynamics on scattering and transmission of electromagnetic  
waves by a rectangular waveguide with nonhomogeneities of regu-  
lar shape, experimental studies which showed the singularities  
in measurement of the reflection factor were done. Ways are  
indicated for using the discovered experimental effects in the  
development of specific microwave devices. Six illustrations,  
bibliography of six titles. Resumé.

USSR

UDC: 621.372.85

KRAVCHENKO, V. F., ZHILKOV, V. S., SALYGA, V. I., USTIMENKO, V. V., BAL'ZAMOV, B. N., BAKLANOV, O. D.

"On the Possibility of Constructing Automatic Matching Circuits in the Microwave Band"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 15, pp 75-77 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B188)

Translation: The authors consider circuit designs for automatic matchers for waveguide channels. Possible versions for practical realization of these circuits are considered, and it is also pointed out that impedance transformers based on using bodies of the proper shape can be used in automatic matchers. It is concluded that adaptive automatic matchers can be made for operation over a wide frequency band. Resumé.

1/1

- 36 -

USSR

UDC: 621.372.852.6

3

PIROTYI, Ye. L., BAKLANOV, O. D., BAL'ZAMOV, B. N., KRAVCHENKO, V. F.,  
ZHILKOV, V. S., KHIZHNIK, N. A., USTIMENKO, V. V.

"A Method of Calculating Impedance Transformers Based on Rectangular Waveguides"

Pribory i sistemy avtomatiki. Resp. mezhd. nauch.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 11-15 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B151)

Translation: The authors proposed a fundamentally new method of calculating an impedance transformer on the basis of a strict solution of the internal problem of electrodynamics using integrodifferential equations. An analysis of the results of computational and experimental research shows that the procedure for calculating and designing the proposed model may find extensive practical application in a number of microwave devices as well as in the development of an automatic waveguide line. Five illustrations, bibliography of five titles. Resumé.

Waveguides

USSR

UDC: 621.372.852.6

BAKLANOV, O. D., BAL'ZAMOV, B. N., USTIMENKO, V. V., IVANOV, N. S., KRAV-  
CHENKO, V. F., ZHILKOV, V. S., KHEZHNIK, N. A., PIROTTI, Ye. L.

"An Impedance Transformer Based on a Cylindrical Waveguide"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and  
Systems for Automation. Republic Interdepartmental Scientific and Technical  
Collection), 1970, vyp. 14, pp 11-15 (from RZh-Radiotekhnika, No 5, May 71,  
Abstract No 5B152)

Translation: The paper describes the design of an impedance transformer based  
on a cylindrical waveguide. An analysis of the results of experimental  
studies shows that practical realization of the device is feasible in micro-  
wave technology. The proposed design may find application in synthesis of  
automatic lines based on cylindrical waveguides. Resumé.

Analysis and Testing

USSR

UDC 546.87:543.42

CHALKOV, N. Ya., and USTIMOV, A. M., Chimkent Lead Factory

"Chemical Spectral Determination of Impurities in Pure Bismuth"

Moscow, Zavodskaya Laboratoriya, No 2, 1971, pp 149-150

Abstract: A chemical spectral method for the determination of Al, Co, Cd, Ca, Cu, Fe, In, Ga, Mg, Mn, Ni, Tl, and Zn in bismuth with a sensitivity of  $1 \times 10^{-7}$  —  $1 \times 10^{-5}\%$  has been developed. The concentration of impurities with a coefficient of 100—250 is attained by separation of the basic bismuth mass by its precipitation in the form of the basic bromide. The variation coefficient varies from 15% to 30%.

1/2 020

UNCLASSIFIED

TITLE--EFFECT OF HEAT TREATMENT OF SUGAR BEETS ON  
IN THE UNDISTILLED ALCOHOL -U-  
AUTHOR--(02)--BRIGADENKO, M.K., USTINNIKOV, B.A.

PROCESSING DATE--09OCT70  
THE AMOUNT OF METHANOL

COUNTRY OF INFO--USSR

SOURCE--FERMENT. SPIRIT. PROM. 1970, 36(1), 15-17

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AGRICULTURE CROP, FERMENTATION, SUCROSE, ETHYL ALCOHOL, METHYL  
ALCOHOL, DISTILLATION, THERMAL DECOMPOSITION, FOOD TECHNOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/1747

STEP NO--UR/0071/70/036/001/0015/0017

CIRC ACCESSION NO--AP0103511

UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--A0103511  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--09OCT79

ABSTRACT. ANALYSES ARE PRESENTED FOR MASHES AND FERMENTED MASH WORTS DERIVED FROM BEETS THE SUGAL LEVELS OF WHICH WERE 17.1 AND 22.5PERCENT AND WHICH HAD BEEN TREATED AT 85-90, 115-20, OR 135-40DEGREES. MEQH IS NOT ONLY A PRODUCT OF THE FERMENTATION BUT ALSO A DECOMP. PRODUCT FORMED BY THERMAL TREATMENT. DECOMP. ACCOUNTS FOR ABOUT 30-50PERCENT OF THE TOTAL MEQH. THERMAL TREATMENT OF BEETS FOR MASH PRODUCTION SHOULD BE AT SMALLER THAN OR EQUAL TO 85-90DEGREES.

UNCLASSIFIED



1/2 049

TITLE--INTROSCOPY AIDS METALLURGICAL, MEDICAL SCIENCE. PENETRATING THE  
INVISIBLE -U- UNCLASSIFIED PROCESSING DATE--04DEC70  
AUTHOR--USTINOV, A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW PRAVDA 7 JUL 70 P 2 L

DATE PUBLISHED--07JUL70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS, BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--NONDESTRUCTIVE TEST, TUMOR, DIAGNOSTIC MEDICINE, CONCRETE, POLYMER, GLASS FIBER, QUALITY CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--3004/0414

CIRC ACCESSION NO--AN0131063

STEP NO--UR/9012/70/000/000/0002/0002

UNCLASSIFIED

2/2 049

CIRC ACCESSION NO--AN0131063  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. THE POSSIBILITIES OF THE APPLICATION OF INTROSCOPY ARE INFINITE. THEY ARE NECESSARY TO OBSERVE AND CONTROL PROCESSES IN METALS, CONCRETE, FIBERGLASS, AND POLYMERS. THEY ARE ALSO EXTREMELY NECESSARY FOR EARLY MEDICAL DIAGNOSIS, THE DISCOVERY OF TUMORS AND THE MICROPHOTOGRAPHY OF THE WALLS OF BLOOD VESSELS AND THE HEART WITHOUT SURGERY. IN THE METALLURGICAL INDUSTRY, FOR EXAMPLE, THE PRODUCTIVITY OF HIGH SPEED ROLLING MILLS EQUALS SEVERAL METERS OF METAL PER SECOND. NATURALLY, UNDER THESE CONDITIONS NO SELECTIVE CONTROL OF PRODUCT QUALITY IS CAPABLE OF MEETING THE CLIENTS' REQUIREMENTS. IN THIS CONNECTION THE PROBLEM HAS ARISEN OF THE HIGH SPEED AUTOMATIC CONTROL OF PRODUCT QUALITY IN ITS MANY ASPECTS UNDER FLOW LINE CONDITIONS. IN PARTICULAR, A MULTICHANNEL INSTALLATION HAS BEEN CREATED AT THE INTROSCOPY SCIENTIFIC RESEARCH INSTITUTE OF THE MINISTRY OF INSTRUMENT BUILDING, MEANS OF AUTOMATION, AND CONTROL SYSTEMS WITH THE PARTICIPATION OF THE PERVOURALSK NEW PIPE PLANT. IT IS INTENDED TO CONTROL THE QUALITY OF HOT ROLLED PIPES DURING THEIR MOVEMENT ALONG THE CONVEYER. THIS ENABLES THE PRODUCT QUALITY TO BE GUARANTEED.

UNCLASSIFIED

1/2 022

TITLE--SOME EXPERIMENTAL NEUTRON PHYSICAL PARAMETERS OF CO 1 ASSEMBLY -U-  
UNCLASSIFIED PROCESSING DATE--16OCT70

AUTHOR--(04)--KOSTANTINOV, L.V., NIKOLAYEV, V.A., YEFANOV, A.I., USTINOV,  
A.A.  
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. (USSR); 28: 53-5(JAN 1970)  
DATE PUBLISHED-----70

*u*

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NEUTRON ACTIVATION ANALYSIS, RADIATION SOURCE, SUBCRITICAL  
REACTOR, URANIUM DIOXIDE, POLYETHYLENE, NEUTRON FLUX, ENRICHED FUEL  
REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1983/1707

STEP NO--UR/0089/70/028/000/0053/0055

CIRC ACCESSION NO--AP0054549

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 022

CIRC ACCESSION NO--AP0054549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION IS GIVEN OF THE NEUTRON SOURCE CO 1 SUBCRITICAL SYSTEM USED FOR ACTIVATION ANALYSES. THE ACTIVATION ZONE OF THE SYSTEM WAS ASSEMBLED WITH URANIUM POLYETHYLENE DISKS. THE ACTIVATION ZONE IS 200 MM IN DIAMETER AND 230 MM HIGH. URANIUM DIOXIDE FUEL, ENRICHED UP TO 36PERCENT WITH PRIME235 U, IS HOMOGENEOUSLY DISPERSED IN THE POLYETHYLENE. TABULATED DATA ARE GIVEN ON MEASURED THERMAL FLUXES OF 10 PRIME7 NEUTRONS-CM PRIME2-SEC IN THE CO 1 INSTALLATION. DATA OBTAINED SUGGESTED THE FOLLOWING PARAMETERS FOR THE INSTALLATION: 0.5 TIMES 10 PRIME NEGATIVE2 SUBCRITICALITY; PRIME238 PU-BE (T SUBONE HALF EQUALS 89.6 YEARS; Q EQUALS 2.3 TIMES 10 PRIME8 NEUTRONS-SEC) SOURCE; 0.9 W; AND THE NEUTRON FLUX IN EXPERIMENTAL CHANNELS EQUAL TO 1.3 TIMES 10 PRIME7 NEUTRONS-CM PRIME2-SEC.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--0210CT70  
TITLE--THE PHASE DIAGRAM AND SATURATED VAPOR PRESSURES IN THE SYSTEM Sb, J  
-U-  
AUTHOR--(02)-USTINOV, A.I., PETROV, YE.S.  
COUNTRY OF INFO--USSR *u*  
SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA  
KHMICHESKIKH NAUK, 1970, NR 2, PP 30-36  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--VAPOR PRESSURE, THERMAL ANALYSIS, ANTIMONY, IODINE, PHASE  
DIAGRAM, ENTROPY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0566 STEP NO--UR/0289/70/000/000/0030/0036  
CIPC ACCESSION NO--AP0113457  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113457

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS STUDIED THE PHASE DIAGRAM OF THE SYSTEM SB MINUS J BY TWO METHOD BY THE STATIC MEMBRAN METHOD AND METHOD OF DTA. IT WAS FOUND ONLY ONE COMPOUND SBJ SUB3 WITH MELTING POINT 170DEGREESC. SBJ SUB3 AND J SUB2 ARE FORM EUTECTIC. THE EUTECTIC LINE LIE AT 80DEGREESC; THE EUTECTIC POINT COMPOSITIONS AT ABOUT 87.5 AT.PERCENT J. METALL AND ITS SALT ARE NOT MUTUALLY SOLUBLE IN THE SOLID STATE. THE VAPOR PRESSURES OBTAINED FOR LIQUID SBJ SUB3 ARE DESCRIBED BY THE EQUATION:  $\log P_{\text{SUBMM}} = -3445/T + 7.989$ . THE HEAT OF VAPORIZATION AND ENTROPY OF VAPORIZATION ARE 15,7 PLUS OR MINUS 0,1 KCAL-MOLE AND 23,3 E.U. THE DATE OF THE VAPOR PRESSURE ARE INDICATED THAT METALL IS SOLUBLE IN ITS FUSED SALT TO A LIMITED EXTENT.

FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI  
MINERAL'NOGO SYR'YA SO AN SSR, NOVOSIBIRSK.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--THE PHASE DIAGRAM AND SATURATED VAPOUR PRESSURES IN THE SYSTEM Sb,  
BR -U-  
AUTHOR--(02)-USTINOV, A.I., PETROV, YE.S.  
COUNTRY OF INFO--USSR *u*  
SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA  
KHIMICHESKIKH NAUK, 1970, NR 2, PP 36-43  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--ANTIMONY, BROMINE, THERMAL ANALYSIS, BROMIDE, ENTHALPY,  
VAPORIZATION, ENTROPY, EUTECTIC, PHASE DIAGRAM  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1993/0563 STEP NO--UR/0289/70/000/000/0036/0043  
CIRC ACCESSION NO--AP0113454  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113454

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS STUDIED THE PHASE DIAGRAM OF SYSTEM SB, BR BY TWO METHODS. THE STATIC MEMBRAN METHOD AND METHOD OF DTA WAS USED. IT IS FOUND ONLY ONE COMPOUND SBR SUB3 WITH MELTING POINT 97DEGREESC. SBR SUB3 AND BR SUB2 ARE FORM EUTECTIC. THE EUTECTIC LINE LIE AT MINUS 14DEGREESC, AND THE EUTECTIC POINT COMPOSITIONS AT ABOUT 95.3 AT.PERCENT. BR. METALL AND ITS SALT ARE NOT MUTUALLY SOLUBLE IN THE SOLID AND LIQUID STATE. THE VAPOR PRESSURES OBTAINED FOR LIQUID SBR SUB3 ARE DESCRIBED BY THE EQUATION:  $\log P$  EQUAL MINUS 2881 DIVIDED BY T PLUS 8.016. THE ENTHALPY OF VAPORIZATION AND ENTROPY OF VAPORIZATION ARE 13,2 PLUS OR MINUS 0,2 Kkal-MOLE AND 23,5 E. U. FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MINERAL'NOGO SYR'YA SO AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED



USSR

UDC 621.311.21:551.324.4(47+57)

ИСПИТОВ Г. Н.

"Autumn Ice Phenomena Complicating the Operation of the Vyg Cascade Hydroelectric Power Plants"

Sb. rabot Leningr. i Petrozavodsk. gidrometeorol. observ. (Collected Works of the Leningrad and Petrozavodsk Hydrometeorological Observatories), No 7, 1970, pp 184-197 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2D34)

Translation: Data are presented on the autumn ice phenomena observed in 1957-1968. The conditions causing them are analyzed, and recommendations are made for elimination of causes of their occurrence.

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7527  
GSO: 1860-w

- END -

- 95 -

USSR

UDC: 539.4:669.71 (2)

RYBAL'CHENKO, M. K., ZOLOTAREVSKIY, YU. S., KABICHEV, B. I., USTINOV, L. M.,  
IVANOV, V. V., and ZHAMNOVA, V. I., Moscow

"Some Mechanical Properties of a Fibrous Composite Material Based on an Aluminum Alloy"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 73, pp 117-122

Abstract: The authors produce a series of fibrous composites made from aluminum alloy and wire made from the EP322 grade steel. This was done by the hot rolling method using the scheme for bonding packs. Reinforcing the aluminum alloy with 12.4 volumetric percent wire increases the specific strength of the material from 15.2 to 19.7 km. The best properties are ensured by a bonding scheme which incorporates the simple multi-layer (two-layer) winding of the fibers onto the sheets of the matrix.

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Composite Materials

USSR

UDC 620.18

RYBAL'CHENKO, M. K. (deceased), USTINOV, L. M., and BAKARINOVA, V. I.

"Physico-Chemical Reactions at Interfaces in Metal-Base Fibrous Composites

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 120-127

Abstract: The mechanical, physical, and chemical bonds between fibers and matrices are reviewed. Chemical bonds are the most prevalent among metal-base fibrous composites, and most of them are of an atomic nature. Physical bonds are characterized by gravitational and magnetic interactions between individual components of composite materials. Strong chemical bonds are formed by atomic bonds between fibers and matrices across the interface, excluding in many cases the interface diffusion. Three types of chemical reactions play a decisive role in the formation of chemical bonds in composite materials of practical importance. A mutual diffusion of elements present in matrix and fibers is the best known type of chemical reactions which leads to the formation of intermediate phase layers (intermetallides, carbides, and others). Compatibility between fibers and matrix is the first requirement for producing high-quality composite materials. The chemical compatibility includes thermodynamic and kinetic compatibility. Thermodynamic compatibility is found very rarely. However, if kinetic compatibility is present, the problem of chemical compatibility

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