USSR   UDC 539.376:661.793

KORNILOVA, Z. I., IGNATOV, D. V., and LAZAREV, E. M., Moscow

"Investigation of the Heat-Resistance of the ST-4 Titanium Alloy and of Some Protecting Coatings On It"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 71, pp 113-115

Abstract: A kinetic and structural investigation was carried out of the oxidizability in the temperature interval of 700-1000°C of the ST-4 titanium alloy, unprotected and protected by coatings based on Si and Mo-Si. The Si coating consisted mainly of the compound Ti_5Si_3 and $TiSi$ and $TiSi_2$ traces; the Mo-Si coating consisted mainly of $MoSi_2$ and of Mo_5Si_3. The Ti_5Si_3 coating showed the best protective properties against gaseous corrosion at 800-1000°C. The heat-resistance of the ST-4 alloy coated with Ti_5Si_3 at 800°C was 70 times greater than the heat-resistance of the 80%Ni + 20%Cr alloy. Protection of the ST-4 alloy by the investigated coatings makes it possible to eliminate the negative influence on the oxidation rate of titanium and its alloys of effects of the high solubility of oxygen (and nitrogen) in them and of the $\alpha \rightarrow \beta$ transformation. Two figures, one table, eleven bibliographic references.
1/1

USSR   UDC 666.29

KORNILOVA, Z. I., and IGNATOV, D. V.

"Heat-Resistant Coatings on Titanium Alloy"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 730-732

Abstract: It has been found that titanium alloys containing 9% Al and further
alloyed with Zr, Sn, and Mo with a total content of them of 12% have high heat
resistance (to 800-850°) with satisfactory plasticity. This article contains
a study of oxidation of this alloy in air at 700-1,000° and the effectiveness
of two heat-resistant coatings -- Si and Ni + Al. The scale and diffusion layers
of the coatings were investigated by metallographic, electron diffraction, and
radiographic methods. The heat resistance of titanium alloys can be increased
while retaining high-temperature strength and plasticity by using coatings which
form limited solid solutions with the alloys and are covered on the outer surface
with oxide films preventing diffusion of oxygen through the coating. The coat-
ings including the compounds with strong chemical binding must prevent diffusion
of components to the gas phase. These requirements led to the selection of Si
and Ni + Al coatings. The kinetic curves for oxidation of titanium alloy at
1,000° with the coatings and without them are presented.

1/2

USSR

KORNILOVA, Z. I., and IGNATOV, D. V., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 730-732

It was found that the silicide coatings increase the heat resistance at 800^0 by 400 times and at $1,000^0$, by 50 times, and Ni + Al coatings by 25 times at $1,000^0$. The high heat resistance of Ti_5Si_3 alloy with an unprotected film of TiO_2 on the outer surface is explained by strong binding between Ti and Si atoms in the Ti_5Si_3 lattice, which inhibits the transition of titanium ions to the TiO_2 lattice. The primary formation of TiO_2 and not SiO_2 on the other surface of the oxide is explained by the greater isobaric potential of formation of TiO_2 -- 212.4 kcal/mole in comparison with 197.3 kcal/mole for SiO_2.

The oxidation rate of titanium alloy with a silicide coating at 800^0 is 70 times less than the alloy with 80% Ni + 20% Cr, and at $1,000^0$ the oxidation rates of these materials are identical. It is thus concluded that by means of such coatings it is possible to raise the strength of titanium alloys to the level of nichrome alloys and almost completely eliminate the effect of oxygen solubility and $\alpha \rightarrow \beta$-conversion on the oxidation rate.

2/2

Hydraulic and Pneumatic

USSR

UDC 532.546.013.2

KORNIL'TSEV, YU. A., MOLOKOVICH, YU. M.

"Electromodeling of Plane-Radial Problems in the Filtration of Newtonian Fluids"

V sb. Probl. gidrodinamiki i rats. razrabotki neft. mestorozhd (Problems of the Hydrodynamics and Rational Developments of Petroleum Deposits -- Collection of Works), Kazan', Kazan' Institute, 1971, pp 44-50 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12B1568)

Translation: The non-steady-state plane-radial filtration of fluids exhibiting an inertial shift gradient is discussed. The electrical analog for filtration rate and for the equation which the pressure $p(r, t)$ satisfies is described and the corresponding similarity criteria are derived. Solved on the analog electrical model are problems with the initial condition $p(r, 0) = p_0$, boundary conditions $p(r_c, t) = p_c < p_0$ and either $p(R, t) = p_0$ or $\partial p/\partial r = 0$ for $r = R$ and also problems without initial conditions under the following boundary conditions: $p(r_c, t) = (p_0 - p_c) \cos \omega t$ and either $p(R, t) = p_0$ or $\partial p/\partial r = 0$ for $r = R$. Solutions are represented in the form of graphs and tables. The filtration of Newtonian and non-Newtonian fluids is compared. E. V. Skvortsov.

1/1

KORNILYEV, V.P.

UNCLASSIFIED

Description: Institute of Medico-Biological Problems (IMBP), Moscow

(U) During this quarterly reporting period, seven new articles[1-7] were located from the Institute of Medico-Biological Problems (IMBP). On the basis of these articles, it was possible to identify eight new personalities with the Institute. These personalities, the subjects of the articles, and the dates are given below:

Personality	Subject	Date
[...]	space physiology/psychology	1970[1]
[...]	nutrition	1971[2]
Korolkov, [...]	temperature measurement	1972[3]
Kuznetsov, [...]	temperature measurement	1972[4]
Kornilyev, V. P.	space physiology/psychology	1970[5]
Korsak, D. Kh.	spacecraft radiation shielding	1972[6]
Kuzmin, [...]	spacecraft radiation shielding	1975[7]
Stefanov, R. A.	spacecraft radiation shielding	1975[8]

Gorbunova was associated by the article[2] with the Laboratory of Cytochemistry at IMBP. Kornilyev and Korolkov were listed in the article[4] as being associated with the Laboratory for Investigation of Nervous and Humoral Regulation at IMBP.

(U) One of the new articles was issued jointly from IMBP and the Laboratory of General and Radiation Immunology at the Institute of Epidemiology and Microbiology [sem] N. F. Gamaleya[6]. This 1970 article, dealing with the effects of microflora on lymphoid tissue and the adrenal gland, probably

* Superscript numbers in parentheses refer to items in the Reference List.

USSR

KORNISHIN, M. S., STOLYAROV, N. N., DEDOV, N. I.

UDC 539.3

"Large Bends of Plates Rectangular in Plane and of Hollow Shells of Nonlinearly Elastic Material"

Translation: Equations of the theory of hollow shells made of nonlinearly elastic material are given considering large bends and the compressibility of the material. An algorithm based on the finite differences method is given for solving the problem of the bending of plates and shells that makes it possible to take into account both the joint and individual effect of geometric and physical nonlinearities. The results of a calculation of the bending of a plate and shell pinched along the edge are presented. A comparison of the geometrically nonlinear solution with the geometric and physically nonlinear solution shows that the effect of physical nonlinearity of the material on the magnitude of the load is approximately 30% and the effect on the magnitude of the stress is approximately 38%. 6 ref. N. V. Kolkunov.

1/1

USSR

UDC 621.397

SOLOVEYCHIK, I.YE., DRAEKIN, R.I., YARMARKIN, K.K., LEUSSKAYA, G.V.,
SHARGORODSKAYA, F.M., KORNITENKO, G.G., TSEDIK, A.S.

Abstract: The paper describes an information display device of the desk type,
intended for operation with an electronic computer through a telegraph communi-
cation channel. A block diagram of the device and the basic parameters of the
unit are presented. The authors report that a new information display device
was developed on the basis of the unit described, but few details are given.
(An exterior view of the device is shown on the journal cover.) In the new de-
vice it is possible to reproduce 512 symbols (16 lines, 32 symbols to the line)
of an ELT25IK93 screen. The set of reproducible symbols includes the Russian
alphabet, figures, and special symbols—altogether 64 symbols. With an indi-
vidual keyboard which has 47 figure-letter keys and 21 functional, it is
possible to feed information into an electronic computer and to accomplish
complete editing of the text with the aid of an electronic carriage (marker).
The device contains a special exchange unit which makes it possible to operate
with an electronic computer in GOST 10859-64 code and in code KTK-2. In
addition, this unit provides coupling with the "Minsk-32" computer for the slow
channel. 5 fig. 1 tab.
1/1

1/2   019   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--ON THE ROLE OF THE A-FACTOR IN THE STREPTOMYCINE BIOSYNTHESIS -U-

AUTHOR-(05)-TOVAROVA, I.I., KORNITSKAYA, YE.YA., PLINER, S.A., SHEVCHENKO,
   L.A., ANISOVA, L.N.
COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, N3,
   PP 427-434
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STREPTOMYCIN, BIOSYNTHESIS, ACTINOMYCES, BACTERIA MUTATION,
   TRANSAMINASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0495   STEP NO--UR/0216/70/000/003/0427/0444

CIRC ACCESSION NO--AP0126244
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0126244
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ARE DISCUSSED CONCERNING THE
  A-FACTOR CONTENTS IN VARIOUS ACTINOMYCES STREPTOMYCINI STRAINS. THE
  PRESENCE OF THE A-FACTOR IN ACTIVE STREPTOMYCINE PRODUCERS (STRAINS 3213
  AND G-5) WAS SHOWN AS WELL AS IN SOME MUTANT STRAINS WITH DISTURBED
  BIOSYNTHESIS. ALL THE MUTANTS WHICH HAVE FAILED TO SYNTHESIZE THE
  A-FACTOR DO NOT PRODUCE ANY STREPTOMYCINE, WHILE ADDITION OF THE
  A-FACTOR RESTITUTES THEIR ABILITY TO PRODUCE THE ANTIBIOTIC. NEOMYCINE
  AND CANAMYCINE PRODUCENTS DO NOT FORM ANY A-FACTOR IN THE COURSE OF
  FERMENTATION AND CONSEQUENTLY THIS SUBSTANCE DOES NOT PARTICIPATE IN THE
  BIOSYNTHESIS OF THE SAID ANTIBIOTICS. IN THE ABSENCE OF THE A-FACTOR
  THE INACTIVE MUTANT 1439 DOES NOT PRODUCE ANY STREPTIDINE AND DISPLAYS A
  LOW TRANSAMIDINASE ACTIVITY. WHEN GROWN IN THE PRESENCE OF THE A-FACTOR
  THIS STRAIN HAS A HIGH TRANSAMIDINASE ACTIVITY AND SYNTHESIZES
  CONSIDERABLE AMOUNTS OF STREPTIDINE AND STREPTOMYCINE. THESE
  OBSERVATIONS SUGGEST THAT THE A-FACTOR PARTICIPATES IN THE FORMATION OF
  THE STREPTIDINE PART OF THE STREPTOMYCINE MOLECULE.   FACILITY:
  INSTITUTE OF CHEMISTRY OF NATURAL PRODUCTS, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

1/2   018   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--EFFECT OF SYNESTROL ON THE DEVELOPMENT OF EXPERIMENTAL OSTEOSARCOMA
  -U-
AUTHOR-(02)-KORNITSKIY, M.A., CHERKASSKIY, L.A.

COUNTRY OF INFO--USSR

SOURCE--VOP. ONKOL. 1970, 16(3), 84-90

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, TUMOR, CARCINOGEN, BENZENE DERIVATIVE,
  CHEMOTHERAPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/2044   STEP NO--UR/0506/70/016/003/0084/0090

CIRC ACCESSION NO--AP0117287
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0117237
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEN MG OF
  9,10,DIMETHYL,1,2,BENZANTHRACENE WAS INSERTED INTO THE TIBIAL BONE
  METAPHYSES OF 70 FEMALE RABBITS. FIFTY OF THEM RECEIVED 80,000-120,000
  UNITS S.C. OF SYNESTROL EACH WEEK FOR UP TO 900 DAYS. SYNESTROL REDUCED
  THE FREQUENCY OF TUMORS, INHIBITED THE GROWTH OF INTRAMEDULLARY
  SARCOMAS, AND RETARDED THE DEVELOPMENT OF PRESARCHMATOUS CHANGES INTO
  SARCOMAS. IT ALSO INHIBITED THE PROLIFERATION OF OSTEOBLASTS AND
  FIBROBLASTS AROUND THE SITE OF THE CARCINOGEN INSERTION, WHICH MAY
  ACCOUNT FOR ITS ANTITUMOR EFFECT.

UNCLASSIFIED

TITLE--HEATING OF CASTINGS IN A THERMAL FURNACE WITH A CAR TYPE BOTTOM -U-

AUTHOR-(05)-PARASYUK, P.F., SHERSTYUK, A.A., KORNIICHUK, A.I., TUMANSKIY,
   B.F., BERKUN, M.N.
COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 49-50

DATE PUBLISHED-------70

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

TOPIC TAGS--METAL CASTING, METAL HEATING, HIGH MANGANESE STEEL, CAST
   STEEL, AUSTENITIC STEEL, METALLURGIC FURNACE/(U)110G13L HIGH MANGANESE
   STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1288   STEP NO--UR/0129/70/000/002/0049/0050

CIRC ACCESSION NO--AP0106069
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0106069   UNCLASSIFIED   PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR BETTER CONTROL OF HEATING IN A FURNACE WITH A CAR TYPE BOTTOM, THE THERMOCOUPLE SHOULD NOT BE PLACED IN THE ARCH OF THE FURNACE BECAUSE OF THE LARGE HEAT GRADIENT BETWEEN THE CASTING AND THE ARCH. IN THE STUDY OF HEATING A CASTING OF 110G13L FOR 17 HR, BECAUSE OF THIS LARGE HEAT DIFFERENCE, THE CASTING WAS NOT HEATED TO THE NECESSARY TEMP. AS A RESULT, INSTEAD OF PURE AUSTENITE, UNDISSOLVED CARBIDES REMAINED IN THE CASTING. THE AMT. OF SCALE FORMED ON 110G13L CASTINGS DEPENDS ON THEIR POSITION IN THE FURNACE; THE LESSER AMT. IN THE CENTER OF THE FURNACE, THE MOST AT THE END OWING TO LEAKS OF THE JOINT OF THE CAR TYPE BOTTOM AND THE LINING WALL. IN THE STUDY OF THE EFFECT OF COMPN. OF THE HEATING PRODUCTS FROM THE GAS ON SCALE FORMATION IN 110G13L DURING TEMPERING, ANAL. OF THE PRODUCTS SHOWED THAT WITH INCREASE IN EXCESS AIR, THE DEPTH OF THE SCALE AND DECARBURIZED LAYER ON THE SURFACE OF THE CASTINGS INCREASED. ARTHUR J. PEAT.

UNCLASSIFIED

YEREMIN, M. V. and KORNIYENKO, A. A., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Theory of a Crystalline Field in Dielectrics"

Abstract: The authors develop a sequential, multi-electron theory of a crystal-line field while taking into consideration the direct exchange interaction of the electrons of the impurity ion with the s- and p-electrons of the ligands. It is shown that consideration of direct exchange interaction results directly in the renormalization of the $\langle r^k \rangle$ average values of the point model in crystal-line field theory. At the same time, it also ensures the appearance of supple-mentary terms in the Hamiltonian of the crystalline field. As an example, the authors calculate the crystalline field parameters for the $PrCl_3$ complex. The authors also explain changes in Slater's parameters during the introduction of ions into the crystal along with the appearance of the dependence of the parame-ters of the phenomenological Hamiltonian on the J, L, and S quantum numbers. Original article: 19 formulas, one table, and 10 bibliographic entries.

1/1

USSR

UDC 621.385.6

AKALOVSKIY, I.V., KORNIYENKO, A.I., KUBYSH, A. YA.

"Formation Of Regular Components Of Noise Spectrum Of Microwave Electrovacuum Devices"

Elektron.tekhnika. Nauch.-tekhn. sb. Elektron.SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1972, Issue 5, pp 120-121 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11A165)

Translation: One of the possible mechanisms is considered for formation of regular components of the noise spectrum of microwave electrovacuum devices in the low-frequency (to 300 kHz) spectrum connected with the formation of oscillating processes in the power supply. 2 ref. Summary.

1/1

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USSR

UDC: 621.372.852.6

NIKOL'SKIY, V. V., KORNIYENKO, D. I.

"An Algorithm for Calculating the Scattering Matrix of a Waveguide Transformer With two Inputs"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1970, vyp. 10, pp 35-39 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B110)

Translation: The authors consider diffraction of waveguide waves arriving from infinity and encountering an object or group of objects which are contained within a transformer having two inputs and constructed on the basis of a section of regular waveguide. The problem is solved by the so-called projection method which allows construction of a computerizable algorithm. Two illustrations, bibliography of two titles. N. S.

1/1

Beryllium

USSR

UDC 535.211:539.37

PAFIROV, I. I., AVOTIN, S. S., KRIVCHIKOVA, E. P., and KORNIYENKO, L. A.

"Deformation of Single Beryllium Crystals Subjected to Laser Radiation"

Abstract: Samples were produced by zone melting, and after grinding and electropolishing were subjected to laser pulses of $\sim 10^{-3}$ sec. duration at 0.6940μ wavelength. The irradiation surface had orientation (0001) and (11$\bar{2}$0). Optical and electron microscope analysis showed extensive plastic deformation around the crater produced by a focused laser beam. The plastic deformation was characterized mainly by presence of twin crystals oriented at 60 and 120° with respect to the circular zone (0.5-1 mm wide) formed around the crater. The presence of tetrahedral twin crystals indicates the complex nature of the plastic deformation. Dendrite structure was also observed around the crater, and it was formed mainly by twin crystals of various sizes. A transverse glide of dislocations from the basal plane (0001) to the prismatic (1010) was also observed. There were many small craters around the large crater, the nature of which remains unexplained. The whole picture of deformation differed markedly from that observed during a static deformation.

1/1

USSR

UDC 669.725:539.374

IVANOV, V. YE., TIKHINSKIY, G. F., SHPAGIN, I.V., KORNIYENKO, L.A., NERISTENKO, I.N., and NIKOLAYENKO, A.A., Physicotechnical Institute of the Academy of Sciences USSR

"The Effect of Admixtures on the Cold Brittleness of Beryllium"

Abstract: The dependence of the transition temperature of beryllium from the brittle into the plastic state on the metal purity is investigated. This dependence is very sharply expressed at low concentrations ($\sim 0.05\%$) of the admixtures. By the replica method and the transmitting electron-microscopy method, the deformation mechanism and the desintegration character of beryllium at temperatures corresponding to the brittle and plastic states was studied. The contribution of turning to deformation and the potential to brittle failure on cleavage elements decrease with increasing purity; further, in the pure metal there appears the possibility of a light slipping on grain boundaries. The strength of beryllium increases with increasing bending test temperature up to the transition temperature from there brittle to the plastic state, which is connected with the decreased tendency of beryllium to brittle failure on cleavage elemtns. Six illustr., one table, 21 biblio. refs.
1/1

Beryllium

USSR

UDC 669.725:539.377

AVOTIN, S. S., PAPIROV, I. I., TIKHINSKIY, G. F., KORNILYENKO, ~~~~~~~~~~, and NIKOLAYENKO, A. A., Physicotechnical Institute, Academy of Sciences, Ukrainian SSR

"Bond Tests on High-Purity Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul 71, pp 123-130

Abstract: An investigation of beryllium single crystal plastic deformation was carried out by bending in the temperature region of $77-300°K$. The nature of the stressed state in bend depends essentially on the ratio of sample width to thickness (b/h) and on the geometrical conditions of testing. Single crystals of beryllium with b/h = 2 with three orientations (force parallel to a-axis, force parallel to b-axis, and force parallel to c-axis for hexagonal beryllium) were subjected to a force with a load rate of 0.2 mm/min; the distance between supports was 10 mm. The crystals were produced by zone melting and cut by a electric arc. Relative residual electrical resistance of a single crystal was $P_{4,2K}/P_{300K} = 0.005-0.006$ and for polycrystalline beryllium--0.004. The samples were mechanically polished, and annealed in a vacuum of 10^{-6} torr at $700°C$ (polycrystals) and at $1200°C$ (single crystals) for 20 minutes. This study permitted explanation of the slip of screw dislocations with a Burgers vector c and dislocation type (c+a). For 1/2

USSR

AVOTIN, S. S., et al., Sverdlovks, Fizika Metallov i Metallovedeniye, Vol 32, No 1, Jul 71, pp 123-130

ordinary forms of strain (tension and compression) and low temperatures the indicated forms of strain were not previously observed. A study of the temperature relationship of bending ductility showed that single crystals with a b-axis orientation of force (force parallel to b-axis) have a bend angle greater than 90° down to 77°K while the most ductile single crystals were those with the force applied along the a-axis. An anomaly was observed in the temperature relationship of yield strength in single crystals with the force applied along the c-axis. On the basis of the change in strain with temperature, the conclusion was made that there is a change in transverse slip with temperature. Six figures, 24 bibliographic references.

2/2

- 7 -

USSR

_1_

UDC 669.295.004.?

SOLOV'YEV, Yu. V., BARKOV, L. S., SHCHETKIN, Ye. A., KORNIYENKO, L. A.,
SEMEN'KOV, A. V.

"Continuous Installation for Decontamination of Titanium-Magnesium Production
Gas Purification Waste Water"

Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works
of All-Union Scientific Research and Planning Institute for the Aluminum,
Magnesium and Electrode Industry], No 79, 1971, pp 95-99, (Translated from
Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G269 by G.
Svodtseva).

Translation: An installation with a planned productivity of 2.5 m^3/hr chlori-
nated lime milk has been constructed and tested at the Bereznikovskiy titanium-
magnesium combine. Tests were performed using the waste water from gas purifi-
cation in the electrolysis shops and acid waste waters from gas purification
from the section where carnallite is dehydrated in fluidized bed furnaces. Ex-
traction of Cl_2 from the wastes is 28%; the main losses (66%) result from the
formation of $CaCl_2$. The extraction of Cl_2 can be increased by increasing the
concentration of $Ca(ClO)_2$ and decreasing the concentration of $Ca(OH)_2$ and

1/2

- 47 -

USSR

UDC 669.295.004.3

SOLOV'YEV, Yu. V., BARKOV, L. S., SHCHETKIN, Ye. A., KORNIYENKO, L. A., SEMEN'KOV, A. V., Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti, No 79, 1971, pp 95-99.

$CaCO_3$ in the chlorinated lime milk. The annual economic effect of introduction of this method of the combine was 250,000 rubles.

2/2

Beryllium

KORNIYENKO, L. A., and PAPIROV, I. I., Physico Technical Institute, Academy
of Sciences, UkrSSR

"Impact Toughness and Structure of Fractures in Beryllium"

Abstract: The temperature dependence of the impact toughness and fracture
structure of deformed beryllium was studied. The material tested was
distilled beryllium, 99.9% pure. Specimens 10 x 10 x 55 mm were cut from
vacuum-cast, upset and rolled billets, then notched 2 mm deep by an elec-
trical erosion method to prevent stress concentration or microcrack for-
mation. The specimens were mechanically polished, then subjected to
recrystallization annealing at 850°C for 15 minutes before testing. The
specimens were tested at 20-900°C. The impact toughness of the specimens
increases from about 0.05 kg/cm^2 at 20°C to 0.2 kg/cm^2 at 450°C, then
decreases to 0.04 kg/cm^2 at 900°C. Fractographic studies showed that
the decreased impact toughness of beryllium at high temperatures results
1/2

`USSR

KORNIYENKO, L. A., and PAPIKOV, I. I., Metallovedeniyu i Termicheskaya
Obrabotka Metallov, No 10, 1970, pp 74-75

from a change in the nature of rupture. Static tensile tests indicate
that the plasticity increases continually up to 900°C, but this plasticity
cannot be used for impact tests, since at high test speeds rupture along
grain boundaries is preceded by deformation of the matrix. Thus, signifi-
cant softening of the grain boundaries occurs at high temperatures, re-
sulting in a decrease in impact toughness.

2/2

Beryllium

USSR

K

UDC 669.725:j-8.jj

KORNIYENKO, L.A., NIKOLAYENKO, A.A., PAPIROV, I.I., and TERESTENKO, G.F.,
Physicotechnical Institute, Academy of Sciences, Ukr SSR

"Recrystallization of Rolled Beryllium"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1,
Jan 70, pp 138-142

Abstract: An investigation was made of the kinetics of recrystallization and
growth of grains in strained beryllium as a function of its thin structure.
The procedure for the preparation of the experimental samples is described. The
dislocation structure of strained beryllium hot rolled at 400,600, and 800°C,
with 88% deformation was investigated by optical and electron microscopy. Photo-
graphs of the dislocation structures of strained beryllium at various tempera-
tures are presented and analyzed. The kinetics of new grain formation in pri-
mary recrystallization and their growth with collective recrystallization are
studied. The results show that at high annealing temperature (900-1100°C) the
growth rate slows down, and that the time prior to recrystallization depends
exponentially on the inverse value of the annealing temperature.

1/2

USSR

KORNIYENKO, L.A., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye,
Vol 29, No 1, Jan 70, pp 138-142

The activation energies of the primary recrystallization of grains and their
growth with collective recrystallization are 75 ± 5 and 51.4 kcal/g x mol, res-
pectively. The dependence of the average grain size on annealing time with
collective recrystallization is satisfactorily described by the formula $D = D_0 \tau^n$ and is presented in graphs for various rolling temperatures. The
values of n for definite temperatures are given in a table. The high values of
activation energies are explained on the basis of the dislocation structure of
the deformed metal.
Orig. art. has: 4 figures, 3 formulas, and 1 table.

2/2

1/2   024
UNCLASSIFIED
TITLE--RECRYSTALLIZATION OF ROLLED BERYLLIUM -U-   PROCESSING DATE--18SEP70

AUTHOR-(04)-KORNIYENKO, L.A., NIKOLAYENKO, A.A., PAPIROV, I.I.,
   TIKHINSKIY, G.F.
COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1) 138-42

DATE PUBLISHED-------70

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

TOPIC TAGS--METAL RECRYSTALLIZATION, BERYLLIUM ALLOY, METAL ROLLING,
   CRYSTAL DISLOCATION, METAL DEFORMATION, GRAIN GROWTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0689
                           STEP NO--UR/0126/70/029/001/0138/0142
CIRC ACCESSION NO--AP0105665
                     UNCLASSIFIED

CIRC ACCESSION NO--AP0105665
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THE KINETICS OF RECRYSTN. AND
  GRAIN GROWTH WERE STUDIED IN DEFORMED BE AS RELATED TO THIN STRUCTURE.
  INVESTIGATED WAS THE DISLOCATION STRUCTURE OF BE ROLLED AT 400, 600, AND
  800DEGREES WITH THE DEGREE OF DEFORMATION OF 88PERCENT, AS WELL AS OF BE
  ANNEALED AT 700-1000DEGREES FOR 15 SEC TO 24 HR. THE ACTIVATION
  ENERGIES OF NEW GRAIN FORMATION AND THEIR GROWTH WERE 75 AND 51
  KCAL-G-MOLE, RESP.   THE HIGH ACTIVATION ENERGY VALUES ARE EXPLAINED ON
  THE BASIS OF THE DISLOCATION STRUCTURE OF THE DEFORMED METAL.   THE
  FUNDAMENTAL ELEMENT OF THE DISLOCATION STRUCTURE IS THE PILING UP OF
  DISLOCATIONS INTO WALLS OR CLOUDS, FORMED BY COMPLEX INTERLACING OF
  LINEAR DEFECTS. THE CELLULAR STRUCTURE APPEARS BUT RARELY. DISLOCATION
  NETWORKS ARE FORMED ESP. AT HIGH DEFORMATION TEMPS. (800DEGREES). NEAR
  THESE NETWORKS THERE ARE FREQUENTLY SEEN CHARACTERISTIC INDIVIDUAL
  DISLOCATIONS. BESIDES SUCH CLUSTERS OF DISLOCATIONS, MATRIX SECTIONS 10
  20 MU IN SIZE ARE OBSD. WHICH DO NOT CONTAIN A LARGE NO. OF
  IMPERFECTIONS PRESENT, WITH THE EXCEPTION OF PERHAPS A FEW DISLOCATION
  LOOPS.   THE KINETICS OF THE PROCESSES TAKING PLACE DURING ANNEALING OF
  BE IS DETD. BY THE STRUCTURE OF THE DEFORMED METAL, WHICH IN TURN
  DEPENDS ON THE TEMP. AND THE DEGREE OF DEFORMATION.

UNCLASSIFIED

1/2   032

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--FORMATION OF A POLYGONIZED AND A CELLULAR STRUCTURE IN BERYLLIUM
-U-

AUTHOR-(05)-KORNIYENKO, L.A., TARANENKO, I.A., TIKHINSKIY, G.F.,
NIKOLAYENKO, A.A., PAPIROV, I.I.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, MAR. 1970, P. 619-624

DATE PUBLISHED----MAR70

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

TOPIC TAGS--BERYLLIUM ALLOY, METAL MICROSTRUCTURE, BIBLIOGRAPHY, HIGH
PURITY METAL, METAL DEFORMATION, ANNEALING, THERMAL EFFECT, STRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0070

STEP NO--UR/0126/70/029/000/0619/0624

CIRC ACCESSION NO--AP0125905

UNCLASSIFIED

2/2   032
CIRC ACCESSION NO--AP0125905   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECTS OF
TEMPERATURE, DEGREE OF STRAIN, ANNEALING CONDITIONS, AND MATERIAL PURITY
ON THE FORMATION OF POLYGONIZED AND CELLULAR STRUCTURES OF BERYLLIUM.
IT IS FOUND THAT THE POLYGONIZATION OF BERYLLIUM IS MOST PRONOUNCED IN
METAL ROLLED AT A SMALL REDUCTION AT TEMPERATURES RANGING FROM 600 TO
700 DEG C. FOR OBTAINING A CELLULAR STRUCTURE, HEAVILY DEFORMED
BERYLLIUM SHOULD BE ANNEALED FOR ABOUT 1 MIN AT TEMPERATURES RANGING
FROM 850 TO 900 DEG C.   FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR,
FIZIKO-TEKHNICHESKII INSTITUT, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

1/2   040
UNCLASSIFIED
TITLE--PROPERTIES OF IRRADIATED BERYLLIUM -U-   PROCESSING DATE--23OCT7

AUTHOR-(04)-KORNIYENKO, L.A., PAPIROV, I.I., TIKHINSKIY, G.F., DAVIDENKO, A.S.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(2), 155-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BERYLLIUM, MECHANICAL PROPERTY, NEUTRON IRRADIATION, ANNEALING, COMPRESSIVE STRENGTH, GRAIN SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1544   STEP NO--UR/0089/70/028/002/0155/0157

CIRC ACCESSION NO--AP0120323
UNCLASSIFIED

2/2   040   UNCLASSIFIED   PROCESSING DATE--23OCT7
CIRC ACCESSION NO--AP0120323
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. NEUTRON (N) IRRADN. OF BE (WITH A
MEAN GRAIN SIZE OF 120 MU AND A BEO CONTENT OF 0.1-0.3PERCENT) WITH AN
INTEGRATED FAST N (LARGER THAN 1 MEV) FLUX OF 1.2 TIMES 10 PRIME20 N-CM
PRIME2 AT 280DEGREES INCREASED THE HARDNESS H SUBGAMMA FROM 130 TO 160
KG-MM PRIME2 BUT REDUCED THE COMPRESSIVE STRENGTH SIGMA SUBLIM FROM 106
TO 90 KG-MM PRIME2; SUBSEQUENT ANNEALING AT 850DEGREES REDUCE H SUBGAMM
TO 130 KG-MM PRIME2 AND INCREASED SIGMA SUBLIM TO 99 KG-MM PRIME2. THE
H SUBGAMMA AND SIGMA SUBLIM INCREASED (FOR BOTH IRRADIATED AND
NONIRRADIATED SAMPLES) WHEN THE GRAIN SIZE WAS REDUCED TO 25 MU AND THE
BEO CONTENT WAS INCREASED TO 1-5PERCENT; MOREOVER, SAMPLES OF LOWER
GRAIN SIZE AND HIGHER BEO CONTENT WERE AFFECTED TO A LESSER EXTENT BY
THE IRRADN. THE IRRADN. AND SUBSEQUENT ANNEALING AT 600-850DEGREES
CAUSED NO CHANGE IN THE D. OF THE SAMPLES, WHILE ANNEALING AT
1000DEGREES INCREASED THE VOL BY 0.15-1PERCENT (THE SWELLING WAS LESS
PRONOUNCED IN SAMPLES OF SMALLER GRAIN SIZE). DISLOCATION LOOPS OF SIZ
200-500 ANGSTROM AND AAT A D. OF 5 TIMES 10 PRIME13-10 PRIME14 LOOPS-CM
PRIME3 WERE OBSD. AFTER THE N IRRADN., WHILE SUBSEQUENT ANNEALING AT
600DEGREES ANNIHILATED THE LOOPS AND LED TO THE FORMATION OF 150-200
ANGSTROM BUBBLES (LOCATED ON THE DISLOCATION LINES) WHOSE SIZE INCREASE
WITH INCREASING ANNEALING TEMP., E.G., TO 1000-1500 ANGSTROM AT
850DEGREES AND 1-2 MU AT 1000DEGREES.

UNCLASSIFIED

USSR   UDC 621.396.67.001.5

KORNIYENKO, L.G.

"On The Problem Of Optimizing Antenna Parameters If There Are Random Errors"

Abstract: A method of taking account of random factors during construction
of antennas is discussed. The method assumes organization of the measurements
of the statistical characteristics in an amplitude-phase distribution of
sources before the assembly of an antenna, and determination of the optimum
distribution of errors with respect to a selected criterion. This method is
useful for all antenna systems, including those with continuous distribution
of the sources. In the latter case a division of the antenna into sections is
required which, out of technological considerations, is also done at present
during assembly of antennas of large dimensions. The author thanks Yu.A.Shifrin
for valuable council and constant attention to the work, and V.I. Zamyatin and
L.G. Raskin for discussion of a number of problems. 4 Fig. 8 ref. Received by
editors, 26 April 1971.

1/1

1/2   037   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--FIELD STATISTICS OF A SEGMENTED TRAVELING WAVE ANTENNA --U-

AUTHOR-(02)-KURNIYENKO, L.G., ZAMYATIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, JUNE 1970, P. 1297-1300

DATE PUBLISHED----JUN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--TRAVELING WAVE ANTENNA, FIELD EMISSION, ANTENNA MAIN LOBE,
  ANTENNA RADIATION PATTERN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME---3006/0298   STEP NO--UR/0109/70/015/006/1297/0300

CIRC ACCESSION NO--AP0135602
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0134102
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF GENERAL
   RELATIONSHIPS FOR CERTAIN STATISTICAL FIELD CHARACTERISTICS OF LINEAR
   SEGMENTED TRAVELING WAVE ANTENNAS. EQUATIONS ARE GIVEN FOR THE MEAN
   DIRECTIVITY IN TERMS OF POWER, THE MEAN WIDTH OF THE RADIATION PATTERN,
   THE MEAN DRIFT OF THE MAIN LOBE, AND THE MEAN DISPERSION IN THE MAIN
   LOBE DIRECTION FOR UNIFORM AMPLITUDE DISTRIBUTION AND THE ABSENCE OF
   WAVENUMBER CORRELATION IN CERTAIN INDIVIDUAL SEGMENTS. THE PROPOSED
   FORMULAS AND GRAPHS MAKE IT POSSIBLE TO ESTIMATE QUANTITATIVELY THE
   CHANGE IN THE PARAMETERS OF A TRAVELING WAVE ANTENNA DURING SECTIONING
   AND TO SELECT THE APPROPRIATE ANTENNA STRUCTURE.

UNCLASSIFIED

102072d Experimental determination of the dynamic characteristics of evaporating apparatus in a sugar refinery. Ladanyuk, A. P.; Kornienko, L. I.; Skoblo, D. I. (USSR). Sakh. Prom. 1970, 44(1), 56-8 (Russ). A 4-stage evaporator was equipped with sensors for levels in all stages and in the feeding tank, for amts. of juice fed to the evaporator, for temp. and pressure of vapors and juices in the chambers and collectors and for the amt. of condensate from the 1st stage. The data were treated by computer to yield differential equations describing the response of the evaporator to changes in feed rate of steam to the 1st stage, steam take-off from the 1st stage to the 1st vacuum stage of the 1st product, vacuum in condenser, and changes in levels caused by changes in the feed. As for vapor pressure in the heat exchangers and pressure of secondary vapor, the evaporator is self regulating. As for levels, no regulation occurs within permissible ranges.

Olaf Thomsen

REEL/FRAME

19810806

KASK, N. Ye., KORNIYENKO, L. S., FEDOROV, G. M., CHOPORNYAK, D. B.

"Threshold of Rupture of Laser Glass as a Function of Dimensions of Non-metallic Inclusions"

Abstract: This report presents the results of a study of the rupture of nonmetallic inclusions in laser glass for the case when the inclusions are large enough to be observed visually, that is much larger than the wave length of the laser radiation. The maximum size of inclusions studied fell in the 0.1-1 mm range. The experiments utilized a laser (λ=1.06μ) operating in the free-generation mode. A graph is presented showing the threshold of rupture as a function of maximum size of projection of the inclusion on the plane perpendicular to the laser beam.

1/1

USSR

UDC: 621.373:535

KORNIYENKO, L. S., KRAVTSOV, N. V., and SHELAYEV, A. N.

"Some Characteristics of a Continuous, Solid-State Ring Laser"

Abstract: This brief communication gives the results of experiments performed to obtain the characteristics of a solid-state ring laser. It is shown that under specific conditions, there is an instability in the two counter waves. The laser used in the experiments contained a YAG-neodymium crystal and operated at a wavelength of 1.06μ, with an oscillation threshold of 500 w, and at 1.3μ, with an oscillation threshold of 1200 w. The laser resonator was formed by three mirrors with radii of curvature of 5000 mm, 2000 mm, and infinity and reflection factors of about 99% at the oscillation wavelength. A garnet crystal with a diameter of five mm and a length of 50 mm, with plane-parallel terminations, was the active element, and the resonator was 117 cm long. The type of oscillation was investigated as a function of the coupling coefficient of the counter waves. Oscillograms of the laser output are given.

1/1

USSR

KORNIYENKO, L. S., KRAVTSOV, N. V., LARIONTSEV, Ye. G., NAUMKIN, N. I., Scientific Research Institute of Nuclear Physics, Moscow State University imeni M. V. Lomonosov

UDC: 621.378.325

"Injection of a Short Light Pulse Into a Laser With a Long Cavity"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 4, 1 Apr 73, pp 803-808

Abstract: The authors discuss certain effects which arise when a short pulse of light is injected into a cavity with a transit time much greater than the pulse duration. Two injection modes are considered. If emission has already taken place in the laser before arrival of the external pulse, a mode of competitive interaction between the short pulse and the "inherent" emission of the laser takes place. In the second case, injection takes place before emission has developed. Conditions are discussed which lead to a quasistationary "traveling" pulse mode under the action of an external pulse. It is experimentally shown that the duration of emission in the traveling pulse mode is greater than in the mode of free emission. The envelope of the emission pulse train approximates the shape of the pumping pulse. Other modes of emission are to be treated in future papers.

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USSR

KORNIYENKO, L. S., KRAVTSOV, N. V., and NAUMKIN, N. I.

UDC: 621.373.029.7

"Structure of the Oscillation Pulses of a Laser With Linear Delay Inside the Resonator"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1760-1762

Abstract: Lasers with linear delay inside the resonator may have as much as one hundred simultaneously generating modes when the effective length of the resonator is in the tens of meters. Experiments are described in this paper aimed at determining the characteristics of the "fine" radiation pulses caused by the presence of so many different types of modes. A description of the equipment, including a diagram, is given, and an oscillogram of the radiation pulses clearly indicating their fine structure. Formulas are given for the intensity of the radiation field in multimode radiation and for the distribution probability of the radiation amplitude fluctuations. The length of the resonator used in the experiment was 60 m.

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USSR.

KORNYENKO, L. S.; et al (Moscow State University)

"Photostimulated Thermoluminescence of Fluorite Crystals with Impurity Ions of Erbium and Holmium"

Leningrad, Fizika Tverdogo Tela; December, 1970; pp 3437-44

ABSTRACT: Fluorite crystals with impurity ions of erbium and holmium were studied by a method of photostimulated thermoluminescence. Peaks of thermoluminescence were isolated by type according to the indication of the elementary carrier. The temperature range of the peaks of thermoluminescence studied was expanded to $4.2°K$. The excitation spectra of photostimulated thermoluminescence were studied for the type containing a high-temperature peak, and it was established that these spectra depend on the impurity ion but do not coincide with the absorption spectra of the rare earth ions. For this same type it was discovered that between capture centers there exist tunnel transitions from the excited as well as from the ground states of these centers. It was established also that practically all of the elementary defects released dur-

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USSR

KORNIYENKO, L. S., et al, Fizika Tverdogo Tela; December, 1970, pp 3437-44

ing photostimulation from a high-temperature peak undergo a repeated localiza-
tion. It was shown that during thermoluminescence of a high-temperature peak
all defects corresponding to it pass through a state belonging to a lower
temperature peak.

    The article includes 6 figures. There are 11 bibliographic references.

2/2

USSR

KORNIYENKO, L. S., KRAVTSOV, N. V., NAUMKIN, N. T., and PROKHOROV, A. M., Institute of Nuclear Physics, Moscow State University

"Single-Frequency Ruby Ring Laser"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 58, No 2, Feb 70, pp 541-543

Abstract: The authors' purpose was to obtain a single mode for a traveling-wave ruby ring laser from the very start of generation, as well as to measure the width of the radiation spectrum and the radiation frequency shift during generation. It is shown that the radiation of such a laser in a single mode represents a regular sequence of a small number of spikes (usually 3-5 spikes) with a repetition interval of the order of 30 microseconds. The temperature drift of the radiation frequency during generation is small (less than 7 Mc).

1/1

Acc. Nr: *AP0043678* KORNYENKO L. S.

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 541-543

SINGLE MODE RUBY RING LASER

Korn'yenko, L. S.; Kravtsov, N. V.;
Naumkin, N. I.; Prokhorov, A. M.

Results of investigation of a ruby travelling-wave ring laser are presented. It is
shown that such laser operates under regular oscillation conditions. The width of the
radiation spectrum is measured. It is demonstrated that during the generation time the
temperature drift of the radiation frequency is small (<7 Mc).

REEL/FRAME
19770082

2/DI

USSR

KORNIYENKO, L. S., KVARTSOV, N. V., LARIONTSEV, YE. G.,
Academician PROKHOROV, A. M.

UDC 535.02

"Some Properties of a Solid-State Laser With Large Resonator Length"

Abstract: The laser dealt with in this article has a resonator whose length is of the order of several meters. With increasing resonator length, the ratio of the resonator band width to the frequency interval between the longitudinal modes can be significantly increased. With the ratio larger than unity, in turn, the band of the resonator can be significantly enlarged, and it can then be expected that the characteristics of such a laser will be close to those of a laser with non-resonant feedback. Resonator lengths can be increased to values of the order of a kilometer under laboratory conditions by introducing an optical delay line into the laser. A sketch of the scheme under which this can be done accompanies the article. Through the use of such a delay line, the diffraction losses as well as the dimen-

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- 45 -

USSR

KORNIYENKO, L. S., et al, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1280-1282

sions of the experimental arrangement can be essentially reduced. The authors find that they can draw certain qualitative conclusions concerning the large resonator length laser by considering the interaction of three longitudinal modes. Analysis of such triple-mode excitation shows that it depends only slightly on intermode coupling arising due to modulation of the inverse population and that the coupling strongly affects the intensity distribution of individual modes in the oscillation spectrum.

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USSR

KORNIYENKO, P. A., and PUGIN, V. S., Institute of Problems of
Material Science, Academy of Sciences, Ukrainian SSR

UDC 532.135;621.762.4

"Study of the Structural and Mechanical Properties of Plastic
Powder Mixtures, Report I"

Abstract: A study was made ot the dependence of the structural
and mechanical constants of plastic powder mixtures on the
quantity of plasticizer (starch), particle form (spherical,
aspherical), specific surface, and powder material. Twenty per-
cent starch paste was used in the study. It was demonstrated
that the powder particles are bonded with the plasticizer by
adsorption, while the bonding between the particles themselves
is by van der Waals-London forces through an interlayer of plasti-
cizer in sectors with disrupted structure, having free surface
energy. The influence of the quantity of plasticizer, specific
surface, particle form, and powder material on the structural
and mechanical properties of the plastic powder mixtures was
analyzed. 1/1

USSR

KISHINEVSKIY, M. Kh., KORNIYENKO, T. S.

UDC: 532.72

"Investigation of Mass Transfer From Rings on Rotating Discs Under Turbulent Flow Conditions"

V sb. Teplo- i massoperenos (Heat- and Mass-Transfer—collection of works), T. 1, Minsk, 1972, pp 62-66 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B898)

Translation: A study is made of the rate of mass transfer of rings located on the surface of a rotating disc and coaxial with it under turbulent flow conditions. Experimental data are obtained during dissolution of benzoic acid, and by the electrochemical method. The Reynolds number was varied from 10^5 to $1.2 \cdot 10^6$; the Schmidt number -- from $3.7 \cdot 10^3$ to $1.5 \cdot 10^4$. For the theoretical description of the rate of mass transfer, use was made of equations describing matter transfer in a viscous sublayer at constant tangential friction stress on the wall. This assumption is justified for narrow rings. It is shown that the relation for the coefficient of mass transfer as a function of the distance to the leading edge of the ring is typified by three sections: an initial section where the coefficient of

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USSR

KISHINEVSKIY, M. Kh., KORNIYENKO, T. S., Teplo- i massoperenos, T. 1,
Minsk, 1972, pp 62-66

mass transfer depends on the distance to the leading edge; a section of
a completely developed turbulent diffusion boundary layer; a transitional
section. Formulas are given which describe the rate of mass transfer on
each of the sections. V. Yu. Filinovskiy.

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- 45 -

Hydraulic and Pneumatic

USSR

KORNIYENKO, T. S., GUBER, Yu. Ye., KOSTOV, P. D.

UDC: 536.24:532.54

"Determination of Hydraulic Drag Based on Experimental Data on Mass Transfer at High Schmidt Numbers"

V sb. Teplo- i massoperenos (Heat- and Mass-Transfer--collection of works), T. 1, Minsk, 1972, pp 285-287 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B788)

Translation: In this research the authors determined the hydraulic drag of a rotating cylinder 70 mm high and 100 mm in diameter at Reynolds numbers of 10^4-$1.2 \cdot 10^6$, and of the central zone in the bottom of a channel of rectangular cross section 80 mm wide and 30 mm high; the Schmidt numbers were $2 \cdot 10^3$-$1.3 \cdot 10^6$ in the first case, and $5.9 \cdot 10^2$-10^3 in the second. In the experiments with the cylinder, the working surface was comprised of rectangular sections of the lateral surface with a height of 20 mm along the generatrix of the cylinder and extending along the circumference 2, 10 and 314 mm, while in the experiments with the channel the working surface was made up of plates 50 and 20 mm wide and 25, 50, 100 and 200 mm long flush with the bottom of the channel. In the experiments with the cylinder the limiting diffusion currents were measured in

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USSR

KORNIYENKO, T. S. et al., Teplo- i massoperenos, T. 1, Minsk, 1972, pp 285-287

the potassium ferro-ferricyanide redox reaction in aqueous solutions of caustic soda on nickel cathodes. In addition, use was made of the method of dissolving working surfaces made by pressing benzoic acid at a pressure of $2 \cdot 10^8 - 4 \cdot 10^8$ N·m^{-2} in water and in water-glycerin solutions. Only the dissolution method was used in the experiments with the channel.

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USSR

GRUZNOV, YU. A., KORNIYENKOVA, T. N., PROKOSHIN, A. F., SUVOROV, V. A.

"Superconducting Compositional Materials"

Translation: The superconducting compositional materials have the greatest current carrying capacity by comparison with ordinary superconductors. The application of these materials have permitted a significant increase in the current carrying capacity of the superconductors and an increase in the thermal stabilization of the superconducting system. In this paper a study has been made of the effect of cold deformation, the annealing temperature and the delay time on the critical current density J_{cr} in magnetic fields to 7.2 milliamps/meter (90 kiloersteds) in superconducting compositional materials of circular cross section with superconducting bands of Nb-Ti alloy.

1/1

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Acc. Nr. AP0049304   Abstracting Service: Ref. Code
CHEMICAL ABST. 5-70   4R 0226

103090v   Cermet contacts of silver-cupric oxide composition.
Mitskevich, G. F.; Kormenko, V. P.; Namitokov, K. K.;
Smaga, N. N.; Yudin, P. A. (Vses. Nauch.-Issled. Proekt.-
Konstr. Inst. Elektroapp., USSR). Porosh. Met. 1970, 10(1),
60-5 (Russ). The production of Ag-CuO contacts with fine-
dispersed structural components is described. Comparative data
are presented on the properties of contacts produced from a fine-
dispersed charge, the charge being obtained by chem. methods,
and contacts from the mixt. of comparatively large-size powders
obtained by mech. mixing. Comparative results are also given
for the wear resistance of the contacts during current flow.

S. A. Mehsdl ·

REEL/FRAME
19801121

18

USSR

ACEYEV, N. V., et al., Structure and Properties of Heat-Resistant Metallic
Materials, Moscow, 1973

- 67 -

USSR

AGEYEV, N. V., et al., Structure and Properties of Heat-Resistant Metallic Materials, Moscow, 1973

Yu. M. Lakhtin
The Effect of Nitriding on the Properties of Heat-Resistant Alloys   225

V. I. Alen'kin, V. A. Kulikov, N. M. Zaytseva
Studying the Formation of the Microstructure During the Internal Oxidation
of Binary Nickel Alloys   229

Yu. I. Kozub
Creep and Long-Term Strength of Refractory Materials With Protective
Coatings in an Oxidizing Medium   237

I. N. Frantsvich, Ye. A. Zhurakovskiy, D. F. Kalinovich, I. I. Kovenskiy,
M. D. Smolin, A. N. Ostroukhov
Some New Physical Criteria of Heat-Resistance   244

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Acc. Nr:
AP0034053

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code:
UR0078

71355s   Cesium iodide-silver iodide system. V. P. Shapovalova, G. M.; Kolesnikov, V. N. (Kharkov. Gos. Univ., Kharkov, USSR). Zh. Neorg. Khim. 1970, 15 (3, 762 3 (Russ). Melting diagram of CsI-AgI system is constructed. The system forms an incongruently melting compd., 2CsI.AgI.
HMJR

USSR

TSIKIN, B. G., KORNOUKHOV, G. M., LERNER, N. B.

"A Possibility for Reception of Frequency Modulated Light Signals"

Translation: In this article it is proposed that an FM superhigh frequency signal discriminator created on the basis of a two-section traveling wave tube be used for the detection of frequency modulated light signals both with a superhigh frequency subcarrier and without it. The results of experimental investigation of the proposed circuit under conditions of reception of a light signal with an FM subcarrier are presented.

1/1

USSR

KORNOUKHOVA, M. V., LOMAKINA, V. I., MANDEL'BAUM, Ya. A., GAR, K. A.,
GOLYSHIN, N. M., BOKAREV, Ye. M., FEDOSEYENKO, L. G., and BODROVA, M. R.

"Reaction of Thiophosphate Hydrazides with Sulfochlorides"

Translation: Compounds with the general formula $R^1(RO)P(S)NHNHSO_2R^2$ (I) and $R^3XP(S)(NHNHSO_2R^2)_2$ (II) (R = alkyl, R^1 = aryloxy, NHR, NR_2, R^2 ? R^3 = alkyl, aryl, X = O or NH) are obtained from the reaction of $R^1(RO)P(S)NHNH_2$ (III) or $R^3XP(S)(NHNH_2)_2$ (IV) with $ClSO_2R^2$. Examples. (1) 0.03 mole of Et_3N solution in 30 ml of C_6H_6 at 20° is added to 0.03 mole of III (R = Et, R^1 = PhO) and 0.03 mole of Et_3N in 70 ml of C_6H_6. The mixture is mixed for 5 hours at 35 to 40° and the sediment is filtered off. The filtrate is washed, dried, and the solvent distilled off to obtain I (R = R^2 = Et, R^1 = PhO, yield 66%, melting point 91-3°. I is obtained in a similar fashion (R, R^1, yield in %, melting point in °C or $n^{25}D$ and d_4^{25} are given): Me, iso-PrNH, Me, 70, 1.5204, 1.2964;
1/2

USSR

KORNOUKHOVA, M. V., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 194-199

Et, iso-PrNH, Ph, 56, 117-8; Et, iso-BuNH, Me, 84, 1.505, 1.1974; Ph, iso-PrNH, Et, 68, 66-8; Et, Me$_2$N, PhMe, 30, 78-80; Et, Et$_2$N, Et, 50, 1.5148, 1.2035; Et, Et$_2$N, PhMe, 55, 1.5350, 1.1756; Et, PhO, Ph, 55, 72-4. (2) 0.05 mole of PhSO$_2$Cl at 20° is added to a solution of 0.05 mole of IV (R^{3}X = PhO) and 0.05 mole of Et$_3$N in 100 ml of alcohol. The mixture is mixed for 6 hours at 20° and 8 hours at 60-70°; the alcohol is distilled off in part. The sediment is filtered off and the filtrate evaporated to obtain II (R^2=R^3=Ph, X = O), yield 56%, melting point 168-70°. II is obtained in a similar fashion (R^{3}X, R^2 yield in %, melting point in °C are given): EtO, Et, 50, 158-60, EtO, Ph, 30, 102-5; PhO, Me, 45, 173-5; PhNH, Me, 46, -. I and II have fungicidal and weak contact insecticidal activity.

2/2

USSR

KORNOUKHOVA, M. V., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9,
pp 2004-2007

Analysis of the biological activity of these compounds indicates that
sulfonyl hydrazides of the ester amides of the formula $\begin{smallmatrix} RO \\ R' \end{smallmatrix}$>PSNHNHSO$_2$R'

possess fungicide activity, while bisdialkylsulfonyl hydrazides of
bisdialkyl-thiophosphoric acid ester diamides of the formula
(R$_2$N)$_2$PSNHNHSO$_2$R' exhibit insecticidal properties. The structure of
the above compounds are supported by IR and PMR spectra. Tables in the
original article cite the radicals, yields, formulas and calculation of
the new compounds.
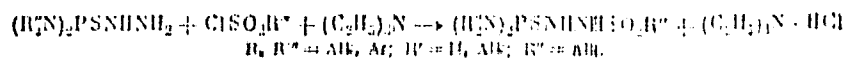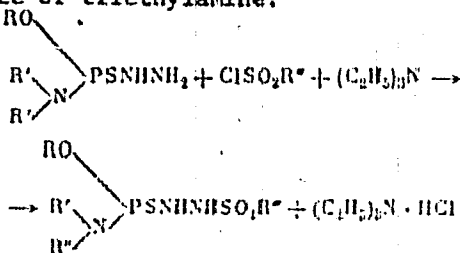
2/2

USSR   UDC 547.26'118

KORNOUKHOVA, M. V., LOMAKINA, V. I., and MANDEL'BAUM, Ya. A., All-Union
Scientific Research Institute of Chemicals for Plant Protection

"β-Substituted Sulfonyl Hydrazides of Thiophosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2004-2007

Abstract: Some sulfonyl hydrazides possess fungicidal and pesticidal prop-
erties. This study concerns the synthesis of β-sulfonyl hydrazides of
thiophosphoric acid ester amides and thiophosphoric acid ester diamides by
the reaction of the corresponding hydrazides with alkane(arana)sulfonyl
chlorides in the presence of triethylamine.

$$RO \atop R' \atop R'' {\Large \rangle} N {-} PSNHNH_2 + ClSO_2R'' + (C_2H_5)_3N \longrightarrow$$

$$\longrightarrow RO \atop R' \atop R'' {\Large \rangle} N {-} PSNHNHSO_2R'' + (C_2H_5)_3N \cdot HCl$$

$$(R_2N)_2PSNHNH_2 + ClSO_2R'' + (C_2H_5)_3N \longrightarrow (R_2N)_2PSNHNHSO_2R'' + (C_2H_5)_3N \cdot HCl$$

R, R'' = Alk, Ar; R' = H, Alk; R'' = Alk.

1/2

USSR

UDC: 519.1

KORNOUSHENKO, Ye. K.

"On Identifying Definitely Diagnosable Automata"

Kiev, Metody kontrolya i diagnoza slozhn. sistem i avtomatov—sbornik
(Methods of Checking and Diagnosing Complex Systems and Automata—col-
lection of works), 1972, pp 16-26 (from RZh-Matematika, No 9, Sep 73, ab-
stract No 9V436 by I. Grunskiy)

Translation: A finite automaton M is called definitely analyzable of order
l if the state of the automaton is uniquely determined with respect to any
input sequence of length l or longer and with respect to the response of
automaton M to this sequence. We assume that for the investigated M, defi-
nitely diagnosable of order l, we know the input and output alphabets and
the response u of the automaton to the input sequence qr, where q is a
sequence of length l or greater and r is a sequence which crosses all arcs
of the graph of automaton M. The basic result of the article: the table
of automaton M is uniquely reconstructed from pair (qr, u).

1/1

USSR

KORNOUSHENKO, YE. K.

"Identification of Diagnosed Automata"

Metody Kcntrolya i Diagnoza Slozhn. Sistem i Avtomatov [Methods of
Testing and Diagnoses of Complex Systems and Automata -- Collection of
Works], Kiev, 1972, pp 16-26 (Translated from Referativnyy Zhurnal Kiber-
netika, No 9, 1973, Abstract No 9V436)

Translation: Finite automaton M is called a positively diagnosed auto-
maton of order 1 (p.d. -- 1), if for any input sequence of length ≥ 1
and reaction of automaton M to it, its state is defined unambiguously.
Suppose for the p.d. -- 1 M, the input and output alphabets and its
reaction u to input sequence qr are known, where q is a sequence of
length ≥ 1, r is a sequence passing through all arcs of the graph of
automaton M. The main result of the article is: the table of automaton
M is restored unambiguously on the basis of the pair (qr,u).

                                                        I. Grunskiy

1/1

USSR   UDC 546.185

SHEVCHENKO, V. I., KALENSKAYA, A. I., and KORNUTA, P. P.

"Aminolysis of 1,1,5-trichloro-4-cyano-3-phenyl-1,2,6-phosphadiazine"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 16-21

Abstract: It was reported earlier /P. P. Kornuta, et al., Dopovidi AN USSR, 533, 1970/ that on interaction of phosphorus pentachloride with β-enaminonitriles $(NC)_2C = CX\ NH_2$, cyclic compounds are formed — 1,1,5-trichloro-4-cyano-3-alkyl(aryl)-1,2,6-phosphadiazines (I) (X = Alk, Ar). In the (I) compounds all the chlorine atoms are reactive. They easily react with the compounds containing a mobile hydrogen atom — alcohols, amines, acids. With amines the reaction proceeds by the following scheme:
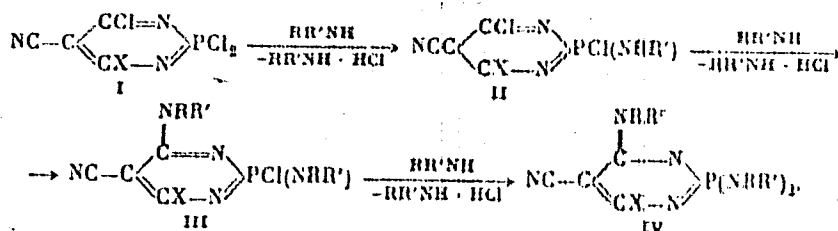
1/2

USSR

SHEVCHENKO, V. I., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 16-21

This reaction is studied in more detail in the example of 1,1,5-trichloro-4-cyano-3-phenyl-1,2,6-phosphadiazine (Ia, X = C_6H_5). Under the effect of the amines on the 1,1,5-trichloro-4-cyano-3-phenyl-1,2,6-phosphadiazine (Ia), the substitution of the chlorine atoms on the amino groups proceeds in the 1-5-1 sequence. The degree of replacement of the chlorine atoms by amino groups depends on the quantitative relation of the reacting substances and especially strongly on the nature of the hydrocarbon radicals of the amine and the polarity of the solvent.

2/2

KORNUTA, P. P., KALENSKAYA, A. I., LOBANOV, O. P., and SHEVCHENKO, V. I.,
Institute of Organic Chemistry, Academy of Sciences, UkrSSR

"Phosphorylation of Monocyanoaminoethylenes"

Abstract: 1,1-Dicyano-2-aminoalkenes react with phosphorus pentachloride
forming cyclic phosphorylation products -- 1,1,5-trichloro-4-cyano-3-R-1,
2,6-phosphadiazines. In contrast, monocyanoaminoethylenes which are
capable of cis-trans isomerization react with phosphorus pentachloride
in two ways forming acyclic trichlorophosphazo-1,2-dialkyl(diaryl)-2-
cyanoethylenes and cyclic 1,1,5-trichloro-3,4-dialkyl(diaryl)-1,2,6-
phosphadiazines. Monocyanoaminoethylenes are much more reactive than
dicyanoaminoethylenes. The latter react with phosphorus pentachloride
at 80° and higher, while the monocyanoaminoethylenes react already at
20-25°, slightly exothermally. Acyclic trichlorophosphazocyanoethylenes
isomerize in the presence of HCl to cyclic phosphadiazines.

1/1

USSR   UDC 546.185

KORNUTA, P. P., KALENSKAYA, A. I., and SHEVCHENKO, V. I., Institute of
Organic Chemistry, Ukrainian Academy of Sciences

"Phosphorylation of 1,1-Dicyano-2-Aminoalkenes-1"

Abstract: Following the authors' recent proof that 1,1-dicyano-2-amino-2-
arylethylenes react with phosphorus pentachloride at the amino and dicyano
groups to form cyclic compounds, the corresponding reactions of 1,1-dicyano-
2-aminoalkenes-1 were studied. Seventeen different 1,1,5-trichloro-4-cyano-
3-alkyl-1,2,6-phosphadiazines were produced in this way from the corresponding
aminoalkenes. Physico-chemical data for the end-products, yields, and pro-
cedural details, are given.

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USSR   UDC 541.67

ROMANENKO, E. A., EGOROV, Yu. P., KORNUTA, P. P. (Institute of Organic
Chemistry, USSR Academy of Sciences, Kiev)

"Nuclear Quadrupole Resonance and Characteristics of Structure of Substi-
tuted Phosphapyrimidines"

Abstract: The electron structure of a new class of organophosphorus com-
pounds -- phosphapyrimidines -- was studied. Data on the nuclear quadrupole
resonance of the ^{35}Cl nuclei showed a cyclic structure of the molecules and
the additive nature of the transmission of the effect of the substituent
on the electron density distribution on the atoms of the chlorine group,
$> PCl_5$. In accordance with the theory of Townes and Daily (J. Chem. Phys.
23: 118 (1955)), the degree of the multiplicity factor and ion formation
at the C-Cl bond was evaluated, and the significant effect of the ring
N atom on the degree of the multiplicity factor at this bond was found.
Analysis of ^{31}P nuclear quadrupole resonance data indicated that the P=N
bond of the ring is somewhat weaker than in triphosphonitrile chloride.
1/1

USSR   UDC 546.185

KORNUTA, P. P., KALENSKAYA, A. I., and SHEVCHENKO, V. I., Institute of Organic
Chemistry, Academy of Science Ukrainian SSR

"Reaction of Phosphorus Pentachloride with 1,1-Dicyano-2-amino-2-arylethylenes"

Abstract: It was previously shown that both malonic and lakylmalonic acid
nitriles react with phosphorus pentachloride to form trichlorophosphazo-1-
chloro-2-cyano-2-R-ethylenes (I) and their cyclic isomers -- 1,1,3,5-tetrachloro-
4-R-1,2,6-phosphadiazines (II). In the present work it was shown that 1, 1-
dicyano-2-amino-2-arylethylenes also react with phosphorus pentachloride to
form 1, 1,5-trichloro-4-cyano-3-aryl-1,2,6-phosphadiazines, which in the
presence of sodium phenolate convert to 1,1,5-triphenoxy-4-cyano-3-aryl-1,2,6-
phosphadiazines. The acyclic isomers were also formed in the same reaction.
A. V. KIRSANOV collaborated in this work.

1/1

TITLE--PHOSPHORYLATION OF DINITRILES OF DISUBSTITUTED MALONIC ACIDS -U-

AUTHOR-(02)-KORNUTA, P.P., SHEVCHENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 788-91

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHORUS CHLORIDE, ORGANIC NITRILE COMPOUND, SULFUR OXIDE,
   TRIAZINE, CHLORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1482   STEP NO--UR/0079/70/040/004/0788/0791

CIRC ACCESSION NO--AP0135147
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0135147
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALL EXPTS. BELOW WERE RUN UNDER
ANHYD. CONDITIONS. STIRRING R SUB2 C(CN) SUB2 WITH 2 MOLES POWD. PCL
SUB5 IN THE PRESENCE OF CCL SUB4 3-4 HR UNTIL HOMOGENEOUSLY DISPERSED
GAVE R SUB2 C(CN) SUB2.2PCL SUB5 (R EQUALS ME AND PR). AN EQUIMOLAR
MIXT. OF PCL SUB5 AND CCL SUB2 (CN) SUB2 KEPT 25-30 DAYS IN A CLOSED
FLASK UNTIL HOMOGENEOUS, GAVE AFTER TREATMENT WITH SO SUB2 TO DECOMP.
ANY PCL SUB5, 67PERCENT CL SUB2 C(CN)CCL SUB2 N:PCL SUB3, B SUB0.05
81-2DEGREES, M. 37-40DEGREES. HEATING 0.05 MOLE CCL SUB2 (CN) SUB2 AND
0.165 MOLE PCL SUB5 IN A SEALED TUBE 35-40 HR AT 150-60DEGREES, COOLING
UP TO MINUS 40DEGREES PRIOR TO OPENING THE TUBE, WASHING THE PPT. WITH
PETROLEUM ETHER, AND TREATING THE LIQ. WITH SO SUB2 GAVE SOM PCL SUB3
AND 86PERCENT 2,4,6,TRICHLORO,1,3,5,TRIAZINE, M. 144-5DEGREES, AND A
RESIDUE OF 63PERCENT CCL SUB3, CCL SUB2 N:PCL SUB3 (I), B SUB0.04
74-6DEGREES, N PRIME20 SUBD 1.5615; THE LATTER ALSO FORMED FROM 0.08
MOLE NCCCL SUB2 CCL SUB2 N:PCL SUB3 AND 0.1 MOLE PCL SUB5 IN 30-40 HR AT
150-60DEGREES, WHICH ALSO GAVE SOME PCL SUB3 AND TRICHLOROTRIAZINE.   I
AND ACOH GAVE 54PERCENT CCL SUB3 CCL:NPOCL SUB2, B SUB0.5 74-6DEGREES, M
43-5DEGREES.   KEEPING AN EQUIMOLAR MIXT. OF PCL SUB5 AND ME SUB2 C(CN)
SUB2 WITH A LITTLE CCL SUB4 4-5 DAYS IN A CLOSED FLASK AFTER TREATMENT
WITH SO SUB2, 100PERCENT ME SUB2 C(CN)CCL SUB2 N:PCL SUB3, M
53-8DEGREES, ALSO PREPD. BY REFLUXING THE ABOVE MIXT. IN PHCL 5 HR, (THE
PRODUCT B SUB0.03 86-9DEGREES, M. 55-9DEGREES) IN 75PERCENT YIELD.

3/3   008   UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0135147
ABSTRACT/EXTRACT--THIS AND 1 MOLE ACOH IN C SUB6 H SUB6 REACTED VIGOROUSLY
   TO YIELD OVERNIGHT 57PERCENT ME SUB2 C(CN)CCL:NPOCL SUB2, B SUB0.03
   78-8ODEGREES, N PRIME20 SUB0 1.5037, D PRIME20 1.4425. HEATING ET SUB2
   C(CN) SUB2 WITH 2 MOLES PCL SUB5 IN C SUB6 H SUB6 15 HR, AND TREATING
   THE MIXT. WITH SO SUB2 GAVE 43PERCENT ET SUB2 C, (C:(CCL:NPOCL SUB2, B
   SUB0.02 93-5ODEGREES, M. 38-42; SIMILARLY WAS PREPD. THE PR SUB2 C
   ANALOG, 40PERCENT, B SUB0.03 104-6ODEGREES, 1.4940, 1.2680.
   FACILITY: INST. LRG. KHIM., KIEV, USSR.

UNCLASSIFIED

TITLE--REACTION OF TRICHLOROPHOSPHAZO COMPOUNDS WITH CHLORINE OXIDE -U-

AUTHOR-(02)-KORNUTA, P.P., SHEVCHENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 551-3.

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, ORGANIC ACID COMPOUND, CHLORINATED
   ORGANIC COMPOUND, AROMATIC HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1291   STEP NO--UR/0079/70/040/003/0551/0553

CIRC ACCESSION NO--AP0134905

CIRC ACCESSION NO--AP0134905
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 0.035 MOLE CL SUB2O TO 0.05
   MOLE RCCL SUB2 CCL SUL2 R:PCL SUB3 IN CCL SUB4 GAVE, AFTER 10-12 HR,
   80-90PERCENT RCCL SUB2 CCL:NPCCL SUB2: R EQUALS ME, B SUB2 95-7DEGREES,
   4.45-6DEGREES: R EQUALS ET, B SUB2 100-1DEGREES. SIMILAR REACTION OF CL
   SUB2 C WITH ARSO SUB2 N:PCL SUB3 IN CCL SUB4 GAVE AFTER 2 DAYS AT ROOM
   TEMP. RC SUB6 H SUB4 SO(CCL):NPUCL SUB2 (I): R EQUALS H, OIL; P,ME, OIL;
   P,CL,M. 70-40DEGREES; M,NO SUB2, OIL. I TREATED WITH C SUB6 H SUB6 GAVE
   IN 10-15 MIN 85-90PERCENT ARSO SUB2 NHPCCL SUB2 95-65PERCENT PHCL.   I
   COULD NOT BE DISTD. WITHOUT EXTENSIVE DECOMPN. AND HAD STRONG OXIDIZING
   ABILITY; THEY LOST 0.2-0.3PERCENT OF THEIR ACTIVE CL IN 1 DAY AT ROOM
   TEMP., BUT DECOMPD. RAPIDLY AT 70DEGREES. I OXIDIZED HI, TO IODINE, AND
   CHLORINATED ALIPHATIC AND AROM. HYDROCARBONS.   FACILITY: INST.
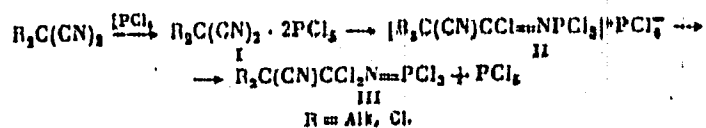   ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 546.185

KORNUTA, P. P., and SHEVCHENKO, V. I., Institute of Organic Chemistry, Kiev Academy of Sciences Ukrainian SSR

"Phosphorylation of Dinitriles of Disubstituted Malonic Acids"

Abstract: Dinitriles of disubstituted malonic acids react with phosphorus pentachloride to form only acyclic compounds.

$$R_2C(CN)_2 \xrightarrow{[PCl_5]} R_2C(CN)_2 \cdot 2PCl_5 \longrightarrow [R_2C(CN)CCl{=}NPCl_3]^+PCl_6^- \longrightarrow$$
$$\text{I} \qquad\qquad\qquad\qquad \text{II}$$
$$\longrightarrow R_2C(CN)CCl_2N{=}PCl_3 + PCl_5$$
$$\text{III}$$
$$R = Alk, Cl.$$

1/2

USSR

KORNUTA, P. P., and SHEVCHENKO, V. I., Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 788-791

Compounds (I), (II) or (III) are obtained depending on the reaction conditions and the nature of the R radical. Complex compounds (I) are comparatively readily converted to hexachlorophosphorates of N-trichlorophosphoniumdialkylcyanoiminoacetic acid chlorides (II) and trichlorophosphazo-1,1-dichloro-2-cyanoalkanes (III). The authors thank A. V. KIRSANOV for his advice and assistance.

USSR

SIDORENKO, O. V., KORNYUSHENKO, N. P., TAYKOVA, N. V., SINEL'NIK, N. A., and YACHNIK, O. S., Kiev State University, Kiev

"Biological Properties and Ultrastructure of the Influenza Virus A$_2$ (Hong Kong) 68"

Abstract: A study conducted on influenza virus of strain A$_2$ (Hong Kong) 68, received from the Influenza Institute, Academy of Medical Sciences USSR and passaged through chicken embryos, showed that the population of virus parti- cles exhibited differences with respect to morphology, ultrastructure, and biological properties. Chromatography on DEAE-Sephadex-A-50 indicated that the virus strain contained a fraction of particles that were not adsorbed in the column. Particles of this fraction were also not adsorbed on chick em- bryos. Comparison with other strains showed that only the strain A$_2$ (Hong Kong) 68 contained a fraction that was not adsorbed in the column. Further passages through chick embryos did not change the relative content of this fraction. Elution with NaCl solutions of increasing concentration yielded three virus fractions with decreasing particle size: 1) 2800-7000 Å (0.1 M NaCl), 2) 1400-2100 Å (0.5 M NaCl), and 3) 600-800 Å (1.0 M NaCl). The

1/2

TAYKOVA, N. V.; SYDORENKO, O. V.; KORNYUSHENKO, N. P.; RUDENKO,
A. V.; Kiev State University

"Fractionation of Influenza Virus Type A by Chromatography on
DEAE Sephadex A-50"

Abstract: The effectiveness of the chromatographic method of
fractionation of influenza virus type A on DEAE Sephadex A-50 was
tested during purification of the following strains of the virus:
laboratory type A_{PR-8}, A_2(Singapore)57, A_2(England)57, A_2(Lenin-
grad)67, and A_2(Hong Kong)68. Virus was obtained by infecting
10-day old chick embryos, incubating for 48 hours at 34°C, and
then extracting the allantoic fluid. The chromatographic frac-
tionation of virus-containing fluid was carried out on DEAE
Sephadex type A-50 in chloride form. The Sephadex was washed on
filter paper with 0.5 M hydrochloric acid and water and then

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USSR

TAYKOVA, N. V., et al, Mikrobiologicheskiy Zhurnal, Vol 33,
No 3, May/Jun 71, pp 334-338

sodium hydroxide with water, suspended in 1/15 phosphate buffer
pH 7.4, and poured into a test tube in a quantity necessary for
virus purification. The allantoic fluid containing the virus,
after centrifugation at 2,500 rpm for a period of 30 min., was
added to the adsorbent-containing column; the column contents
were then washed with 1/15 M phosphate buffer. Elution of the
adsorbed virus was carried out in stages with the use of 0.1-1.0
M solution of sodium chloride in the same buffer. The purity of
the virus was determined by content of proteins and nucleic acids
in the eluate. On the basis of the obtained data, the method of
chromatographic fractionation of viruses on DEAE-Sephadex is
recommended for use as one of the methods for purification of
influenza virus type A. Under such purification conditions the
behavior of each of the strains is specific and may serve as a
criterion of the strain characteristics of influenza viruses.
Correlation between the chromatographic behavior of influenza
viruses, their capacity for adsorption on chick erythrocytes,

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USSR

TAYKOVA, N. V., et al, Mikrobiologicheskiy Zhurnal, Vol 33, No 3, May/Jun 71, pp 334-338

and their relation to inhibitors, depending on the structural characteristics of the supercapsid of the viruses, has been established.

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USSR   UDC 576.858.75

KORNYUSHENKO, N. P. and SIDORENKO, Ye. V.

"A Study of the Morphology and Ultrastructure of Influenza Virus"

Abstract: The most important stage in the development of viruses is differen-
tiation of the nucleoprotein, a process which obviously continues in the viral
particle located outside the cell. Flu virus particles purified in formalin-
ized erythrocytes were investigated with an electron microscope, using the
FVK method of negative contrast. It was established that the viruses located
outside the cell may be divided into five groups distinguishable in form and
dimensions, which are determined chiefly by the organization of the nucleo-
protein. The polymorphism of flu virus particles is caused by differentia-
tion of the large particles, both gigantic spherical particles and thread-like
particles, into smaller virus particles. The final degree of differentiation
is represented by a particle of 600-800 angstrom in diameter, having a nucleo-
protein strand 1 to 1.2 microns in length packed into five to six convolutions,
and this determines the minimal amount of hereditary material.

1/1

AA0051848⁻ *KORNYUSHIN P.M.* UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

239597 INDUCTIVE LEVEL METER where a float can move
freely along the inductive coils indicating
its position corresponding to the measured level.
The float has been improved, it has two flanges
which make it possible to obtain a parallel reading
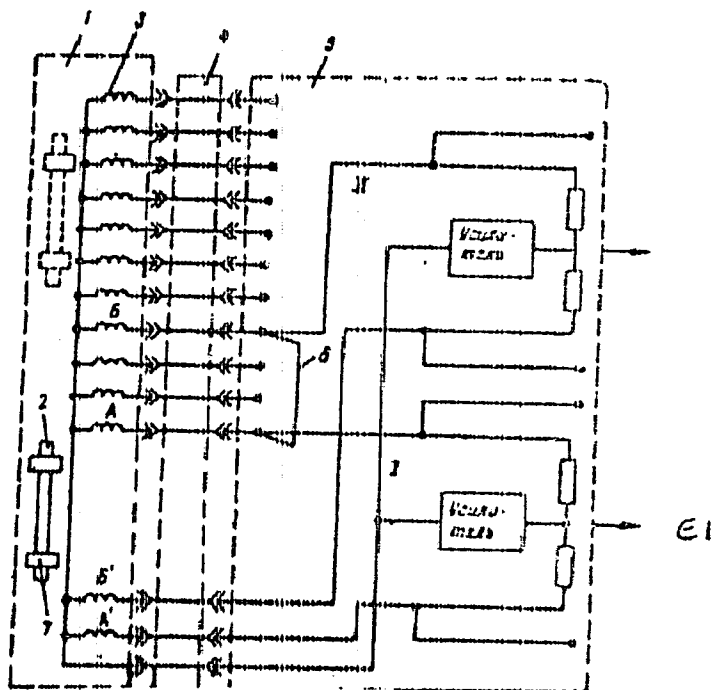from two independent coils.

12.12.66 as 1119046/26-10. A.S. ABRAMOV et al.
(28.7.69) Bul 11/18.3.69. Class 42e. Int.Cl.G 01f.

AUTHORS: Abramov, A. S.; Zotov, S. V.; Maslov, G. S.; Varygin, B.A.;
Shorin, N. I.; Kornyushin, P. M.; Mirskoy, M. L.; Chistyakov, N. N.;
Mosyakov, V. A.; Kozlovskiy, G. V.; Chichirin, I. B.; Batov, V. A.;
Golovachev, V. T.; Lyakhterov, M. N.; Kobelev, Yu. M.

1/2   19820276   1

AA0051848

19820277

2/2

USSR   UDC: 621.315.592

LYSENKO, V. S., LITOVCHENKO, V. G., KORNYUSHIN, S. I., CHERNOPISKIY, V. P.,
Institute of Semiconductors, Academy of Sciences of the UkrSSR

"Effect of Gamma Irradiation on the Electrical Properties of a Real Ger-
manium Surface"

Abstract: The paper gives some results of a study of radiation defects
induced by exposure to gamma quanta on the surface and in the space charge
region in germanium. Thin specimens of N-type ($\rho = 20$, 43, 50 $\Omega \cdot$cm) and
P-type ($\rho = 30$ $\Omega \cdot$cm) were studied. The results of the research showed an
appreciable increase in the rate of surface recombination, especially in
the region of positive potentials, with a new recombination level on curves
for surface recombination rate as a function of initial potential in this
region. Specimens with an elevated oxygen content showed an increase in
the density of fast shielding states throughout the potential range, whereas
oxygen-free specimens showed practically no change in the concentration of
such states. The initial potential was shifted toward the N-side after ex-

1/2

LYSENKO, V. S. et al., Poluprovodn. Tekh. i Mikroelektrcn. Resp. Mezhved. Sb., No 7, 1972, pp 47-51

posure in all specimens. The maximum displacement was accompanied by a reduction in the density of "slow" states. The stability of the new centers was shown by the fact that the surface characteristics of irradiated specimens were not altered by exposure to the atmosphere for two months. Very brief treatment in hydrogen peroxide (about 4 s) almost completely restored the surface potential to the values observed in specimens before irradiation. This indicates that the potential displacement observed is due to alter-ation of the chemical structure of the surface oxide phase.

2/2

TITLE--REVISICN OF THE GENUS KOWALEWSKIELLA BACZYNSKA, 1914, CESTODA,
 CYCLOPHYLLIDAE -U-

AUTHOR--KCRNYUSHIN, V.V.

CCUNTRY CF INFC--USSR

SOURCE--VESTNIK ZCOLOGII, 1970, NR 3, PP 43-49

DATE PUBLISHED--------7C

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CESTODA, BIRD, PARASITE, GEOGRAPHIC LOCATION

CCNTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0426   STEP NO--UR/0575/70/000/003/0043/0049

CIRC ACCESSION NO--AP0126179
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0126179
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DETAILED ORIGINAL DESCRIPTIONS
AND PICTURES ARE PRESENTED OF ALL THREE SPECIES, PRESERVED BY THE AUTHOR
IN THE COMPOSITION OF THE KOWALEWSKIELLA GENUS AFTER ITS REVISION
(COMMUNICATION I), K. LONGIANNULATA BACZYNSKA, 1914; K. CINGULIFERA
(KRABBE, 1869) AND K. STAGNATILIDIS (BURT, 1940). THE DATA ARE OBTAINED
WHEN STUDYING THE COLLECTION OF CESTODES, FOUND IN SNIPES OF THE NORTH
WESTERN BLACK SEA AREA. HOSTS, TIME AND PLACE OF FINDING, EXTENSITY AND
INTENSITY OF INVASION ARE MENTIONED FOR EACH SPECIES.   FACILITY:
INSTITUTE OF ZOOLOGY, ACADEMY OF SCIENCES, UKRAINIAN SSR.

UNCLASSIFIED

USSR   UDC 539-379.22

KORNYUSHIN, YU. V., and MESHKOV, YU. YA., Institute of Metal Physics,
Academy of Sciences Ukr SSR

"Defects in a Highly Deformed Steel"

Abstract: A method of determining the formation of micro-cavities in highly
deformed steels is proposed and proved, based on comparison of dilatometric and
calorimetric measurements. In a model of plane dislocation aggregations, the
relative change of volume, caused by the presence of internal stress fields,
from the dislocation masses is strictly evaluated. It is shown that in the case
of a highly deformed steel, the relative change of volume may be as high as 10^{-2}.
Here it is shown that the deviation of the ratio of volume and thermal effects
from a constant value, indicated by Seeger and Stehle, may exceed 0.1 if there
are no micro-cavities in the crystal. Consequently, the deviation of the
ratio of measured volume and thermal effects from a constant value is demon-
strated by the appearance of micro-cavities in the sample. Actually, the
measured change of volume contains both micro-cavity volume and change of
volume caused by dislocation accumulations. The same measured thermal effect
corresponds only to the elastic energy stored in dislocations masses in the
process of deformation. Possibilities of the proposed method are illustrated by
an example from experimental data. 4 figures, 17 bibliographic references.
1/1

USSR

UDC 620.192.5

KORNYUSHIN, YU. V., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Volume Effects and Elastic Energy in a Crystal Containing Dislocations"

Kiev, Metallofizika, No 39, 1972, pp 4-16

Abstract: Within the limits of the quadratic theory of elasticity, the relative change of crystal volume and elastic energy caused by nonuniformly distributed edge and screw dislocations, is calculated. The relationship of the ratio of the mentioned magnitudes to the method of dislocation distribution and elastic properties of the crystal is also investigated. 9 bibliographic references.

1/1

1/2   031   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--ELECTROSTATIC INTERACTION OF A DISLOCATION WITHA CHARGED POINT
  DEFECT ,EFFECT ON THE STRENGTH OF THE METAL, -U-
AUTHOR--KORNYUSHIN, YU.V.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29, (3), 659-661

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--CRYSTAL DEFECT, CRYSTAL DISLOCATION, METAL IMPURITY,
  MECHANICAL STRENGTH, ELECTROSTATIC FIELD, COULOMB INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1821   STEP NO--UR/0126/70/029/003/0659/0661

CIRC ACCESSION NO--AP0129189
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0129189
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORY IS DEVELOPED IN ORDER TO
DESCRIBE THE ELECTROSTATIC INTERACTIONS BETWEEN DISLOCATIONS AND POINT
DEFECTS IN METAL LATTICES AND THEIR RESULTANT EFFECT ON THE STRENGTH OF
THE CORRESPONDING METALS. A GENERAL FORMULA REPRESENTING THE MAGNITUDE
OF THIS INTERACTION FOR ALL MUTUAL DISPOSITIONS OF THE IMPURITY ATOMS
CONSTITUTING THE POINT DEFECTS AND THE ASSOCIATED DISLOCATIONS IS
DERIVED. THE VALIDITY OF THE FORMULA IS VERIFIED BY ROUGH CALCULATIONS
FOR TYPICAL CASES.

UNCLASSIFIED

1/2   031   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--ELECTROSTATIC INTERACTION OF A DISLOCATION WITH A CHARGED POINT
   DEFECT ,EFFECT ON THE STRENGTH OF THE METAL, -U-
AUTHOR--KORNYUSHIN, YU.V.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29, (3), 659-661

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--CRYSTAL DEFECT, CRYSTAL DISLOCATION, METAL IMPURITY,
   MECHANICAL STRENGTH, ELECTROSTATIC FIELD, COULOMB INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1002/1821   STEP NO--UR/0126/70/029/003/0659/0661

CIRC ACCESSION NO--AP0129189
                          UNCLASSIFIED

2/2   031   UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0129189
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A THEORY IS DEVELOPED IN ORDER TO
  DESCRIBE THE ELECTROSTATIC INTERACTIONS BETWEEN DISLOCATIONS AND POINT
  DEFECTS IN METAL LATTICES AND THEIR RESULTANT EFFECT ON THE STRENGTH OF
  THE CORRESPONDING METALS.   A GENERAL FORMULA REPRESENTING THE MAGNITUDE
  OF THIS INTERACTION FOR ALL MUTUAL DISPOSITIONS OF THE IMPURITY ATOMS
  CONSTITUTING THE POINT DEFECTS AND THE ASSOCIATED DISLOCATIONS IS
  DERIVED.   THE VALIDITY OF THE FORMULA IS VERIFIED BY ROUGH CALCULATIONS
  FOR TYPICAL CASES.

UNCLASSIFIED

КоZоB, Уе. В.

ЗРУ'S 59308
6.73

4

VI-04. CHARACTERISTICS OF THE DISTRIBUTION OF IMPURITIES IN WEAKLY ALLOYED
InSb SINGLE CRYSTALS

Article by M. S. Mirgalovskaya, Ye. B. Kozob, M. R. Raufmann, N. G. Sorokina,
Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh
Kristallov i Plenok, Russian, 12-17 June, 1972, 9]]]

A study was made of weakly alloyed InSb single crystals with trace concentrations of impurities of the donor and acceptor types. The methods of raster electron microscopy and measuring the relative values of the thermal emf (α) were used to discover the macroinhomogeneities arising on growth of such single crystals by the Czochralski method; the growth strata, the face effect and also the circular transitions; the appearance of which is connected with the specific nature of the additive distribution and the degree of compensation of the material.

The methods of raster electron microscopy were used to demonstrate for the first time that the replica of annular transitions comprises a series of microstructures formed in the growth strata at the conjugation points of the n-type material (on the face) and the p-type material (outside the face).

In the investigated single crystals with extended p-n-junctions in certain cases additional p-n-junctions were detected (the arrangement was parallel to the basic arrangement) arising in the growth strata as a result of overcompensation of the basic carriers for the formation of the extended p-n-junction.

The method of taking curves of the current-diode signal was used to reveal the difference in distribution gradients of the impurity near the p-n-junctions by which it is possible to judge the sharpness of the junction.

The method of raster electron microscopy was used in the InSb p and n-type single crystals to define the diffusion lengths of the minority carriers the values of which are in good agreement with the calculated data.

- 81 -

UNCLASSIFIED   PROCESSING DATE--11DEC70
1/2   C19
TITLE--MECHANISM OF THE THERMAL DECOMPOSITION OF INORGANIC OXIDIZING
   AGENTS -U-
AUTHOR-(02)-SVETLOV, B.S., KUKUBAN, V.A.

CCUNTRY OF INFO--USSR

SOURCE--FIZIKA GORENIYA I VZRYVA, VOL. 6, MAR. 1970, P. 12-18

DATE PUBLISHED-----MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION MECHANISM, THERMAL DECOMPOSITION, PERCHLORIC
   ACID, SULFURIC ACID, INORGANIC SALT, HYDRAZONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605002/002 STEP NO--UR/0414/70/006/000/0012/0018

CIRC ACCESSION NO--AP0139446
                  UNCLASSIFIED

CIRC ACCESSICN NC--AP0139446
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   REVIEW OF PUBLISHED STUDIED
    CONCERNING THE MECHANISM OF THERMAL DECOMPOSITION OF OXIDIZERS
    CONTAINING SALTS OF PERCHLORIC AND SULFURIC ACIDS.   IT IS POINTED OUT
    THAT THE MARKEDLY DIFFERENT REACTIVITIES OF AMMONIUM SALTS ON THE ONE
    HAND AND ALKALI AND ALKALI EARTH SALTS ON THE OTHER CANNOT BE ACCOUNTED
    FOR BY ELECTRCN TRANSFERS ALONE.   IT IS CONTENDED, RATHER, THAT THE
    STRENGTH AND STABILITY OF THE ACID, THE STRENGTH OF THE BASE, AND THE
    CONCENTRATICN OF DISLOCATIONS AND THE PATTERN OF THEIR MULTIPLICATION
    DETERMINE THE REACTIVITY OF AMMONIUM AND HYDRAZONE SALTS.   IT IS ALSO
    INDICATED THAT THE BIMOLECULAR REACTIONS OF ANIONS MAY PLAY A
    SUBSTANTIAL PART IN THE REACTIVITY OF ALKALI AND ALKALI EARTH SALTS.

UNCLASSIFIED

USSR   UDC: 8.74

ZAYTSEV, N. G., KHLEBNIKOV, A. G., KOROBANOV, M. I.

"Organizing Communication Between the 'Minsk-22' Digital Computer and Subscribers by Means of a Computer-Controlled Automatic Commutator"

Translation: The paper describes the block diagram and schematic of a commutator used as a basis for creating teletype communications between the "Minsk-22" digital computer and 20 subscribers served in sequence by the computer.

1/1

USSR   UDC 616.1:359.6

KOROBAYEV, V. M.

"Some Functional Changes During a Long Voyage in the Low Latitudes"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 11, 1973, pp 59-61

Abstract: Various physiological functions (muscular strength, vital capacity, pulse rate, blood pressure, cardiac output, etc.) were studied in two groups of seamen, one age 19 to 22 and the other with an average age of 31) before, during, and after a long sea voyage in the low latitudes. Before the voyage, the younger men displayed greater strength (especially of the large muscle groups of the back and legs) and better external respiratory function. In the older men, especially those who had been on several cruises before, the cardiovascular system worked more efficiently (e.g., lower cardiac output at rest and after exercise). During the voyage all the seamen suffered a decrease in strength (more so in the younger individuals), but the changes in respiratory and circulatory functions were mostly adaptive in nature. The functional capabilities declined by the end of the voyage in both groups, but to a greater extent in the older men, an indication of overstress of the mechanisms of adaptation.
1/1

USSR

UDC 627.81

KOROBCHENKOV, A. A., LEVANT, T. A.

"Composition and Basic Purpose of the Reservoir Cadasters Published Abroad by Comparison with the USSR Reservoir Cadaster"

Translation: In the USA, information on reservoirs and controlled lakes in the form of a cadaster was published for the first time in 1948 (in the USSR, in 1967). The last publication of a cadaster pertains to 1966 and gives information on 1,562 reservoirs constructed and being constructed in the USA on 1 January 1963 with a volume (V) ≥ 7 million m^3. Here, the reservoirs are characterized by 12 indexes: the name of the reservoir, its placement, the watershed area, the water plane area, the total volume, the dead storage, the usable storage, the ratio of usable storage to mean annual runoff, the purpose of the reservoir, the date of completion of construction of the dam, the name of the owner or controlling agent, published information about changes in the reservoir storage. These data have basically a statistical reference nature and are gathered in one table. In the USSR cadaster, the technical-economic characteristics of the reservoirs are presented in a table and include 110-200 indexes. The bibliography has 7 entries.

1/1

USSR   •   UDC 541.128+662.22.

KOROBEYNICHEV, O. P., VIKTORENKO, A. M., TERESHCHENKO, A. G., KOLOMEYCHUK, N. N.,
Novosibirsk

"Mechanism of the Effect of a Catalyst on Condensed Combustion Systems"

Abstract: A study was made of the mechanism of the effect of a catalyst on the
combustion of condensed systems based on ammonium perchlorate. Results are pre-
sented from studying the catalysis of the combustion of ammonium perchlorate and
mixtures based on it using an optical microscope and a scanning electron micro-
scope. Data are also presented from the studies of the effect of the disperse-
ness of the catalyst on the combustion rate of ammonium perchlorate and the
model system of ammonium perchlorate and polymethylmethacrylate. The data con-
firm that the catalyst operates very efficiently in the c-phase (the presence of
sinks around the catalyst particles in the case of copper oxide), The forma-
tion of a skeleton of catalyst particles (in the case of Fe_2O_3) protruding 10-
20 microns above the burning surface must also lead to an increase in the effi-
ciency of its effect near the c-phase surface (as a result of an increase in
the effective concentration of the catalyst in the vicinity of the gas phase by
comparison with that which exists at distances greater than 10-20 microns from
the c-phase surface). If the distance from the c-phase surface to the flame
1/2