UDC 541.49

USSR

SUMAROKOVA, T. N., IBRAYEVA, T. D., and NEVSKAYA, YU. A., Institute of
Chemical Sciences, Academy of Sciences KAZSSR, Alma-Ata

"reactions of Metal Halides with Trialkylphosphates. I. Stannic Chloride-
Tributyl Phosphate"

Alma-Ata, Izvestiya Akademii Nauk KazSSR, Seriya Khimicheskaya, No 3,
May-Jun 73, pp 21-28

Abstract: Complex formation in the system $SnCl_4$-tributyl phosphate $[TBP]$
has been studied by the methods of viscosimetry, as well as volumetrically,
conductometrically and cryometrically. In addition, the transfer of ions in
stannic chloride solutions in TBP has been studied and their IR spectra
were taken. It has been shown that $SnCl_4$ reacts exclusively with TBP via
an oxidation-reduction reaction, leading to the formation of complex com-
pounds: $SnCl_4 \cdot 2TBP$, $2 SnCl_4 \cdot 2TBP$, and $2 SnCl_4 \cdot 3TBP$. In $SnCl_4 \cdot 2TBP$ complex,
TBP is coordinated through the oxygen of the phosphoryl group. In the other
two complexes TBP exhibits dual properties, the oxygen of the P-O-C group
also participating in the coordination bond.

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UDC 541.49

SUMAROKOVA, T. N., IBRAYEVA, T. D., and NEVSKAYA, YU. A., Institute of

Chemical Sciences, Kazakh. SSR Academy of Sciences, Alma-Ata

"Interaction of Metal Halogenides With Trialkylphosphates. III. Anti-
mony Trichloride-Tributylphosphate"

Abstract: Viscosimetric, densitometric, cryometric, conductivity, and
IR spectroscopic studies were conducted on the interaction of $SbCl_3$
with tributylphosphate (TBP). Two complexes were formed: $2SbCl_3 \cdot TBP$
(I) and $2SbCl_3 \cdot 2TBP$ (II). In I the coordinate valence of Sb was 3,
and in II 4. Coordination of TBP with Sb(III) in I and II was by means
of the oxygen atom in the phosphoryl group.

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UNCLASSIFIED   PROCESSING DATE--23OCT70

1/2   018
TITLE--EFFECT OF WATER ON THE MOLE STABILITY OF RIGID POLYURETHANE FOAMS
-U-
AUTHOR-(03)-DEMENTYEV, A.G., NEVSKIY, L.V., TARAKONOV, O.G.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 51-2

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYURETHANE RESIN, FOAM PLASTIC, FREON, CARBON DIOXIDE,
  POROSITY, PLASTIC FABRICATION/(U)PPU3 POLYURETHANE RESIN, (U)PPU3S
  POLYURETHANE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0675   STEP NO--UR/0191/70/000/002/0051/0052

CIRC ACCESSION NO--AP0119583
                         UNCLASSIFIED

2/2   018
CIRC ACCESSION NO--AP0119583
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF H SUB2 O ON THE
SHPAE STABILITY OF RIGID POLYURETHANE FOAMS (PPU-3 (I) AND PPU-3S (II))
BLOWN WITH FREON-11 OR CO SUB2 WERE STUDIED.   INITIALLY, H SUB2 O WAS
ABSORBED AT THE SAME RATE BY BOTH I AND II.   THE SOFTENING TEMP. OF II
DECREASED BY 47DEGREES FOLLOWING ITS PLASTICIZATION WITH H SUB2 O DURING
5 DAYS. THE 2ND STAGE OF H SUB2 O ABSORPTION IN I OCCURRED AT A SLOWER
RATE. THE SHAPE STABILITY OF I AND II WAS PROPORTIONAL TO THEIR
RIGIDITY. THE EFFECTS OF POROSITY AND OF THE FOAMING GAS ON THE SHAPE
STABILITY OF I AND II WERE DISCUSSED.

ABRAMOV, V. S., KOBZEV, V. V., MOMA, Yu. A., NEVSKIY, M. V.

"Semiconductor Laser Diode as a Modulator of Gas Laser Emission"

Abstract: Experimental proof is given for the feasibility of
modulating gas laser emission by using a semiconductor laser
diode with simultaneous amplification of the power of the modu-
lated emission. Argon – oxygen gas laser pulse emission was modu-
lated by a gallium arsenide diode with both coated and uncoated
optical faces. The power of the emission passed through the
diode increased in the pulse by a factor of 7-10 (pure ampli-
fication). Heating of the active region of the diode leads to
distortion of the vertex of the modulated pulse. Estimates are
made of the limitations on pulse duration due to this effect.
One illustration, bibliography of ten titles.

1/1

USSR   UDC 911.3:616.927(575.1)

NEVSKIY, M. V., YUSUPOV, K. Yu., AMINADZE, Z. M., KAPLUNOVA, M. S., and
PULATOV, Ya. G.

"Morbidity Dynamics of Typhoid and Paratyphoid Fever in the Uzbek SSR"

Nauchn. tr. uchenykh i prakt. vrachey Uzbekistana (Scientific Works of
Research and Practicing Physicians in Uzbekistan) 1970, sb. 6, pp 16-20
(from RZh-Meditsinskaya Geografiya, No 4, Abstract No 4.36.203)

Translation: During the years 1958-1965, the Uzbek SSR registered a decrease
in the number of cases of all typhoid and paratyphoid by a factor of 2.4;
typhoid by a factor of three, while the number of paratyphoid fever cases
remained unchanged. In cities the number of typhoid-paratyphoid cases de-
creased three-fold; in rural areas -- two-fold. In 1958 45.7% of the
patients in rural areas had typhoid-paratyphoid and in 1965 -- 54.6%.
In the total paratyphoid picture for the past three years, the prevailing
form was paratyphoid B, responsible for a 79% morbidity.

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UNCLASSIFIED   PROCESSING DATE--27NOV70

172   032

TITLE--SYNCHRODYNE PHASE METHOD FOR MEASURING RELAXATION TIMES OF PHOTO AND ELECTROLUMINESCENCE IN SEMICONDUCTORS -U-

AUTHOR-(03)-SUSHKOV, V.P., NEVSKIY, M.V., LYUBYANITSKAYA, YE.B.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, (2), 234-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SEMICONDUCTOR CRYSTAL, SEMICONDUCTOR MATERIAL, TIME MEASUREMENT, RELAXATION PROCESS, PHOTOLUMINESCENCE, ELECTROLUMINESCENCE, PN JUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1800   STEP NO--UR/0120/70/000/002/0234/0235

CIRC ACCESSION NO--AP0135365

UNCLASSIFIED

CIRC ACCESSION NO--AP0135365

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE PHASE METHOD (D. S. TUCKER AND R. A. SEYMOUR, 1950) HAS BEEN MODIFIED FOR MEASURING THE RECOMBINATION TIMES IN SINGLE CRYSTALS AND P-N JUNCTIONS OF SEMICONDUCTORS DOWN TO 3 TIMES 10 NEGATIVE PRIME10 SEC.   THE INTENSITY OF THE PHOTO OR ELECTROLUMINESCENCE CAN BE AS LOW AS 10 NEGATIVE PRIME12 W.

UNCLASSIFIED

USSR   UDC 621.375.82

ABRAMOV, V. S., KOBZEV, V. V., MOMA, Yu. A., NEVSKIY, M. V.

"Semiconductor Laser Diode-Modulator for Gas Laser Emission"

Translation: The possibility of modulation of gas laser radiation by a
semiconductor laser diode with simultaneous amplification of the power of
the modulated emission is shown experimentally. Pulse modulation of the
radiation of an Ar-O_2 gas laser was achieved with a GaAs diode with coated
and uncoated faces. The power of the radiation passing through the diode
rose in a pulse by a factor of 7-10 (pure amplification). Heating of the
active region of the diode leads to distortion of the peak of the modulated
pulse. Limitations on the duration of the pulse due to this effect are
calculated. 10 ref. Authors abstract.

1/1

NEVSKIY, O. B.

Magnetics Films

BIBLIOGRAPHIC DATA SHEET

1. Report No. JPRS 59626

4. Title and Subtitle
INVESTIGATION OF SOME PRINCIPLES OF THE ELECTRODEPOSITION OF CYLINDRICAL MAGNETIC FILMS

5. Report Date
26 July 1973

7. Author(s)
A. T. Zamulyukin, O. B. Nevskiy, et al.

9. Performing Organization Name and Address
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USSR   UDC 621.357.7:669.15'(24(088.8)

NEVSKIY, O. B., NESTEROV, P. V., and CHERNAYENKO, M. P.

"Electrolytic Plating of Nickel-Iron Alloy of Permalloy Type"

USSR Author's Certificate No 324305, Filed 7 Mar 69, Published 16 Mar 72 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), Abstract No 23L264P by M. V. Ivanov)

Translation: In order to achieve the electrolytic plating of Ni-Fe alloy of uniform chemical composition, the suggested process should be conducted in a hermetically closed contained in Ar atmosphere while the electrolyte is turbulently mixed. The best results are obtained at Reynolds numbers 2500-10,000, 50-65°C, D_c 100-200 ma/cm^2. The electrolyte contains (g/liter) $FeSO_4$ 5-7, $NiSO_4$ 300-360, H_3BO_3 25-30, saccharin 0.2-0.8, citric acid up to 3, and pH 2.7-3.0. The suggested method makes it possible to obtain Ni-Fe films characterized by the following parameters: coersive force 150-200 a/m, anisoptopy field 80-120 a/m, axis slope of light magnetization $\leq 1.5°$.

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USSR

UDC 621.357.7.035.14(088.8)

NEVSKIY, O. B., LOGASHEV, V. V., and BARANOVSKAYA, I. N.

"Galvanic Bath for Producing Cylindrical Magnetic Films"

USSR Author's Certificate No 324309, Filed 16 Jan 70, Published 25 Feb 72
(from Referativnyy Zhurnal -- Khimiya, No 21(II), 1972, Abstract No 21L318P by
E. Z. Napukh)

Translation: The patented design of the electrolyzer is intended for preparation
of cylindrical magnetic films with a uniform chemical composition. Its feed and
pouring chambers are formed by the electrolyzer wall and the anode container,
and the cylindrical element with anodes on its external surface is made of hydro-
philic material.

1/1

USSR

UDC: 681.32.001

NEVSKIY, O. B., NESTEROV, P. V., ALEKSEYEV, N. M.

"A Transfer Line for Continuous Electrochemical Deposition of Cylindrical Magnetic Films"

Translation: The paper describes the flowchart and design of a line for continuous electrochemical deposition of cylindrical magnetic films. The line performs the operations of cathodic degreasing, electropolishing, deposition of copper and deposition of permalloy with zero magnetostriction (80 percent Ni, 10 percent Fe). All operations are done at high current density and with intense agitation (with the exception of electropolishing). The advantages of such conditions are pointed out. Note is made of the harmful effect of iron oxidation in the electrolyte for the deposition of permalloy and of the necessity for complete hermetic sealing of the tank.

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USSR

NEVSKIY, O. B. et al., Elektron. tekhnika. Nauchn.-tekhn. sb. Mikroelek-
tronika, 1971, vyp. 4(30), pp 176-184

A description is given of methods of monitoring and controlling the process
to obtain zero magnetostriction and the required pulse parameters. Seven
illustrations, bibliography of thirteen titles. Resumé.

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USSR   UDC 621.315.592

ALEKSANDROV, A.S., YELESIN, V.F., NEVSKIY, P.L.

"Optical And Electrical Properties Of Doped Semiconductors In Strong
Electromagnetic Field"

Abstract: A theoretical investigation of the optical and electrical properties
of doped semiconductors found in a strong electromagnetic field is of interest
in connection with studies of semiconductor lasers and also in connection with
experiments with respect to irradiation of semiconductors by powerful coherent
radiation. In the present work, on the basis of a consistent theoretical con-
sideration, the form is found of the absorption line of a weak electromagnetic
field and the electrical conductivity of doped semiconductors with a nonequil-
ibrium population. Consideration is given, both in the absence and with the
presence of a strong monochromatic wave with a frequency in the region of fun-
damental absorption. A calculation of the amplification spectrum of a weak
electromagnetic field, with impurity scattering taken into account, shows that
because of indirect transitions (without pulse conservation) the amplification
maximum shifts to the region of smaller frequencies. With the presence of a

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strong monochromatic wave impurity scattering reduces the transparency range
which appears because of a gap in the energy spectrum. With some critical con-
centrations of impurities the transparency range disappears. The electrical
conductivity of a semiconductor found in a strong wave field also depends sub-
stantially on the ratio between the concentration of impurities and the field
intensity. With small concentrations and large intensities the semiconductor
conducts itself as a dielectric, regardless of the presence of electrons and
holes induced by the strong electromagnetic field. With an increase of the im-
purity concentration (or with a decrease of the field intensity) the energy gap
disappears and the conductivity becomes nonzero. The calculations were made
with the aid of the graphic technic of A.A. Abrikosov and L.P. Gor'kov in a
ladder approximation, i.e., when the mean free path of the electrons close to
the Fermi quasi-level exceeds their wavelength. The authors thank Yu. A.
Bykovskiy and V.M. Galitskiy for helpful discussion of the work. 3 fig. 12 ref.
Received by editors, 25 Oct 1971.

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AN0016985

UR 0533

AUTHORS-- PETROS,YANTS, A., CHAIRMAN OF THE STATE COMMITTEE ON
THE UTILIZATION OF ATOMIC ENERGY, U.S.S.R., DOLLEZHAL,
N., ACADEMICIAN, AND NEVSKIY, V., DIRECTOR OF THE BELYY
YAR ATOMIC POWER PLANT

TITLE-- PROGRESS IN ATOMIC ENERGETICS

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, JANUARY 30, 1970, P 1,
COLS 1-4

ABSTRACT-- THE FIRST SECTION OF THE BELYY YAR ATOMIC POWER PLANT WAS
ACCEPTED BY A GOVERNMENT COMMISSION IN DECEMBER OF 1969 AND ITS RATED
POWER OUTPUT HAS REACHED 300,000 KW. THE SECOND REACTOR OF THE PLANT
IS OF THE SAME SIZE AS THE FIRST BUT PRODUCES TWICE THE AMOUNT OF
POWER /200,000 KW/. THE EXPERIENCE OF THE BELYY YAR PLANT HAS SHOWN
THAT THE DEPTH OF THE BURNOUT HAS EXCEEDED THE EXPECTATIONS. THIS
WILL MAKE IT POSSIBLE TO REDUCE THE COST OF THE GENERATED POWER.

THE TYPE OF THE BELYY YAR REACTOR IS REFERRED TO AS "CHANNEL" REACTOR,
I.E., A REACTOR THAT DOES NOT REQUIRE A VESSEL. TWO PHOTOGRAPHS SHOW
THE POWER ROOM AND THE REACTOR ROOM OF THE PLANT.

19600113

USSR   UDC 539.3/.5

PISKUNOV, YU. A., NEVSKIY, V. A., DUDIN, V. F.

"On the Question of the Breakdown of Concrete Under Cyclic Shock Loads"

Tr. Groznen. neft. in-t (Works of Groznenskiy Petroleum Institute), 1971,
Collection 33, pp 216-217 (from RZh-Mekhaniki, No 12, Dec 71, Abstract No
12V1615)

Translation: The authors emphasize that analysis of rheological models of
concrete and their equations describing cases of shock effects leads one to
conclude that the inelastic properties of concrete have a considerable effect
on the behavior of concrete under shock in addition to the elastic properties
ordinarily taken into account. Experimental data are presented and discussed
concerning a study of the effect of inelastic properties characterized by the
coefficient of internal friction on the strength properties and the process
of breakdown of concretes under shock loads. Samples of concrete with dimen-
sions 7 × 7 × 7 cm having the same static strength but differing in the type
and strength (600 and 1200 kg/cm^2) of the coarse filler were investigated.
The samples were made with two flows of cement. The coefficient of internal

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PISKUNOV, YU. A., et al, Tr. Groznen. neft. in-t, 1971, Collection 33, pp 216-217

friction was determined with the IKVT-2 device by transmitting longitudinal oscillations to the sample. The pulsed loads were supplied on a standard pile driver by applying a series of shocks up to breakdown. The experiments showed that the work necessary for breakdown of the samples rises with an increase in the coefficient of internal friction. The work of breakdown also rises with an increase in the expenditure of cement per m^3 of concrete with a fixed coefficient of internal friction. The authors indicate that for the breakdown of concrete with a stronger coarse filler under shock effects but with a lower coefficient of internal friction, less work is expended than in the case of concrete with a less strong filler (crushed stone or gravel) but with a greater coefficient of internal friction. It is thus more favorable with the same static strength of the concrete for structures subject to the action of shock loads to use concrete with a higher coefficient of internal friction, since greater work is required for the breakdown of this concrete. It is noted that one can increase the inelasticity of the concrete through selection of the components and not by using a higher mark of cement. A. I. Platov.

2/2

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   032
TITLE--THERMAL DECOMPOSITION OF THE DIMETHYLENE ETHER BOND IN POLYMERS -U-

AUTHOR-(05)-NEVSKIY, V.M., YATSENKO, E.A., GRABARNIK, L.G., SALTYBAYEV,
   D.K., BEYSEBAYEV, M.ZH.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(2), 73-80

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, METHYLENE, ETHER, POLYMERIZATION,
   GLYCOL, PYROLYSIS, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0265   STEP NO--UR/0360/70/020/002/0078/0080

CIRC ACCESSION NO--AP0126037
                    UNCLASSIFIED

PROCESSING DATE--13NOV70

UNCLASSIFIED

2/2   032
CIRC ACCESSION NO--AP0126037
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. OF $P,HOCH_2C_6H_4CH_2OH$ IN BULK AT 140DEGREES IN THE PRESENCE OF $P,MEC_6H_4SO_3H$ GAVE RCH_2OCH_2R PRIME (I). THE PYROLYSIS PRODUCTS OF I OBTAINED IN VACUUM AT SMALLER THAN OR EQUAL TO 180DEGREES CONTAINED POLYMERIC ALDEHYDES DUE TO HOMOLYTIC SPLITTING OF $I RCH_2$ AND R PRIME CH_2O, WHICH INTERACT, GIVING R PRIME CHO AND RME. AT 260-360DEGREES, R PRIME CH_2O IS DISPROPORTIONATED TO R PRIME CHO AND R PRIME CH_2OH, DETECTABLE BY IR SPECTROSCOPY.   FACILITY:
INST. KHIM. NAUK, ALMA-ATA, USSR.

UNCLASSIFIED

TITLE--PROVISION FOR CRISIS FREE, HEAT TRANSFER, REGIONS IN THE ACTIVE
ZONE OF AN AMB REACTOR OF BLOCK NO. 1 OF THE BELOYARSK NUCLEAR POWER

AUTHOR-(03)-DOROSHCHUK, V.YE., NEVSKIY, V.P., SHASHARIN, G.A.

COUNTRY OF INFO--USSR

SOURCE--TEPLOENERGETIKA 1970, 17(3), 54-6

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--HEAT TRANSFER, NUCLEAR POWER PLANT, NUCLEAR REACTOR/(U)AMB
REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1903   STEP NO--UR/0096/70/017/003/0054/0056

CIRC ACCESSION NO--AP0108233

2/2   045

CIRC ACCESSION NO--AP0108233
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPERATION OF AN AMB REACTOR
(BOILING WATER TYPE) AT 100 MW IS DISCUSSED PARTICULARLY WITH REGARD TO
THE FORMATION OF UNSTABLE HEAT TRANSFER ZONES AT COOLANT WXIT MASS VAPOR
CONTENTS (X) EQUALS 0.35. THIS MODE OF HEAT TRANSFER, REFERRED TO AS
MODE II, IS CAUSED BY STRUCTURAL CHANGES IN THE 2-PHASE FLOW AND THE
EVAPN. OF THE BOUNDARY LIQ. FILM. AN EQUATION IS DEVELOPED FOR THE
CALCN. OF THE CRIT. VAPOR COMPN. (X PRIMEO SUBCR) AT WHICH MODE II HEAT
TRANSFER OCCURS. THE X PRIMEO SUBCR IS INDEPENDENT OF THE HEAT FLOW
(Q). CURVES OF X PRIMEO SUBCR SHOW IT TO BE A FUNCTION OF COOLANT FLOW
RATES (RHO OMEGA) OF 750-2000 KG-M PRIME2-SEC AND COOLANT PRESSURES OF
50-190 ATM. INSTABILITY OF HEAT TRANSFER (MODE II) WAS ELIMINATED BY
INCREASING THE COOLANT RHO OMEGA TO 3200-3300 KG-M PRIME2-SEC AND BY
DECREASING ITS PRESSURE TO 135 ATM; AN X EQUALS 0.21-0.22 WAS ATTAINED
WHICH IS SIGNIFICANTLY LOWER THAN THE X PRIMEO SUBCR OF 0.33 FOR THESE
CONDITIONS.

Converters and Transducers

USSR   UDC: 534.232-8

BOLODIN, B. L., NEVSKIY, YU. YE., SELIVANOV, L. V., Novosibirsk

"Measuring the Amplitude-Frequency Characteristics of Wide-Band Ultrasonic Converters"

Novosibirsk, Avtometriya, No 3, 1970, pp 65-69

Abstract: Measurement of the amplitude-frequency characteristics (conversion losses as a function of frequency) of wide-band diffusion converters entails certain difficulties since there are no standard instruments for measuring this parameter. The authors discuss these difficulties for the case of an ultrasonic converter. The measurement procedure is based on determining the characteristic for a known load impedance, and using a simple formula to compute the character-istic for any other load impedance. A radio pulse voltage signal is sent to the input of the converter where it is transformed to an acoustic signal which is propagated through an acoustic line, reflected from the free end of the line, and sent again to the converter, where it is transformed to a radio pulse output signal. Absorption of the ultrasonic wave takes place as it is propagated through the acoustic line. The amount of absorption is proportional to the delay time. To eliminate the error introduced by this absorption, the acoustic line must be made from a low-absorption material and the delay time must be minimized.
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USSR

BOLODIN, B. L., et al, *Avtometriya*, No 3, 1970, pp 65-69

Methods of accomplishing these goals are discussed. An instrument for measuring the amplitude-frequency characteristics of wide-band ultrasonic converters is described and a block diagram of the device is given. The proposed instrument can be used to study the amplitude-frequency characteristics of ultrasonic converters in the 30-150 MHz range in the pulse mode, the duration of probe pulses being 1-1.5 usec. Sensitivity recovery time is 3-4 usec. Maximum error is no more than ± 1.9 DB.

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Radiobiology

SHUBIK. V. M., NEVSTRUYEVA, M. A., LIVSHITS, R. YE., and KOLOTVIN, V. A.,
Leningrad Scientific Research Institute of Radiation Hygiene

"Effect of Nuclear Fission Products on Immunological Reactions"

Abstract: Rats were injected once with an individed mixture of rare earth
(La-140, Ce-141, Ce-144, Pr-143, Y-91, Nd-147) and alkali earth (Sr-89, Ba-
140) radionuclides to determine the effect of these nuclear fission products
on nonspecific (Ioffe's test, bactericidal action, lysozyme, complement serv-
ing as criteria) and specific (antibody response to inoculation of Proteus
vulgaris and sheep erythrocytes) immunity. Nonspecific reactions and anti-
body formation were depressed and a large quantity of autoantibodies to liver
and kidney tissues were produced. These changes were phaselike: periods of
decrease alternated with phases of normalization and even stimulation. There
was a distinct relationship between most of the immunological parameters and
the dose of radioisotopes used. The various factors differed in sensitivity
to internal irradiation.

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NEVSTRUYEVA, M. A.

HYGIENIC SIGNIFICANCE OF HOT PARTICLES

The discovery of particles with radioactivity of the order of 10^-9 curies or more in air, and the related assumption that they present a special biological danger if they penetrate into the human organism served as the basis for a series of special investigations. To date more than 100 works have been published in the world literature dealing with highly radioactive particles, which have been named hot particles.

Analysis of the literature indicates that in spite of the complexity of investigating hot particles and the diversity of questions that arise some rather valuable scientific information has been accumulated to date.

It was established that hot particles may appear in the atmosphere as a result of nuclear explosions or in industry, in the course of producing and processing radioisotopes on powerful gamma units and nuclear reactors.

With regard to exploding the mechanism of formation of hot particles following a nuclear explosion, the most importance is attributed to condensation and coagulation of vapor-like explosion products (V. N. Lavrenchik). It is generally considered that the mechanism of formation of highly radioactive particles under industrial conditions is based on the process of dispersion of material with high specific radioactivity, neutron activation of aerosol particles, and settling of radioactive atoms on inactive dust particles (O. M. Zarayev).

A number of investigations revealed there in a link between concentration of hot particles in the atmosphere and the time of nuclear explosions. It has been indicated that the shape of the particles is arbitrary. Their size ranges from tenths of a micron to several microns. They dissolve poorly in water and biological substrates.

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USSR

RYAZANOVA, R. A., DRUZHININA, V. A., NEVSTRUYEVA, V. V., Candidates of Medical Sciences, Moscow Scientific Research Institute of Hygiene imeni Erisman

"Experimental Data Providing a Basis for the Maximum Permissible Concentration of Zineb in the Air in Work Areas"

Abstract: A study was made of the biological effect of zineb following entry of it into the body through the respiratory system and unprotected skin. Both single and chronic exposures were considered. The studies were performed on 100 mice, 200 rats, 20 rabbits and 4 guinea pigs. In a chronic experiment zineb in the concentrations of 200 and 20 mg/m^3 caused a change in functional state of the organism of the experimental animal: a reduction in body weight, a reduction in number of leukocytes, content of total and protein SH-groups, a tendency toward a reduction in cholinesterase activity and an increase in the summation of the threshold index by comparison with the initial (back-ground) and data from the control group of animals. An inverse relation was dected between the accumulation of radioactive phosphorus (P_{32}) in the tissues and the zineb concentration. In a study of the entral cycle of female rats, zineb in a concentration of 20 mg/m^3 caused prolonging of the diestrus phase

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USSR

RYAZANOVA, R. A., et al., Gigiyena i Sanitariya, No 8, 1972, pp 42-45

and atypical alternation of stages. Mating of the females with experimental males took place against a background of intoxication which did not exclude manifestation of both embryotropic and gonadotropic effects. Sterility of males and resorption of fetuses by the females resulted from zineb exposure. There were marked effects on embryo and postnatal weight of baby rats when the mother had been subjected to 20 mg/m^3 of zineb during pregnancy.

Thus, zineb concentrations of 200 and 20 mg/m^3 are considered toxic, and a concentration of 5 mg/m^3 is considered threshold. In view of the effect of the compound on gonads and embryogenesis, a maximum permissible concentration of 0.5 mg/m^3 of zineb in the air of work areas is recommended.

2/2

1/2   023   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--MORPHOLOGICAL STRUCTURES OF MEDIUM PRESSURE POLYETHYLENE ARISING
DIRECTLY DURING POLYMERIZATION -U-
AUTHOR-(04)-EMIROVA, I.V., YERMAKOV, YU.I., NEVYANTSEV, I.A., RATNER, I.D.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN, SER. B 1970, 12(1), 23-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYETHYLENE, POLYMERIZATION, POLYMER STRUCTURE, ELECTRON
MICROSCOPY, CROMIUM OXIDE, CRYSTALLINE POLYMER, SPHERULITE, MOLECULAR
WEIGHT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0925   STEP NO--UR/0460/70/012/001/0023/0024

CIRC ACCESSION NO--AP0055623
                        UNCLASSIFIED

2/2   023
CIRC ACCESSION NO--AP0055623
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON MICROSCOPY OF MODERATE
PRESSURE POLYETHYLENE (I) OBTAINED BY THE POLYMMN. OVER CRO SUB3 ON
SILICA GEL OR ALUMINOSILICATE SUPPORTS IN GAS PHASE, LIQ. PHASE, OR IN A
SOLVENT SHOWED THAT THE CRYST. FORM IS GOVERNED PREDOMINANTLY BY THE
MOL. WT. OF I. IN THE GAS PHASE SMALL SPHERULITES OR LENTICULAR
CRYSTALS, IN SOLNS. SPHERULITES, AND IN THE LIQ. PHASE LARGE NEEDLE
SHAPED CRYSTALS WERE OBTAINED.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

1/2   013

TITLE--MECHANISM OF THE THERMAL DECOMPOSITION OF OXALATES -U-

AUTHOR-(04)-BOLDYREV, V.V., NEVYANTSEV, I.S., MIKHAYLOV, YU.I.,
KHAIRETDINOV, E.F.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 367-73

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DECOMPOSITION, OXALATE, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/005 STEP NO--UR/0195/70/011/002/0367/0373

CIRC ACCESSION NO--AP0140290

UNCLASSIFIED

CIRC ACCESSION NO--AP0140290

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISCUSSION OF THE PUBLISHED
HYPOTHETICAL MECHANISMS OF THERMAL DECOMPN. OF OXALATES LEADS TO THE
CONCLUSION THAT CLEAVAGE OF C-C BOND OF C SUB2 O SUB4 PRIME2NEGATIVE IS
THE PRIMARY STEP IN THE DECOMPN.   FACILITY: INST. KHIM. KINET.
GORENIYA, NOVOSIBIRSK, USSR.

UNCLASSIFIED

NEV'YANTSEVA, R.R.

STPPS 69208
6-73

VII-1b. TWINS IN ZINC OXIDE CRYSTALS

A theoretical and experimental study was made of twins of zinc oxide crystals grown by the method of vapor phase hydrolysis of zinc chloride. The expected ideal forms corresponding to the derived twinning laws are plotted. The penetration twins 6/m'mm.6m'm', 2'mm' and 2' and the contact twins 6/mm'm (0001) for the 6/m'mm 1mm, 6·2'2'(0001) for the 6·2'2' 1mm, 2'mm'(0·10) for the 2'mm', 1mm, 2' (the [010]·zone) for the 2' and m'(010) for the m'1mm were found and described.

A study was made of some morphological characteristics of the investigated twins. The effect of the growth conditions on the nucleation and growth of certain twinning forms was investigated.

The symmetry, morphology, and internal structure of the twinning of dendritic zinc oxide crystals were described. It was found that the zinc oxide dendrites are contact twins 6/m'm·contact plane (0001) but they have visible symmetry 2'1mm', or m depending on the number of twinning planes since they develop in one of six directions [10l0].

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NEV'YANTSEVA, R.R.

II-13. THERMODYNAMIC ANALYSIS OF THE GROWTH PROCESSES OF ZINCITE CRYSTALS

Using a computer, a thermodynamic analysis was made of the $ZnCl_2-H_2O-C-H_2$ system. The equilibrium partial pressures of the components and the limiting yields of ZnO in the process of hydrodynamic oxidation of zinc chloride were calculated.

- 22 -

USSR   UDC 539.14+539.143

NEVZGLYADOV, V. G.

"Theory of a Body of Homogeneous Deformation and Its Application to the Atomic Nucleus"

Teoriya tela odnorodnoy deformatsii i yeye primeneniye k atomnomu yadru (cf. English above), Vladivostok, Far Eastern University, 1970, 257 pp, ill., 80 k (from RZh-Fizika, No 3, Mar 71, Abstract No 3V41)

Translation: The book is based on material of a lecture course given by the author at the Far Eastern University. The classical (i.e., nonquantum) mechanical theory of a body of homogeneous deformation is developed as a mechanical system with 12 degrees of freedom: 3 translational, 3 rotational, and 6 deformation. This theory is applied to the atomic nucleus. Its relationship with the Bohr-Mottelson theory of collective motions in the nucleus is discussed. The theory is applied to an examination of the Coulomb excitation of nuclei. Formulas and tables are given for the energy and angular momentum of excited nuclei. It is also emphasized that the proposed theory explains the rotational spectra of even-even nuclei. E. Ye. Sapershteyn.

1/1

USSR   UDC 591.152:612.8.015

BRUMBERG, V. A., GAZENKO, O. G., Corresponding Member of the USSR Academy of
Sciences, DEMIN, N. N., MALKIN, V. B., NEVZMER, L. Z., Physiology Institute
imeni I. P. Pavlov of the USSR Academy of Sciences, Leningrad

"Topochemical Differences in the DNA Content in the Motoneurons of the Spinal
Cord in the Case of Hypoxia and Hypokinesia"

Abstract: The reactions of the motoneurons of the cervical and lumbar enlarge-
ments of the spinal cord, that is, neurons which are similar morphologically
and with respect to the neuromediator participating in their functional activity
but different with respect to the group of muscles innervated by them, to hypoxia
and hypokinesia were compared. A highly important fact in the experiments is
that the motoneurons of the cervical enlargement innervate the diaphragm and
the musculus intercostalis which play a significant role in the regulation of
the respiration. Hyperventilation during hypoxia and some reduction in venti-
lation during hypokinesia essentially distinguish these two states. The
experiment was performed on mature white male rats weighing 100± 20 grams
divided into four groups: 1) one group in a pressure chamber at an "altitude"
of 3,000 meters initially and then daily for 7 days raised by 500 to 1,000
meters and then held for 14 days at an "altitude" of 7,000 meters with daily
1/2

USSR

exposure for 6 hours under rarefied atmospheric conditions; 2) a second group subjected to prolonged forced hypokinesis by placing them for 20 days in small pencil-box cells significantly limiting the possible movements; 3) a third group subjected to the combined effect of hypoxia and hypokinesis for which the animals enclosed in the pen-box cells were placed in the pressure chamber and held under the same hypoxia conditions as the rats in the first group. There was a fourth control group. The decapitation and preparation procedures are described, and data are tabulated on the concentration of cytoplasmic DNA, the volume of cytoplasm and the absolute amount of cytoplasmic DNA in the motoneurons of the anterior horns of the cervical and lumbar enlargements of the spinal column in the presence of hypoxia and hypokinesis. The data indicate different natures of the hypoxic and hypokinetic forms of stress. Hypoxia affects primarily the group of motoneurons which innervates the respiratory musculature, and hypokinesis, and musculature innervating the lower extremities. Neither effect changes the amount of DNA in the neurons of the first group but they both have a similar effect (an increase) on the amount of DNA in the neurons of the second group. An explanation of the possible mechanism of these effects is given.
2/2

USSR   UDC 535

SECHKAREV, A. V., NIKOLAYENKO, P. T., ARTAMONOV, A.A., NEVZOROV, B. P.

"Distribution of Intensity in the Scattering Spectrum of the Light of Organic
Liquids and Crystals in the Neighborhood of the Rayleigh Line"

Translation: A theoretical treatment of the intramolecular scattering spectrum
of liquids and crystals in the neighborhood of the Rayleigh line is given. It is
shown that close to the points of phase transformations there should exist a con-
tinuous solid-liquid transition of the intramolecular scattering spectrum. Formu-
las are obtained describing the intensity as a function of the frequency in the
spectrum of intramolecular oscillations of liquids consisting of anisotropic
molecules. The distribution of intensity in the intramolecular scattering spec-
trum was studied in the region 15-200 cm^{-1} for benzene, piridene, n-dichloroben-
zene, toluene, nitrobenzene, naphthalene, cyclohexane, cyclohexanol, $NaNO_3$, and
$KNO3$ over a wide temperature interval covering the liquid and solid phases. A
continuous transition was observed from the discrete spectrum of a crystal to the
continuous spectrum of a liquid where the maximums produced by rotational oscilla-
tions of the molecules disappear under orientation melting. The spectra are given.
46 ref. E. V. B.

1/1

UDC 535.435.43

USSR

SECHKAREV, A. V., ARTAMONOV, A. A., NEVZOROV, B. P.,
NIKOLAYENKO, P. T., PROTASOV, N. M.

"Study of the Intermolecular Dynamics of Condensed States of
Matter by the Vibrational Spectroscopy Method. III. Experi-
mental Investigation of the Temperature-Phase Relationship of
the Intermolecular Dispersion Spectra of Some Organic Compounds"

Tomsk, Izvestiya: Fizika, No 5, 1970, pp 7-12

Abstract: Results of research on intensity distribution in the
intermolecular dispersion spectrum are presented for a broad
temperature range. The authors established the fact of con-
tinuous transition of the discrete spectrum (solid phase) into
the continuous spectrum (liquid phase) as well as the presence
of maxima in the intermolecular spectrum of some classes of
fluids, the redistribution of intensities with temperature, and
other rules governing the behavior which may, with sufficient
basis, be considered general for substances with different types
of intermolecular bond. Theoretical consideration with account
taken of the degree of molecule-vibration noncoherence made it
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SECHKAREV, A. V., et al, _Izvestiya:_ Fizika, No 5, 1970, pp 7-12

possible to provide a qualitative, and, in a number of cases,
quantitative interpretation of these rules and to define a
series of molecular parameters for a whole group of substances.

2/2

1/2   008   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--INTENSIFIED PREPARATION OF WHITE ENAMELS IN BEAD MILLS -U-

AUTHOR-(05)-ZAKHARYCHEV, V.P., IOFFE, G.S., NEVZOROV, E.N., MIRONOV, B.V.,
 YERMILOV, P.I.
COUNTRY OF INFO--USSR

SOURCE--LAKOKRASOCH. MATER. IKH. PRIMEN. 1970 (1) 74

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--INDUSTRIAL PRODUCTION, ENAMEL, TITANIUM OXIDE, VARNISH,
 UREA/(U)MCH181 ENAMEL, (U)MCHO25 VARNISH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0546   STEP NO--UR/0303/70/000/001/0074/0074

CIRC ACCESSION NO--AP0107151
                              UNCLASSIFIED

2/2   008
CIRC ACCESSION NO--AP0107151
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A RHEOL. METHOD WAS DEVELOPED FOR THE DETN. OF THE OPTIMUM TIO SUB2-ALKYD UREA MCH025 VARNISH RATIO DURING THE PRODUCTION OF MCH181 ENAMEL (I) IN BEAD MILLS. THE OUTPUT OF THE BEAD MILLS INCREASED BY A FACTOR OF 2.23 WHEN THE OLDER FORMULATION WAS REPLACED BY THE I FORMULATION DEVELOPED FROM RHEOL. DATA.

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USSR

NEVZOROV, V. B.

"Joint Distributions of Random Quantities Related to Fluctuations of a Stable Process"

Teoriya Veroyatnostey i Eye Primeneniya [Theory of Probabilities and its Applications], 1973, Vol 18, No 1, pp 164-172 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V60, by the author).

Translation: Suppose $\xi(t)$, $t \geq 0$, $(\xi(0) = 0)$ is a stable process, continuous to the right, with characteristic function

$$M \exp \{i\lambda\xi(t)\} = \exp\left\{i\left[-C|\lambda|^\alpha\left(1 + i\beta \frac{\xi}{|\lambda|} \operatorname{tg} \frac{\pi\alpha}{2}\right)\right]\right\},$$

where $C > 0$, $0 < \alpha \leq 2$ and $\beta = 0$, if $\alpha = 1$, $|\beta| < 1$, if $\alpha < 1$, and $|\beta| \leq 1$, if $1 < \alpha \leq 2$. We represent

$$\bar{\xi}(t) = \sup_{0 < u < t} \xi(u), \quad T(t) = \inf\{u : \bar{\xi}(u) = \bar{\xi}(t), \ 0 < u < t\}.$$

This work finds an explicit form for the joint distribution $\bar{\xi}(t)$, $T(t)$, and $\bar{\xi}(t) - \xi(t)$.

USSR

ARAK, T. V. and NEVZOROV, V. B.

"Certain Estimates for the Maximum of Sequential Sums of Independent Random Quantities"

Teoriya Veroyatnostey i yeye Primeneniya   [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 402-405 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V30)

Translation: Suppose $S_n = \sum_{k=1}^{n} X_k, \; \bar{S}_n = \max_{1 < k < n} S_k; \; B_n^2 = \sum_{k=1}^{n} DX_k,$

$$G(x) = \begin{cases} \sqrt{\dfrac{2}{\pi}} \displaystyle\int_0^x e^{-t^2/2}\,dt & (x > 0) \\ 0 & (x < 0) \end{cases},$$

$$L_{n,p} = \frac{\sum_{k=1}^{n} E|X_k|^p}{B_n^p} \quad (p > 2).$$

This work constructs a sequence of independent symmetrical random quantities $\{X_n\}$, for which the relationship

$$\sup_x | P\{\bar{S}_n < xB_n\} - G(x) | = o\left(L_{n,p}^{1/p}\right)$$

is not fulfilled.   Author's view

1 / 1   - 2 --

USSR

NEVZOROV, V. B.

"On Some Estimates for Distribution of the Maximum of Sequential Sums"

Translation: The author considers a sequence of independent symmetric random quantities $X_1, X_2 \ldots$ Let $S_k = \sum_{j=1}^{k} X_j \; (k = 1, 2, \ldots)$; $\bar{S}_n = \max S_k$, $B_n^2 = D(S_n)$;

$L_{a,1} = B_n^{-3} \sum_{k=1}^{n} E |X_k|^3$ is a Lyapunov fraction; $G(x) = \sqrt{\frac{2}{\pi}} \int_0^x e^{-\frac{t^2}{2}} \, dt$ if $x \geq 0$, and

$G(x) = 0$ if $x < 0$. Uniform and nonuniform estimates are obtained which are not improved with respect to n in the case of various fairly strong limitations with respect to the random quantities $X_1, X_2 \ldots$ In particular, it

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USSR

NEVZOROV, V. B., Teoriya veroyatnostey i mat. stat. Mezhved. nauch. sb., 1971, vyp. 5, pp 88-97

is shown that if $X_1, X_2, \ldots$ are independent symmetric random quantities with continuous densities $p_1(x), p_2(x), \ldots$ and if there exist positive constants α and A such that in the region $x \geqslant A$ the functions $g_k(x) = e^{\alpha x} p_k(x)$ $(k = 1, 2, \ldots)$ do not increase, then for $x \geqslant 0$ the inequality

$$|P(\bar{S}_n < x B_n) - G(x)| < c_1 \frac{e^{-\frac{x^2}{2}}}{B_n} + c_2 \frac{L_{n,1}}{1+x^3}$$

is satisfied. Author's abstract.

2/2

USSR   UDC 519.214

NEVZOROV, V. B.

"The Convergence of the Distributions of the Maximum of Successive Sums of
Independent, Symmetrical Random Quantities to the Limit Rule"

Teoriya Veroyatnostey i Mat. Statist. Mezhved. Nauch. Sh., [Theory of Probabili-
ties and Mathematical Statistics. Indepartmental Scientific Collection], 1970,
No 3, pp 105-116, (Translated from Referativnyy Zhurnal Kibernetika, No. 5,
1971, Abstract No. 5V21 by the author).

Translation: A sequence of independent symmetrical random quantities
$\{X_k\}$ (k = 1, 2,...) with 0 mathematical expectation and finite positive

dispersions is studied.
    Suppose

$$S_k = \sum_{j=1}^{k} X_j \ (k=1,2,\ldots); \quad \bar{S}_n = \max_{1 \leqslant k \leqslant n} S_k; \quad B_n^2 =$$

$$= \sum_{k=1}^{n} E X_k^2, \quad L_{n,p} = \frac{\sum_{j=1}^{n} E |x_j|^p}{B_n^p}$$

is the Lyapunov fraction of order p,

1/2

NEVZOROV, V. B., Teoriya Veroyatnostey i Mat. Statist. Mezhved. Nauch. Sb.,
1970, No 3, pp 105-116.

$$G(x)=\begin{cases} \sqrt{\dfrac{2}{\pi}}\displaystyle\int_0^x e^{-\frac{t^2}{2}}, & \text{if } x>0, \\ 0 & \text{if } x<0. \end{cases}$$

It is proven that: if $0 < E|x_j|^p < \infty$ for a certain $p > 2$ and all j,
then for any natural n

$$\sup_x \left| P\left(\frac{S_n}{B_n} < x\right) - G(x) \right| < C L_{n,p}^{\frac{1}{p}},$$

where C is an absolute constant. Under these conditions for any $2 > p \leq 3$,
natural n and any positive x, the inequality

$$\left| P\left(\frac{S_n}{B_n} < x\right) - G(x) \right| < \frac{\overline{C}\max\left\{ L_{n,p}^{\frac{1}{p}}; L_{n,p} \right\}}{1+x^p}$$

is correct with absolutely constant $\overline{C}$.

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UNCLASSIFIED   PROCESSING DATE---13NOV70

TITLE--AUTOMATIC MAINTENANCE OF A DEFINITE LEVEL OF ANESTHESIA -U-

AUTHOR-(03)-DARBINYAN, T.M., PERELMUTR, A.S., NEVZOROV, V.P.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, PP
61-67

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANESTHESIA, AUTOMATIC CONTROL SYSTEM, MEDICAL APPARATUS,
ELECTROENCEPHALOGRAPHY, BLOOD PRESSURE, HEART RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0625   STEP NO--UR/0481/70/000/002/0061/0067

CIRC ACCESSION NO--AP0108840
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0108840
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AUTOMATIC MAINTENANCE OF A
DEFINITE LEVEL OF ANESTHESIA IS EXPEDIENT TO CARRY OUT BY MEANS OF THE
ANESTHETIC CONCENTRATION IN THE BRONCHOALVEOLAR GAS OF THE PATIENT,
SINCE THIS INDEX MORE FULLY REFLECTS THE DEPTH OF ANESTHESIA AND
QUANTITATIVEL CHARACTERIZES THE VALUE OF THE MAIN EFFECT ON THE PATIENT
DURING ANESTHESIA. AUTOMATIC MAINTENANCE OF A DEFINITE CONCENTRATION OF
THE ANESTHETIC IN THE PATIENT'S BRONCHOALVEOLAR GAS ENSURES NOT ONLY A
STABLE SUPPLY OF THE ANESTHETIC TO THE PATIENT, BUT ALSO, IN ALL OTHER
CONDITICNS BEING EQUAL, LEADS TO LESSER FLUCTUATIONS OF SUCH INDICES AS
FREQUENCY INTEGRATED ELECTROENCEPHALOGRAM, SYSTOLIC ARTERIAL PRESSURE
AND PULSE RATE WHICH, TO A CERTAIN MEASURE, MAY CHARACTERIZE THE
STABILITY OF THE PATIENT'S CONDITION DURING ANESTHESIA. IN ORDER TO
ENSURE RAPID CESSATICN OF ANESTHESIA IT IS EXPEDIENT TO EMPLOY AN
AUTOMATICALLY CHANGING RESPIRATORY CONTOUR OF THE ANESTHETIC APPARATUS,
EXCLUDING THE PASSAGE OF THE ANESTHETIC AGENT INTO THE ORGANISM.
FACILITY: LABORATORIYA ANESTEZIOLOGII REANIMATOLOGII INSTITUTA KHIRURG.
IM. A.V. VISHNEVSKOGO AMN SSSR.   FACILITY: OTDEL NARKOZNOY I
REANIMATSIONNOY TEKHNIKI VSESOYUZNOGO N I INST. MED. PRIBORO. MOSCOW.

UNCLASSIFIED

USSR

MURADOV, K. N., NEVZOROV, V. V., Institute of Cultivation, Ministry of
Agriculture of the Turkmen SSR

"Concerning a Procedure for Computing the Statistical Charac-
teristics of Random Processes on a Digital Computer"

Abstract: A computational algorithm is developed for evaluating statistical
characteristics as a basis for digital computer processing of certain ran-
dom processes which may be categorized as adaptive, having the property of
ergodicity. The algorithm is comprised of the following sequence of oper-
ations: 1. calculating the mean value of the process; 2. filtering the
process by centering relative to the instantaneous average; 3. calculating
the variance of the process; 4. calculating the mean square deviation;
5. calculating the coefficient of variation; 6. calculating the normed
autocorrelation function; 7. calculating the spectral density; 8. calcu-
lating the mutual correlation function; 9. calculating the mutual spectral
density. Analysis of oscillograms shows that the method is applicable to
the study of various mobile and stationary machines.
1/1

USSR

NEVZOROVA, E. G., GOL'MYAKOV, B. P., RADOVSKIY, I. Z., GEL'D, P. V.

"Magnetic Susceptibility of Nickel and Iron at High Temperatures"

Abstract: The temperature dependence of magnetic susceptibility of nickel and iron was studied by the Faraday method using a pendulum balance and a magnetic field of up to 12 koe. Electrolytic nickel (99.99% Ni) and iron of three types, carbonyl, iron type V-3, the same iron following zone purification and the same iron twice purified in an atmosphere of helium, were used. Below the melting point, the function χ^{-1} (T) is almost linear in nature. No significant change in magnetic susceptibility was found at the melting point of nickel. The characteristics of solid and liquid metal produced by calculation with the Curie-Weiss formulas are presented. The magnetic susceptibility of iron changes in a complex manner with temperature, and a graph is presented. Susceptibility changes according to the same curves during heating and during cooling. A slight anomaly in the temperature dependence of magnetic susceptibility of liquid iron is noted in all specimens in the 1,620-1,700°C temperature range.

1/1

USSR   UDC 615.214.03:616.618

NEVZOROVA, T. A.

Psikhotropnyye sredstva v somaticheskoy meditsine (Psychotropic Drugs in
Somatic Medicine), Moscow, 1971, 156 p

Translation:
Contents

1/3

USSR

NEVZOROVA, T. A., Psychotropic Drugs in Somatic Medicine, Moscow, 1971, 156 p

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USSR

NEVZOROVA, T. A., Psychotropic Drugs in Somatic Medicine, Moscow, 1971, 156 p

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UDC 616.61-089.843

USSR

YARMOLINSKIY, I. S., and NEVZOROVA, T. N., Scientific Research Institute of Clinical and Experimental Surgery, Ministry of Health USSR

"Long-Term Results of Cadaver Kidney Transplant Operations"

Leningrad, Vestnik Khirurgii imeni I. I. Grekov, No 10, 1971, pp 96-101

Abstract: Follow-up of 24 persons who received cadaver kidney transplants for 4½ years showed that the transplant was functioning adequately in 19 (4 died as a result of rejection or pyelonephritis, 1 survived despite rejection). Clearance of endogenous creatinine, water-electrolyte balance, concentration function, hematopoiesis, arterial pressure, and renographic data in most of the patients were the same as in persons with a single healthy kidney. However, the immunological reactions even in the most favorable cases could not be completely halted and the regenerative and compensatory processes under conditions of immunodepressive therapy were sluggish, resulting in some pathological changes in the transplant. Among the frequent late postoperative complications were proteinuria, pyelonephritis, rejection crises, hepatitis, infectious diseases, and diabetes. Hence individuals receiving cadaver kidney transplants must be kept under constant observation in a specialized facility.

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USSR

UDC 576.858.098.396.332.083.1

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEN'SHIKH, L. K., ZAYTSEVA
O. V., YRYVAYEV, L. V., ZHDANOV, V. M., and NEYFAKH, S. A., Institute of
Experimental Medicine, USSR Academy of Medical Sciences, Leningrad, Institute
of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report I:
Penetration of Viral RNA Into Mitochondria and Its Effect on Mitochondrial
Synthesis"

Abstract: Isolated rat liver mitochondria were incubated in a medium pro-
moting oxidative phosphorylation and protein and RNA biosynthesis. H^3-RNA
of Venezuelan equine encephalitis virus was added. It was found that after
incubation, approximately 72% of the introduced radio-activity was in the
mitochondria. It was concluded that the emergence of H^3-RNA of the cirus in
the mitochondria is not due to adsorption of RNA on the surface of these
structures; instead, the cell fluid and actinomycin D stimulated RNA pene-
tration. The distribution of viral RNA in mitochondrial subfractions was
studied. Approximately 64% of the labeled RNA was found in the internal
membrane and matrix fraction. Inhibition of RNA synthesis of mitochondrial
protein was observed. The fraction of actinomycin-resistant protein synthesis
1/2

USSR

GAYTSKHOKI, V. S., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

increases sharply. It was concluded that there maybe a link between the restructuring of mitochondrial ribosomes and the synthesis of mitochondrial proteins and virus-specific syntheses.

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USSR

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEN'SHIKH, L. K., ZAYTSEVA, O. V., URYVAYEV, L. V., ZHDANOV, V. M., Member of the Academy of Medical Sciences USSR, and NEYFAKH, S. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, and Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Reconstruction of the Autonomous Genetic and Protein-Synthesizing System from Virus RNA and Isolated Mitochondria"

Abstract: In experiments performed on isolated mitochondria of rat liver incubated with H^3-RNA obtained from purified Venezuelan equine encephalo-myelitis virus, it was demonstrated that the virus RNA enters the mitochondria and is incorporated into their autonomous system of protein synthesis, for which the mitochondria supply the necessary energy. Transcription of the mitochondrial DNA is inhibited, the virus RNA is replicated, and thus virus proteins are synthesized.

1/1

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UDC 576.858.098.396.332.083.1

USSR

YERSHOV, F. I., GAYSKHOKI, V. S., KISELEV, O. I., ZAYTSEVA, O. V., MENSHIKH, L. K., URYVAYEV, L. V., URYVAKH, S. A., and ZBDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow, Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report II: Replication of Viral RNA in Mitochondria and Characteristics of the Final Product"

Abstract: It was of interest to establish whether isolated mitochondria could replicate virus RNA, that is whether "bacterial" ribosomes could synthesize the functionally active RNA polymerase, and whether the final product of virus-specific synthesis has infectious properties. H3-RNA isolated from purified Venezuelan equine encephalitis virus was used to study the function of virus RNA emerging in mitochondria. Contact between mitochondria and RNA was 30 minutes at 0°C. After this, the mitochondria were incubated under aerobic conditions for 2 hours at 37°C. After termination of the incubation period, RNA was separated by the phenol deproteinizing method and analyzed in a sucrose density gradient (5-30%). Peaks were found in the 40S and 26-20S region. The 40S area corresponds to RNA-ase and the 26-20S area to ribonu-
1/2

USSR"

YERSHOV, F. I., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 274-280

clease-resistant material, the replicative form of viral RNA. The data obtained indicate that the predominant portion of viral RNA appearing in mitochondria does not participate in the replication process and its dehydration products show up in the top zone of the gradient. No radioactive products of mito- chondrial RNA translation were detected, which can be explained by the effective concentration of actinomycin D. As the newly synthesized RNA forms complexes with proteins, infectious activity increases. The complexes formed have subcellular structures and are separated from infected cells.

2/2

- 20 -

UNCLASSIFIED

PROCESSING DATE--20NOV70

1/2   021
TITLE--RESPIRATORY ACTIVITY OF ISOLATED NUCLEAR MEMBRANES AND NUCLEI OF
RAT LIVER -U-
AUTHOR-(05)-KUZMINA, S.N., MONAKHOV, N.K., GAYTSKHOKI, V.S., NEYFAKH,
S.A., ZBARSKIY, I.B.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 215-17

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATION, RAT, LIVER, DEHYDROGENASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0020/70/191/001/0215/0217

PROXY REEL/FRAME--3005/1671

NO--AT0133576

UNCLASSIFIED   PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0133576
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE RESPIRATORY ACTIVITY OF
ISOLATED NUCLEI OF RAT LIVER CELLS WAS TABULATED WITH AND WITHOUT ADDED
CYTOCHROME C, NADH, AND ADP AS WELL AS GLUTAMATE, SUCCINATE, AND CN
PRIME NEGATIVE.   THE RESULTS SHOWED THAT OXIDATIVE SYSTEMS ARE PRESENT
IN THE CELLS OF LIVER STRUCTURE AND SPECIFICALLY IN THE NUCLEI OF THESE
CELLS SO THAT NUCLEAR OXIDATION PROCEEDS IN VARIOUS CELLS AND IS NOT
LIMITED TO LYMPHOIDAL TISSUES ONLY.   THE NUCLEAR MEMBRANE AND NUCLEI PER
SE ACTIVELY USE NADH AS THE OXIDN. SUBSTRATE; A LESS INTENSIVE
STIMULATION OF RESPIRATION BY NADPH AND A CONSIDERABLE INCREASE OF THIS
EFFECT BY ADDED NAD WERE NOTED.   THIS INDICATES THAT NADPH IS OXIDIZED
MAINLY BY A TRANSHYDROGENASE AND SUBSEQUENT DEHYDROGENATION OF NADH.
THE ABSENCE OF A PRONOUNCED EFFECT OF ADDED SUCCINATE ON O SUB2 UPTAKE
AGREED WITH THE LACK OF SUCCINATE DEHYDROGENASE IN THE NUCLEAR
STRUCTURES OF THESE CELLS.   ADDED ADP DID NOT STIMULATE RESPIRATION.
HENCE EXOGENOUS ADP EVIDENTLY DID NOT PLAY A ROLE AS PHOSPHATE ACCEPTOR
IN THESE SYSTEMS.   FACILITY: INST. BIOL. RAZV., MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--11SEP70

1/2   012
TITLE--CONDENSATION OF GASOLINE VAPOR IN THE PRESENCE OF WATER VAPOR -U-

AUTHOR--YUSUFOVA, V.D., NEYKDUKHT, N.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2), 18-20

DATE PUBLISHED-------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--CHEMICAL SEPERATION, GASOLINE, WATER, VAPOR CONDENSATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/2060   STEP NO--UR/0314/70/000/002/0018/0020

CIRC ACCESSION NO--AP0109992
                    UNCLASSIFIED

UNCLASSIFIED

2/2   012
CIRC ACCESSION NO--AP0109992
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE STUDY WAS CONDUCTED IN A
HORIZONTAL FLOW CONDENSER AT VAPOR PRESSURES OF 1.2-1.5 ATM. TEMPS.
90-110DEGREES, AND FLOWS LESS THAN OR EQUAL TO 15 M-SEC.   CONDENSING
HEAT TRANSFER COEFFS. (ALPHA) WERE DETD. AS FUNCTIONS OF A HEAT FLOW
(Q), TEMP. DIFFERENCE (DELTAT) BETWEEN STEAM AND WALL, PERCENT WATER
VAPOR IN THE STEAM, AND CONDENSER LENGTH. VARIATIONS IN ALPHA DUE TO
TUBE MATERIAL, TUBE FOULING, SUPERCOOLING, HYDROCARBON COMPN. AND D.,
AND INTERMEDIATE REMOVAL OF CONDENSED PRODUCTS WERE EXAMD. IN 20-25
TIMES 2000-6000 MM TUBES AT Q EQUALS (0.5-3.0) TIMES 10 PRIME4 KCAL-M
PRIME2 HR.   AN OVERALL EQUATION WAS DEVELOPED WHICH YIELDS ALPHA WITHIN
PLUS OR MINUS 20PERCENT OF EXPTL. FOR GASOLINE VAPORS CONTG. LESS THAN
OR EQUAL TO 10PERCENT H SUB2 O, DELTAT EQUALS 10-50DEGREES, TUBE LENGTH
TO DIAM. RATIOS EQUALS 100-300, AND Q EQUALS 5000-30,000 KCAL-M PRIME2
HR.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

1/2   017
TITLE--OXYGEN THERAPY AND ENZYMATIC ACTIVITY IN OLD AGED PERSONS -U-

AUTHOR-(02)-ARZHANIKH, N.G., NEYKO, YE.M.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 95-98

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRANSFERRIN, OXYGEN THERAPY, ENZYME ACTIVITY, GERIATRICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1688   STEP NO--UR/0475/70/000/004/0095/0098

CIRC ACCESSION NO--AP0129058
                          UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--

CIRC ACCESSION NO--AP0129058

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CERULOPLASMIN AND TRANSFERIN
INDICES HAVE BEEN STUDIED IN 45 OLD AGED PERSONS AND IN A CONTROL GROUP
OF MIDDLE AND YOUNG AGED PERSONS. RESULTS INDICATE AN INCREASE OF
CERULOPLASMIN WITH AGE. ENTERAL OXYGEN THERAPY IN OLD AGED PERSONS,
STIMULATING METABOLISM, IMPROVED TO SOME EXTENT CERULOPLASMIN
METABOLISM.   INDICES OF BLOOD PLASMA TRANSFERIN STAURATION CHANGE
LITTLE WITH AGE AND DO NOT SIGNIFICANTLY ALTER FOLLOWING ENTERAL OXYGEN
THERAPY.   FACILITY: IVANO-FRANKOVSKOGO MEITSINSKOGO INSTITUTA.

UNCLASSIFIED

TITLE--CHANGES IN THE AMOUNT OF ERYTHROCYTES AND THEIR FUNCTION IN ACUTE
PERITONITIS -U-

UNCLASSIFIED   PROCESSING DATE--09OCT70

AUTHOR-(04)-RUTENBERG, O.L., NEYKO, YE.M., KRYZHANOVSKIY, N.A.,
KRYZHANOVSKIY, G.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 2 PP
57-59

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ERYTHROCYTE, RESPIRATION, BLOOD CHEMISTRY, DOG, PERITONEUM,
HEMOGLOBIN, HEMATOCRIT, HYPOXIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1731

STEP NO--UR/0589/70/104/002/0057/0059

CIRC ACCESSION NO--AP0101784

UNCLASSIFIED

CIRC ACCESSION NO--AP0101784

UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DYNAMICS OF CHANGES IN A QUANTITATIVE CORRELATION OF VARIOUS VOLUMES OF ERYTHROCYTES WAS OBSERVED, SIMULTANEOUSLY THE DEGREE OF DISTRUBANCES IN RESPIRATORY PROPERTIES OF BLOOD WAS STUDIED ON THE MODEL OF ACUTE PERITONITIS IN DOGS. THESE STUDIES WERE MADE WITH THE AID OF A CONDUCTOMETRIC METHOD OF DRAWING THE ERYTHROCYTES VOLUME DISTRIBUTION CURVES, AND ALSO USING THE VAN SLAKE APPARATUS WITH AN ION MAGNETIC MIXER FOR QUANTITATIVE DETERMINATION OF BLOOD GASES AND STUDYING THE OXYHEMOGLOBIN DISSOCIATION PROCESS. IN ADDITION, HEMOGLOBIN AND HEMATOCRIT INDICES WERE RECORDED. THESE STUDIES HAVE DEMONSTRATED THAT IN ACUTE PERITONITIS ALONG WITH INTENSIFICATION OF THE INFLAMMATORY PROCESS RELATIVE POLYCYTHEMIA, ANICYTOSIS WITH A PREDOMINANCE OF ENLARGED FORMS OF ERYTHROCYTES ARE INCREASED, AND ALSO DISTURBANCES IN THE BLOOD RESPIRATORY FUNCTION WITH TYPICAL SIGNS OF CIRCULATORY HYPOXIA ARE ENHANCED.

UNCLASSIFIED

1/2   019
UNCLASSIFIED
TITLE--THE CONTENT OF SIALIC ACID IN THE BLOOD SERUM OF PATIENTS WITH   PROCESSING DATE--27NOV70
   ACUTE CHOLECYSTITIS -U-
AUTHOR-(03)-KHOKHLOV, N.F., NEYKOV, G.N., KAPARULINA, L.T.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 4, PP 79-82

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER DISEASE, BLOOD SERUM, ORGANIC SERUM, LEUKOCYTOSIS,
   GALLBLADDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0736   STEP NO--UR/0497/70/048/004/0079/0082
CIRC ACCESSION NO--AP0131331
                    UNCLASSIFIED

2/2   019
CIRC ACCESSION NO--AP0131331   UNCLASSIFIED   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CARRIED OUT DYNAMIC
STUDIES OF THE CONTENT OF SIALIC ACID IN THE BLOOD SERUM IN ACUTE
CHOLECYSTITIS: BEFORE THE OPERATION, IN THE POSTOPERATIVE PERIOD AND AT
DIFFERENT STAGES OF CONSERVATIVE THERAPY IN 47 PATIENTS. IT WAS FOUND
THAT THE BLOOD SERUM LEVEL OF SIALIC ACID MORE DISTINCTLY THAN
LEUKOCYTOSIS REFLECTS THE DYNAMICS OF THE INFLAMMATORY PROCESS AND THE
DEGREE OF DESTRUCTIVE CHANGES IN THE WALL OF THE GALLBLADDER. IN
POSTOPERATIVE COMPLICATION THE LEVEL OF SIALIC ACID RISES SHARPLY.
ANALOGOUS CHANGES WERE ALSO OBSERVED IN PATIENTS TREATED CONSERVATIVELY.
THERE WAS ALSO ESTABLISHED A RELATIONSHIP BETWEEN THE LEVEL OF SIALIC
ACID, THE DURATION OF THE DISEASE AND FUNCTIONAL STATE OF THE LIVER.
THE AUTHORS RECOMMEND THE SIALIC ACID TEST AS AN ADDITIONAL ONE IN ACUTE
CHOLECYSTITIS.   FACILITY: KLINIKA GOSPITAL'NOY KHIRURGII
TSELINOGRADSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

1/2   007
UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--CORRELATION BETWEEN AVAILABLE PHOSPHATES DETERMINED BY VARIOUS
METHODS AND THE FRACTIONAL COMPOSITION OF INORGANIC PHOSPHATES -U-
AUTHOR-(03)-GURBUCHEV, I., NEYKOVABOCHEVA, YE., URUMOVA, A.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (2), 23-9

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE, CHEMISTRY

TOPIC TAGS--PHOSPHATE, SOIL CHEMISTRY, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1628

STEP NO--UR/0485/70/000/002/0023/0029

CIRC ACCESSION NO--AP0127119

UNCLASSIFIED

CIRC ACCESSION NO--AP0127119   UNCLASSIFIED   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CORRELATION COEFF. BETWEEN THE
ACTIVE FRACTIONS OF INORG. PHOSPHATES ACCORDING TO CHANG AND JACKSON
(1957) AND THE CONTENTS OF 5 SOILS OF THE BULGARIAN TYPE IN EXCHANGEABLE
(MOBILE) PHOSPHATE WAS ESTABLISHED BY 7 DIFFERENT METHODS. NH SUB4 F
FRATIONATION IS A MOST SIGNIFICANT INDICATOR OF P RESERVES FOR PLANT
NUTRITION. THE METHOD OF OLSEN IS MOST APPROPRIATE FOR ESTG. THE MOBILE
P IN CARBONATE AS WELL AS IN OTHER SOILS ENRICHED IN P.
FACILITY: INST. POCHVOVED. IM. PUSHKAROVA, SOFIA, BULG.

UNCLASSIFIED

Public Health, Hygiene, and Sanitation

USSR

UDC 614.7:66

POPOV, T., BASMADZHIYEVA, K., KURCHATOVA, DAVIDKOVA, K., and NEYKOVSKA, I.
Scientific Research Hygiene Institute, Sofia

"Combined Effect of Chemical Agents That Pollute Air and Water Simultaneously"

Moscow, Gigiyena i Sanitariya, No 12, 1971, pp 77-79

Abstract: In a two-month experiment, rats were poisoned by simultaneous round-the-clock inhalation of the contact herbicide dinitroorthocresol (DNOC) at the maximum permissible level and by daily ingestion of doses twice the maximum permissible dose. The results of 32 tests (behavior, change in weight, blood inorganic phosphorus, content of sulfhydryl groups, RBC, WBC, hemoglobin, catalase, peroxidase, and cholinesterase activities, and so forth) failed to reveal any functional disturbances in the main organs and systems of the animals. This is attributed to the absence of changes in the balance of energy-rich phosphorus compounds and in the content of sulfhydryl groups. It would appear that brief exposure to DNOC, peroral at a concentration twice the maximum permissible dose and by inhalation at the maximum possible concentration, does not constitute a danger to human health.

1/1

USSR

KARELE, B. YA., KALNIN', S. V., GRINBERG, I. P., and NEYLAND, O. YA., Riga Polytechnical Institute

UDC 547.772'539.4

"Iodonium Derivatives of Heterocyclic Compounds. I. Phenyliodonium Salts and Betaines of Pyrazoles"

Abstract: A method was developed for the synthesis of phenyliodonium derivatives of pyrazoles. Reaction of pyrazole, 3,5-diphenylpyrazoles and 3,5-diemthylpyrazoles with phenyliodosoacetate in presence of p-toluene-sulfonic acid yields the tosylates of 4-phenyliodoniopyrazoles which upon treatment with alkali convert to 4-phenyliodoniopyrazole betaines. By means of exchange reactions the tosylates were converted to respective chlorides, bromides and iodides. Betaines reacted with hydrogen fluoride and hydrogen borofluoride to yield 4-phenyliodoniopyrazole fluorides and borofluorides. On the basis of electron absorption spectra the ionization constants of a series of phenyliodonium derivatives of pyrazoles have been calculated. 4-Phenyliodonium group increases the acidity of pyrazoles by 4.5-5 orders of magnitude.

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USSR

UDC 535.215.1

ALEKSANDROV, S.B., BALODE, D.R., BELKIND, A.I., NEYLAND, O.YA., RAYSKUMA, I.K., SILIN'SH, E.A., TAURE, L.F.

"Photoelectronic Properties And Energy Structure Of Transbisbindonilen"

V sb. Poluprovodniki i ikh primeneniye v elektrotekh. (Semiconductors And Their Application To Electrical Engineering--Collection Of Works), No 5, Riga, "Zinatne," 1971, pp 221-230 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A20)

Translation: The results are discussed of a study by the method of photoconductivity and photoelectronic emission of the properties of a thin film system of transbisbindonilen. Possible mechanisms are considered of photoproduction of charge carriers, and an energy scheme of a molecular crystal of transbisbindonilen is proposed. 8 ill. 10 ref.

1/1

USSR

UDC 547.665:547.564

NEYLAND, O. YA., ROMANOVSKIY, P. YA., Riga Polytechnical Institute,
Riga, Latvian Sovnarkhoz
"Synthesis of 2-(Hydroxyphenyl)-indandiones-1,3 and Some of Their
Properties"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya,
No 2, 1970, pp249-250

Abstract: Analog of 2-(hydroxyphenyl)-indandione-1,3 (OH-I) were
synthesized by demethylation of their methoxy derivatives using HI or
HBr in glacial acetic acid: o-OH-I m.p. 227°, m-OH-I m.p. 145°, and
p-OH-I m.p.172-174°. When treated with $FeCl_3$ in alcoholic solution,
these compounds dimerize.

1/1

USSR   UDC 547,447+547,233+547,821+541,651

NEYLAND, O. Ya., KALNIN', S. V., and BITE, Dz. V., Riga Polytechnic Institute, Riga

"Acid-Base and Tautomeric Equilibria of Some New Derivatives of 1,3-Indandione"

Abstract: The prototropic transformations of 1,3-indandione with onium substituents were studied. The betaine of 2-trimethylammanium-1,3-indandione (I, m. pt. 196-8°) was prepared by the action of Me_2SO_4 on 2-amino-1,3-indandione hexachlorostannate. By alkylating with Me_2SO_4 2-methylthio-1,3-indandione in a KOH solution, the betaine of 2-dimethylsulfonium-1,3-indandione (II; m. pt. 189-90°, lit. 190°) was obtained. The acidity and tautomeric equilibrium constants of I and II were determined and compared with those of 1,3-indandione and of 2-pyridinium, 2-methylthio, and 2-chloro-1,3-indandione (table). The constants based on measurements of protolysis in H_2O and EtOH characterized the C-acidity. Among onium substituents the greatest effect on the acidity was exerted by the SMe_2 group. The SMe group also exerted a considerable effect. The action of these two substituents can be explained by
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USSR

NEYLAND, O. Ya., et al, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya
Khimicheskaya, No 6, 1970, pp 739-740

the participation of unfilled d-orbitals of the S-atom in the delocalization
of the electron in the anion formed by the substituted compound.

2/2

NEYLAND   V. Ya.

Yermak, Yu. N. and V. Ya. Neyland. *The effect of viscosity upon shock wave detachment during flow around a cylinder by a hypersonic stream.* Uchenyye zapiski Tsentral'nogo aero-gidrodinamicheskogo institute, v. 2, no. 6, 1971, 41-47. (RZhMekh, 5/72, #5B315)

An investigation is made of the effect of viscosity and thermal conductivity upon detachment of the shock wave from the surface of a circular cylinder in a hypersonic stream of viscous gas, with vertical interaction of the boundary layer with the noviscous shock layer. It is shown that, in distinction from the case of vortical interaction on a sphere, viscosity and thermal conductivity exert a strong influence in this case upon detachment of the shock wave, since the greatest part of the shock-layer thickness consists of a region of slow viscous flow, lying near the surface of the body.

USSR

YERMAK, Yu. N., NEiLAND, V. Ya.

UDC: 533.6.011

"Effect of Viscosity on Departure of a Shock Wave in the Case of Hypersonic Flow Around a Cylinder"

Translation: The authors study the influence of viscosity and thermal con-ductivity on departure of a shock wave from the surface of a circular cylin-der in a hypersonic flow of viscous gas for the case of vortex interaction between the boundary layer and the inviscid shock layer. It is shown that in contrast to the case of vortex interaction on a sphere, the viscosity and thermal conductivity in the given case have a strong influence on the departure of the shock wave since the better part of the thickness of the shock layer is taken up by a region of slow viscous flow lying near the surface of the body. Resumé.

1/1

- 10 -

USSR

UDC 533.6.011

MIKHAYLOV, V. V., NEYLAND, V. YA., and SYCHEV, V. V.

"The Propagation of Disturbances in Viscous Hypersonic Streams"

Translation: The article deals with viscous hypersonic streams of a perfect gas on the basis of the theory of interaction of the boundary layer with an external nonviscous stream. It is shown that if such an interaction is not weak, disturbances caused by any change of the boundary conditions propagate upstream in all cases, all the way to the front edge of the body. From the mathematical point of view this is equivalent to nonuniqueness of expansion of the solution in the vicinity of a sharp front edge, and leads to the problem of finding proper solutions.

In the article an analysis of the solutions is conducted for cases of two-dimensional flow and a three-dimensional field beside a triangular plate with a zero angle of attack. The problem of the origination and development of separation of the boundary layer on a smooth surface is discussed. Eight references

1/1

USSR

UDC: 532.516.2

MATVEYEVA, N. S., NEYLAND, V. Ya.

"Intense Blowing on a Body of Finite Length in a Supersonic Flow"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamics Institute), 1970, 1, No 5, pp 13-22 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B713)

Translation: The method of asymptotic decompositions is used to study effects which arise in various regions of flow around a plate of finite length in the case of intense blowing of gas across a body in a supersonic streamline flow. It is shown that under certain conditions, the influence of perturbations on the trailing end of the body propagates to the forward end. Asymptotic representations are constructed for typical regions of flow on a plate or on a wedge for power and uniform distribution of the blowing velocity along the body. Ye. N. Bondarev.

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USSR

NEYLAND, V. YA., SYCHEV, V. V.

"Flow Theory in Stationary Cutoff Zones"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerodynamics Institute), 1970, Vol 1, No 1, pp 14-23 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11B744)

Translation: This article contains a study of the problem of determining the limiting state of a flow in the cutoff zones with a Reynolds number R → ∞. For simplicity, the plane stationary flow of a viscous incompressible liquid along the surface of a body with a notch (recess) is studied. Use of the classical results of Prandtl and Batchelor together with systematic application of the principle of combination of local asymptotic expansions in various regions of the flow permitted construction of the asymptotic picture of the flow field and complete determination of the form of its limiting state. Here, the results of a previous paper by the authors were used (see Izv. AN SSSR. Mekhan. Zhidkosti i Gaza (News of the USSR Academy of Sciences, Fluid and Gas Mechanics), 1966, No 4, pp 43-49, RZh-Mekhanika, 1967, 1B619). The ratio λ of the length of the solid boundary of the cutoff region to the length of the displacement 1/2

USSR

layer turns out to be an important parameter of the problem. Depending on the relation between λ and R, various forms of asymptotic flows are possible. An analysis of them is presented, and the methods of their calculation are discussed. A formula is obtained for determining the magnitude of the vorticity ω in the nonviscous part of the region of return currents. A simple approximate method is proposed for the calculations with small ω. The results obtained permit simple generalization to the case of different cutoff flows.

2/2

USSR

NEYLAND, V. YA. N

"Concerning the Asymptotic Theory of Two-Dimensional Steady Supersonic Flows with Separation Zones"

Moscow, Mekhanika Zhidkosti i Gaza, No 3, 1970, pp 22-32

Abstract: The structure of the limit state of laminar flow is investigated for the case of a two-dimensional steady supersonic flow with a zone of separation. An analysis is made of the limit form of solutions of the Navier-Stokes Equations when the Reynolds number R tends toward infinity, with employment of the principle of joining asymptotic expansions. Equations and boundary conditions which make possible a complete description of the flow pattern are presented. Numerical calculations of the distribution of pressure and the thermal fluxes are carried out for the region of attachment; the results of these calculations are compared with experimental data. A simple approximation method is proposed for calculating the internal flow in the separation region.

1/1

1/2   009   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--NEW TYPE OF ARYLIODOSO SALTS -U-

AUTHOR-(02)-NEYLANDS, O., KARELE, B.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 885-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IODINATED ORGANIC COMPOUND, ORGANIC SALT, CONDENSATION
REACTION, AMINE DERIVATIVE, BENZENE DERIVATIVE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2162   STEP NO--UR/0366/70/006/004/0885/0886

CIRC ACCESSION NO--AP0125745
                         UNCLASSIFIED

CIRC ACCESSICN NO--AP0125745
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF PHI(OAC) SUB2 WITH
 P-MEC SUB6 H SUB4 SO SUB3 H.H SUB2 O GAVE 82PERCENT PHI(OH)O SUB2 SC
 SUB6 H SUB4 ME-P (I). IN WATER I ICNIZES TO PHIOH PRIME POSITIVE OR
 PHI(OH) SUB2 H SUB3 O PRIME POSITIVE IONS. CONDENSATION OF I WITH
 ANISOLE GAVE (PHI PRIME POSITIVE C SUB6 H SUB4 OME-P)(P-MEC SUB6 H SUB4
 SO SUB2 PRIME NEGATIVE) SALT. I REACTS WITH DIMEDONE IMINE OR DIMEDONE
 ET ETHER TO GIVE PHENYL(1,(R,SUBSTITUTED),5,5,
 DIMETHYLCYCLOHEX,1,EN,3,ON,1,YL)IODONIUM TOSYLATES (R IS NH SUB2 OR
 ETO).   FACILITY: RIZH. POLITEKH. INST., RIGA, USSR.

UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE—30OCT70
TITLE—NITRATION OF DIHYDRORESORCINOL -U-

AUTHOR-(03)-NEYLANDS, O., SKUJMA, J., LAIZANE, Z.

COUNTRY OF INFO—USSR

SOURCE—LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (2), 244-5

DATE PUBLISHED————70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—NITRATION, RESORCINOL, AMMONIUM SALT, ORGANIC NITRO COMPOUND,
   CYCLOHEXANE, KETONE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—1999/1878   STEP NO—UR/0464/70/000/002/0244/0245

CIRC ACCESSION NO—AP0123666
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0123666
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 2,NITRO,1,3,CYCLOHEXANEDIONE (I)
M. 114-15DEGREES (NH SUB4 SALT M.   168-9DEGREES (ETOH), WAS PREPD. IN
67PERCENT YIELD BY ADDING, DURING 1 HR AT 0-5DEGREES, 8 ML CONCD. HNO
SUB3 TO 4.5 G DIHYDRORESORCINOL IN 20 ML CONCD. H SUB2 SO SUB4 AND
STIRRING THE MIXT. 15 MIN. WHEN THE ABOVE MIXT. WAS POURED OVER ICE
AND HEATED TO 60DEGREES, 69PERCENT O SUB2 NCH SUB2 CO, (CH SUB2) SUB3 CO
SUB2 H (II), M.96-7DEGREES (C SUB2 H SUB4 CL SUB2) IN 69PERCENT WAS
PREPD. CHLORINATION OF I IN C SUB2 H SUB4 CL SUB2 YIELDED ONLY II AND O
SUB2 NCHCLCO (CH SUB2) SUB3 PRIME NEGATIVE CO SUB2 H.   FACILITY:
RIZH. POLITEKH. INST., RIGA, USSR.

UNCLASSIFIED

1/2   OCB   UNCLASSIFIED   PROCESSING DATE--11DEC70
TITLE--IODONIUM DERIVATIVES OF BETA DIKETONES. XIV. SPLITTING OF
 PHENYLIODONIUM BETAINES BY TOSYLATES OF ALIPHATIC AMINO ACIDS -U-
AUTHOR-(02)-NEIMANIS, D., NEYLANDS, O.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1011-14

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IODINATED ORGANIC COMPOUND, KETONE, BENZENE DERIVATIVE,
 ALIPHATIC CARBOXYLIC ACID, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1331   STEP NO--UR/0366/70/006/005/1011/1014

CIRC ACCESSION NO--AP0135005
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0135005
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE REACTION OF PHI PRIME POSITIVE
   C PRIME NEGATIVE (COR) SUB2 (R EQUALS PH OR OME) WITH HO SUB2 CCR PRIME1
   R PRIME2 NH SUB2 MEC SUB6 H SUB4 SO SUB3 (I) AT 0-5DEGREES GAVE
   50-80PERCENT (RCO) SUB2 CHO SUB2 CCR PRIME1 R PRIME2 NH SUB2 MEC SUB6 H
   SUB4 SO SUB3 H (II).   II ARE HYDROLYZED IN BOILING WATER TO I.
   FACILITY: RIZH. POLITEKH. INST., RIGA, USSR.

UNCLASSIFIED

1/2   015   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--PREPARATION AND SOME PROPERTIES OF
2,(HYDROXYPHENYL),1,3,INDANDIONES -U-
AUTHOR-(02)-NEYLANDS, O., ROMANOVSKIS, P.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (2), 249-50

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--HYDROXY RADICAL, BENZENE DERIVATIVE, KETONE, PHENOL,
DIMERIZATION, CHEMICAL STABILIZER, POLYAMIDE RESIN, CAPRONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1867   STEP NO--UR/0464/70/000/002/0249/0250

CIRC ACCESSION NO--AP0123655
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0123655
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEMETHYLATION OF THE MEO GROUP
WITH HI OR HBR IS A CONVENIENT METHOD FOR THE PREPN. OF 2,(O(M AND
RHO),HYDROXYPHENYL),1,3,INDANDIONES (I). THESE COMPDS. ARE ALKALI SOL.
SUBSTANCES EASILY OXIDIZED TO THE CORRESPONDING DIMERS WITH FECL SUB3 IN
ETOH SOLN., IN 80-90PERCENT YIELDS. AS BISPHENOLS, THE DIMERS ARE ALSO
ALKALI SOL. WITHOUT ANY CHEM. CHANGES EXCEPTING THE DIMER OF THE RHO
DERIV. THE LATTER COMPD. FORMS A DARK GREEN SOLN. IN ALK. MEDIUM,
TURNING RED VERY QUICKLY; ANOTHER MORE STABLE DIMER IS PROBABLY FORMED.
THE ISOMERS OF I AND THEIR DIMERS WERE OBTAINED (YIELD AND M.P. OF I;
M.P. OF THE CORRESPONDING DIMER GIVEN): O, 99PERCENT, 227DEGREES,
220DEGREES; M, LOW, 145DEGREES, 171-84DEGREES; RHO, 83PERCENT,
172-4DEGREES, 251DEGREES. THE DESCRIBED SUBSTANCES ARE POTENTIAL
STABILIZERS FOR THE POLYAMIDE KAPRON.   FACILITY: RIZH. POLITEKH.
INST., RIGA, USSR.

TITLE--FORMATION OF A C-N BOND DURING THE CLEAVAGE OF PHENYLIODONIUM
   YLIDES OF BETA,DICARBONYL COMPOUNDS BY SALTS OF SLIGHTLY BASIC AROMATIC
AUTHOR-(02)-NEYMANIS, D., NEYLANDS, D.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970 6(3) 633-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL BONDING, IODINATED ORGANIC COMPOUND, COMPLEX
   COMPOUND, CARBONYL COMPOUND, AROMATIC AMINE, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1541   STEP NO--UR/0366/70/006/003/0633/0634

CIRC ACCESSION NO--AP0112535
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0112535
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF (BZ SUB2 C) PRIME
NEGATIVE (IPH) PRIME POSITIVE WITH O-HO SUB2 CC SUB6 H SUB4 NH SUB3
PRIME POSITIVE.   PRIME NEGATIVE O SUB3 SC SUB6 H SUB4 ME-P (I) GAVE BZ
SUB2 CHNHC SUB6 H SUB4 CO SUB2 H-O. SIMILARLY BZ SUB2 CHNHC SUB6 H SUB4
CO SUB2 H-P AND BZ SUB2 CHNHC SUB6 H SUB4 NO SUB2-P WERE PREPD. ((MEO
SUB2 C) SUB2 C) PRIME NEGATIVE (IPH) PRIME POSITIVE REACTED WITH I TO
GEVE (MEO SUB2 C) SUB2 CHNHC SUB6 H SUB4 CO SUB2 H-O.

UNCLASSIFIED

1/2   006   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--PREPARATION OF SLIDES OF 2,PYRIDINIO AND
  2,ISOQUINOLINIO,1,3,INDANDIONES -U-
AUTHOR-(02)-NEYLANDS, O., PAVARS, A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3) 634-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COMPLEX COMPOUND, PYRIDINE, QUINOLINE, KETONE, PHTHALIC
  ANHYDRIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1423   STEP NO--UR/0366/70/006/003/0634/0635

CIRC ACCESSION NO--AP0112417
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0112417
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF PHTHALIC ANHYDRIDE
WITH XCH SUB2 CO SUB2 H (I) (X IS PYRIDINIO CHLORIDE OR ISOQUINOLINIO
CHLORIDE) IN AC SUB2 O ET SUB3 N MIXT. GAVE TITLE YLIDES (II). OTHER I
(X EQUALS ALPHA, BETA, OR GAMMA METHYLPYRIDINIO CHLORIDE, QUINOLINIO
CHLORIDE, OR ME SUB3 NCL) DID NOT REACT.

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NEYMAN I. P.

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(3)

IX-6. STRUCTURAL STUDIES OF THE SYSTEM MADE UP OF THE SILICON CARBIDE FILM
AND SILICON SUBSTRATE.

[Article by Ya. V. Kalnach, I. P. Neymane, I. A. Felgin', Riga: Noveybirsk,
III Simpozium Pohrupologram Rostu i Sintezu Poluprovodnikovykh Kristallov—1
Plenok, Russian, 12-17 June 1972, p 121]

By means of electron microscopy and diffraction, infrared for spectro-
scopy and metallographic techniques, studies were made of the structure of
silicon carbide film structure on silicon as a function of the growth condi-
tions of the films and their thickness and also the effect of the films of
different structure and thickness on the structure of the monocrystalline sub-
strate. In order to obtain silicon carbide, the method of thermal decomposi-
tion of chlorosilanes in an argon or hydrogen atmosphere was used.

On the basis of the analysis of the histograms of the films constructed
by the dark-field microphotographs, the general characteristic of the film
growth process to a thickness of 6,000 A was given for different growth condi-
tions.

The film defects were discovered, and the causes of their occurrence
were established. The dependence of the film on the cleanness and perfection
of the substrate was established.

The effect of a polycrystalline (uniform) film on the substrate struc-
ture was detected on reaching a film thickness of 5,000-6,000 A. The defect
in the film lead, as a rule, to the appearance of defects on the substrate
surface. The degree of "destruction" of the substrate depends on the size of
the crystal units of the film and its thickness.

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