

USSR

UDC 536.46:533.6

BABKIN, V. S., V'YUN, A. V.

"The Upper Limit of Flame Propagation Under Pressure in a Limited Space"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 289-292 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B970)

Translation: It is shown that free convection plays a considerable role on flame propagation limits. The flame propagates over the entire volume under ignition of the mixture at the center of a spherical vessel in the limit as a result of convection and heat losses to the walls. A similar phenomenon, partial propagation of the flame (the upper limit with respect to pressure in a limited space), is observed upon a change in pressure if the convection rate is commensurable with the visible flame velocity. A consequence of this phenomenon is the inadequacy of the results in terms of combustion in tubes of various diameters. The conclusions of this study emphasize the necessity for selecting a criterion for the explosive hazards of mixtures. Authors' abstract.

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1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--PERICLASE SPINELLIDE MANUFACTURED ARTICLES BASED ON MAGNESITE
POWDER FROM CAUSTIC DUST -U-
AUTHOR--(03)-BUGAYEV, N.F., SIMONOV, K.V., VYUNNIKOVA, YE.I.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, OGNEUPORY, NO. 5, MAY 70, PP 12-13
DATE PUBLISHED---MAY70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--REFRACTORY PRODUCT, ROASTING FURNACE, SPINEL, MAGNESIUM OXIDE,
THERMAL STABILITY/(U)COST 10888 64 REFRACTORY QUALITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0707 STEP NO--UR/0131/70/000/005/0012/0013
CIRC ACCESSION NO--AP013442
UNCLASSIFIED

2/2 014
CIRC ACCESSION NO--AP0134442 UNCLASSIFIED PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE GIVEN OF A STUDY
OF THE CHARACTERISTICS OF MANUFACTURED OBJECTS MADE FROM POWDER OBTAINED
BY ROASTING CAUSTIC MAGNESITE IN A ROTATING OVEN WITH SINTERING
ADDITIVES. THE OBJECTS WERE TESTED WHILE IN ACTUAL USE. A TABLE GIVES
THE CHEMICAL COMPOSITION OF THE POWDERS. ANOTHER TABLE GIVES THE
CHARACTERISTICS OF THE MANUFACTURED ARTICLES. THE OBJECTS TESTED
SATISFIED ALL REQUIREMENTS, EXCEPT THAT OF THERMAL STABILITY, OF GOST,
ALL UNION STATE STANDARD, 10888-64. FACILITY: MAGNEZIT PLANT.

UNCLASSIFIED

USSR

BUGAYEV, N. F., SIMONOV, K. V., V. YUDNIKOVA, ~~et al.~~ I. ("Magnezit"
Plant), NAZAROV, K. S. (Magnitogorsk Metallurgical Combine)

"Periclase Spinellide Manufactured Articles Based on Magnesite
Powder From Caustic Dust"

Moscow, Ogneupory, No 5, May 70, pp 12-13

Abstract: The results are given of a study of the characteristics of manufactured objects made from powder obtained by roasting caustic magnesite in a rotating oven with sintering additives. The objects were tested while in actual use. A table gives the chemical composition of the powders. Another table gives the characteristics of the manufactured articles. The objects tested satisfied all requirements, except that of thermal stability, of GOST (All-Union State Standard) 10888-64

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UDC 547.78

GINAK, A. I., V'YUNOV, K. A., and SOCHILIN, Ye. G.

"The Synthesis of 2,4-Thiazolidinediones"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLV, No 2, Feb 1972, pp 460-462

Abstract: The several known methods for synthesizing the 2,4-thiazolidinediones are inefficient, owing to the low solubility of 5-arylidinerhodanines in aqueous solutions of monochloroacetic acid, the thermal instability of those compounds, and other factors. A new method for synthesis of the 2,4-thiazolidinediones was devised to obviate these difficulties. Rhodanine was alkylated with an alkyl halide in a nonpolar solvent in the presence of an acceptor. Then the solvent was wholly or partially removed, and ethanolic HCl was added. This mixture was heated to 30-40° for 1 hour, the thiazolidinedione precipitated. Variations on this basic method were used to synthesize nine different members of this group. Empirical and structural formulas, yields, etc., are given for these compounds.

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USSR

UDC 547.78

GINAK, A. I., V'YUNOV, K. A., SOCHILIN, E. G., Leningrad Technological Institute imeni Leninsvet

"Phosphorylation of Rhodanine with Phosphorus Oxychloride"

Leningrad, Zhurnal Obshchei Khimii, Vol. 40, No. 6, Jun 70, pp 1423-1424

Abstract: Sodium rhodanine was treated with 10-20 fold excess of phosphorus oxychloride in tetrahydrofuran, the mixture cooled to -10 to 20°. Dirhodanyl chlorophosphate was obtained.

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UDC 539.4.014.2 + 669.14

USSR

VYVAL', I. P., L'vov

"Mechanical Properties of Hypereutectoid Steels Hardened After Cyclic Conditioning in Austenitic State"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 77-80

Abstract: One of the possibilities of increasing the mechanical properties of high-carbon steels containing 0.8-1.0 percent carbon is thermovibromechanical treatment, which consists in the cyclic deformation of steel at temperatures of stable austenite and subsequent hardening. The authors studied U10A, 9KhA, and R18 Steels. The results indicate that such treatment increases the strength and hardness of 9KhS and R18 steels. The latter circumstance is important since these steels are used mainly to make cutting tools. The strengthening effect is observed only under certain treatment conditions. Thus, for example, in the case of 9KhS steel maximum strengthening takes place under cyclic conditioning of the gamma phase with 200-400 cycles. There
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VYVAL', I. P. Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 77-80

is no strengthening effect in the case of UIOA steel. High-temperature thermovibromechanical treatment mainly increases the tearing strength of 9KhS and R18 steel. Low-temperature treatment (deformation temperature 600° C) increases both the tearing and the shearing strength of R18 steel.

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USSR

UDC: 681.2.087.92-932

NYZHELEVSKIY, B. V., POMYKAYEV, I. I., VLASOV, Ye. N., UVAKIN, V. F.,
GOL'DENBERG, F. M., KARCHEVSKIY, A. A., ZELENKOV, S. V.

"A Sine-Cosine Converter"

USSR Author's Certificate No 316110, filed 24 Apr 70, published 9 Nov 71
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7,
Jul 72, Abstract No 7A111 P)

Translation: A patent has been granted for a sine-cosine converter distinguished by the fact that one end of each output winding of the rotor is connected to the input of an auxiliary phase-sensitive rectifier, while the other end is connected through a resistor to the input and output of the same rectifier. Laid around the perizeter of the back edge of the rotor is an excitation winding which is connected to a source of alternating current. The device acts as a vector plotter and coordinate transformer with DC and AC input signals. Either DC or AC output signals may be obtained as desired. The device can serve two servosystems simultaneously, one working on AC and the other on DC. Two illustrations.
O. S.

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1/2 022
 UNCLASSIFIED PROCESSING DATE--16OCT70
 TITLE--RELIABILITY TEST UNIT FOR ULTRASONIC DEFECTOSCOPES -U-
 AUTHOR--(02)-CHEGORINSKIY, V.A., VZOROV, V.S. ✓
 COUNTRY OF INFO--USSR
 SOURCE--SVERDLOVSK, DEFEKTOKOPIYA, NO. 1, 1970, PP 13-16
 DATE PUBLISHED-----70
 SUBJECT AREAS--METHODS AND EQUIPMENT
 TOPIC TAGS--RELIABILITY ENGINEERING, CYCLIC TEST, DEFECTOSCOPE, ULTRASONIC
 TEST APPARATUS/(U)UDMIM ULTRASONIC DEFECTOSCOPE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1985/0136 STEP NO--UR/0381/70/001/000/0013/0016
 CIRC ACCESSION NO--APO100667
 UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0100667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE IS A DESCRIPTION OF A SPECIAL TEST UNIT, DEVELOPED BY THE VNIINK, TO INVESTIGATE THE ACTION OF CYCLICAL OPERATION ON EQUIPMENT RELIABILITY WHICH THE AUTHORS ASSERT HAS BEEN INSUFFICIENTLY INVESTIGATED. THE BASIC ELECTRICAL CIRCUIT OF THE TEST UNIT IS GIVEN, AND ITS OPERATION EXPLAINED. THE UNIT WAS USED FOR TESTING THE CYCLICAL OPERATION OF THE UDM-1M ULTRASONIC DEFECTOSCOPE MANUFACTURED BY THE "ELEKTROTOCHPROBOR" PLANT IN KISHINEV. A PHOTOGRAPH OF THE TEST INSTRUMENT CONNECTED TO THE DEFECTOSCOPE IS SHOWN. THE AUTHROS FIND THAT THE CYCLICAL OPERATION OF THE DEFECTOSCOPE LEADS PRIMARILY TO WEAR AND TEAR ON THE ELECTRONIC TYBES AND THAT THE TESTS CONDUCTED HELP CORRECT THE RELIABILITY LEVEL OF THE DEFECTOSCOPE WITH THE LENGTH OF ITS OPERATING PERIOD TAKEN INTO ACCOUNT.

UNCLASSIFIED

USSR

UDC 621.372.326

ROZHKOV, G. D., BELANOV, A. S., VZIATYSHEV, V. F.

"Calculation of a Multilayered Dielectric Wave Guide"

Tr. Mosk.energ. in-ta (Works of Moscow Power Engineering Institute), 1972,
vyp. 100, pp 102-114 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7B84)

Translation: It is demonstrated that one of the possibilities for decreasing the damping in dielectric wave guides for submillimeter waves is the conversion to multilayered wave guides. The advantages and disadvantages of these wave guides are noted. A study is made of the so-called "compositional" wave guide with a nonuniform shell; its advantage is the possibility of controlling its parameters by varying the dimensions and material parameters of the individual parts of the shell. There are 4 illustrations.

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USSR

UDC 621.372.852.3:621.372.826

VZYATYSHEV, V. F., RYABOV, B. I., RAYEVSKIY, G. P.

"Attenuator without a Phase Shift Based on Dielectric Wave Guides"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 100, pp 128-135 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7B137)

Translation: The schematic is presented for an attenuator which operates by the principle of interference of two counterphase wave processes with identical amplitudes. A study was made of the double-channel version in which the input signal is divided equally between both channels. In each channel the signals passing through the phase converters undergo identical with respect to magnitude but opposite in sign phase shifts and are then added in an adder, forming a signal the amplitude of which is proportional to the cosine of the phase shift. The characteristics of the attenuator are analyzed. An experimental model is described. There are 3 illustrations.

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USSR

UDC: 621.372.853.1.09

MIROVITSKIY, D. I., DUBROVIN, V. F., VZYATYSEEV, V. E., PERSIKOV, M. V., SHEVCHENKO, V. V.

"Cophased Directional Coupling of Electromagnetic Energy in Lines with Delayed Waves"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 1, Jan 71, pp 37-40

Abstract: The authors describe the principal characteristics of the experimentally observed phenomenon of cophased directional coupling of energy in intersecting and branched dielectric waveguides. Energy transmission is characterized by the following peculiarities in such systems: 1. effective directional coupling is observed even when the section of interaction is of the order of a wavelength or less; 2. the coupled wave is in phase with the wave being propagated in the main channel; 3. effective energy coupling takes place when the coefficients of reflection from the region of line branching are small, which is observed when the wave delays are small in the lines; 4. effective directional energy transmission takes place over an extremely broad frequency range. A clear physical interpretation of the effect is given together with confirming experiments involving investigation of directional radiation of energy from a localized nonhomogeneity in the waveguide, an investigation of

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MIROVITSKIY, D. I., et al., Radiotekhnika i Elektronika, Vol. 16, No 1, Jan 71,
pp 37-40

the amplitude-phase dependence of a signal coupled out into a side branch as a function of the angle of intersection, etc. Some of the areas where the observed effect can be utilized in SHF technology are pointed out. The authors thank B. Z. Katsenelenbaum for interest in the work and discussion of the results.

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YAKUSOV, Yu. I.

control problems

YFD: CYBERNETICS

UDC 62-50

72

control problems

Yu. I. Y. and YAKUSOV Yu. I.
Stage Adaptive Control of a Multidimensional Statistical Object*

Stage Adaptive Control of a Multidimensional Statistical Object. (Adaptive Systems. Large Systems). Moscow, Sovetskoye Radio, 1977, pp 85-89

UDC 62.506

55. UDCN

KLSTNIK, V. I.

"Continuously Self-Adjusting Filter Converters"

Adaptive Systems. Solvable Systems (Adaptive Systems. Large Systems). Moscow, Nauka, 1977, pp 30-31

Translation of abstract: The frequency filter method is generalized for linear or non-linear converters in which the desired conversion of the input useful signal is not unity. To obtain the minimal mean square error the signal-to-noise ratio is changed. The parameters of the filter system are self-adjusted. The simplest self-adjusting loop is obtained in a circuit with preliminary filtration of the input signal.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DISPERSE CONDENSATION STRUCTURES OF POLYESTER URETHANES -U-
AUTHOR--(04)-YABKO, YA.M., POLINSKIY, S.L., ZHDANOVA, V.I., VLODAVETS, I.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 155-7
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--PLASTIC FILM, POLYURETHANE RESIN, POLYGLYCOL, ORGANIC
ISOCYANATE, CAPROLACTAM, POROSITY, MOLECULAR STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1091 STEP NO--UR/0020/70/191/001/0155/0157
CIRC ACCESSION NO--AT0124748
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124748
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. POROUS POLYURETHANE FILMS WERE PREPD. FROM THE REACTION PRODUCTS OF POLY(PROPYLENE GLYCOL), MOL. WT. SIMILAR TO 2000, H SUB2 NNH SUB2 .H SUB2 O, AND TOLYLENE DIISOCYANATE, OR OF POLYCAPROLACTAM, BUTANEDIOL, AND BIS(ISOCYANATOPHENYL)METHANE. THESE POLYMERS WERE SOL. IN ALL PROPERTIONS IN HCONME SUB2, HOWEVER THE ADDN. OF 5-10PERCENT H SUB2 O (PREFERABLY BY THE ABSORPTION OF H SUB2 O VAPOR) CAUSED THE SEPN. OF THE POLYMER GLOBULES WHICH SETTLED, FORMING POROUS AND ELASTIC FILMS (ELONGATION AT BREAK SMALLER THAN OR EQUAL TO 700PERCENT, H SUB2 O (G) PERMEABILITY SIMILAR TO 6 MG-CM PRIME2-HR). THE EFFECT OF THE AMT. OF H SUB2 O, AND THE TEMP. ON THE SOLN. METASTABILITY AND THE FILM PROPERTIES WERE ESTABLISHED. FACILITY: VSES. NAUCH.--ISSLED. INST. PLENOCHNYKH MATER. ISKUSSTV. KOZHI, MOSCOW, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--MODIFICATION OF POLYESTER URETHANES BY RIGID POLYMERS FOR PREPARING
 ARTIFICIAL LEATHER FOR CLOTHING -U-
 AUTHOR--(04)--FREIDGEM, K.I., ALEKSEYENKO, V.I., YABKO, YA.M., POLINSKIY,
 S.L.
 COUNTRY OF INFO--USSR
 SOURCE--KOZH.-OBUV. PROM. 1970. 12(2) 41-4
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS
 TOPIC TAGS--LEATHER, POLYURETHANE RESIN, POLYOXYPROPYLENE, GLYCOL, ORGANIC
 ISOCYANATE, POLYVINYL CHLORIDE, NITROCELLULOSE, ACRYLONITRILE,
 COPOLYMER, ACETATE, POLYMER PHYSICAL PROPERTY, PLASTIC MECHANICAL
 PROPERTY, CLOTHING
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1989/0489 STEP NO--UR/0498/70/012/002/0041/0044
 CIRC ACCESSION NO--APO 07094
 UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107094

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

ABSTRACT. A POLYESTER URETHANE (I) (BASED ON A PREPOLYMER PREPD. FROM POLY(OXYPROPYLENE) GLYCOL OF MOL. WT. 1000 AND 2,4-TOLYLENE DIISOCYANATE IN A MOLE RATIO OF 1:2) WAS MODIFIED WITH POLY(VINYL CHLORIDE) (II), CHLORINATED II, NITROCELLULOSE, AND A 30PERCENT ACRYLONITRILE VINYL ACETATE COPOLYMER (III) DISSOLVED IN HCONME SUB2. III MODIFIED I HAD SUPERIOR PHYSICOMECH. PROPERTIES, I.E. MIN. RIGIDITY AND VAPOR PERMEABILITY (3.9 MG-CM PRIME2 HR).

UNCLASSIFIED

Yablochkin, V. D.

SPRS 56,499
14 July 72

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Thermotattin: of samples of the compound was accomplished in the air at a temperature of 160°C for periods of 15 and 25 days and at a temperature of 70-130°C for two hours.

Hot rolling of sheets was accomplished using: 10% solution of polycarbonate (Miflon) in methyl chloride and a self-adhering silicone coat.

Samples of the compound, subjected to thermotattin, were investigated spectrophotochemically in the ultraviolet region for their content of low-molecular substances extracted using ethanol. The results of the investigation can be seen in the figure.

STUDY OF WAYS TO REDUCE THE FORTS GAS EMISSION OF POLYMERS

Article by V. D. Yablochkin and V. A. Sakhakava; Journal: Abstracts of Polymer Chemistry and Physics, Moscow, 1971, pp 305-309

I. Introduction of a Compound Based on Butylmethacrylate Ester

The present status of the methods for obtaining polymers does not always make it possible to solve the problem of obtaining synthetic materials not containing and not releasing volatile low-molecular substances. This explains the efforts made to "upgrade" polymers by employing methods for their additional processing (V. D. Kartshnev, A. V. Zhukhlova, 1966; 1969; S. I. Janishovskiy, G. A. Kalayev, 1960; V. D. Yablochkin, 1966, 1969). In this study we investigated the influence of thermotattin and forming of sheets by hot rolling of synthetic resins on the release of volatile substances by a compound based on butylmethacrylate ester. The investigation was made using an earlier developed method (V. D. Yablochkin, 1969).

Yablochkin, V. D.

SPRS 576.499
14 JULY 72

STUDY OF VOLATILE SUBSTANCES RELEASED BY POLYESTERS BASED ON
POLYESTERS HALOGEN DERIVATIVES

Article by Ye. V. Solomin, V. D. Yablochkin, V. A. Shchir-
skaya, A. I. Gorskunova and A. I. Gunkovskiy, Moscow, Akhmed-
Nura Vorontsov Kosmicheskoy Mirovoj i Terrestriy (Current Prob-
lems in Space Biology and Medicine), November 1971, pp 155-
159

Materials based on polyethylene derivatives containing
halogens are used extensively in the national economy. Their
use in outfitting living quarters and factory rooms is accom-
panied by the possibility of atmospheric contamination by
volatile products which are toxic to man.

The literature contains limited information on the san-
itary and chemical characteristics of these groups of poly-
esters. In studies published during recent years various authors
mention the possibility that materials with a polyvinyl chlor-
ide base can release such toxic compounds as carbon monoxide,
dibutyl phthalate, ammonia, hydrogen chloride, chloroacarbon
compounds, fatty acids and aldehydes (Ya. G. Dvorkin, et al.,
1966; V. D. Yablochkin, 1967; V. L. Gal'perovich, 1967; Ya. G.
Dvorkin, 1969). Under these very same conditions materials
based on polytetrafluoroethylene release into the atmosphere
only insignificant quantities of carbon monoxide and hydrocar-
bons (V. D. Yablochkin, 1967).

Due to the extensive use of polymers based on polyety-
lene derivatives containing halogens it seemed desirable to
continue investigation of the gas release of samples of a num-
ber of the polymer construction materials most frequently used
in industry which are based on polyvinyl chloride and polytetra-
fluoroethylene.

In the sanitary-chemical investigation we selected a
group of six materials, three samples each from the polyvinyl

YABLOCHKIN, V. D.

5PRS 56, 499 125
14 JULY 72

STUDY OF WAYS TO REMOVE TOXIC GAS EMISSIONS OF POLYMERS

Article by V. D. Yablochkin, Moscow, Akademiya Voennoy Aviatsii i Kosmonavtiki (Current Problems in Space Technology and Medicine), Moscow, 1971, p 199/

II. Effect of Composition of Epoxy Compounds on Toxic Emissions of Volatile Substances

Using a method developed earlier (V. D. Yablochkin, 1969), in the example of 13 samples of epoxy compounds a study was made of the dependence of their gas emissions on the composition of the epoxy base and hardener and also on the presence of fillers.

It was possible to establish the optimum ratio of the base and hardener at which, due to complete polymerization, there is no release of a monomer from the epoxy resin and ammonia from the hardener. It was found that the materials hardened by low-molecular polyethylene polyamines or mixed hardeners polymerize without ammonia whereas in the products of the release of samples hardened by high-molecular amino hardeners there is no release of this substance.

Acetone containing a filler releases four or five times less toluene in comparison with samples without a filler, evidently due to changes under the influence of the supramolecular structure of the polymer and the higher contraction of crystalline zones in the polymer. As is well known (L. Mandelkern, 1966), this leads to a decrease in the rate of diffusion of low-molecular substances in the polymer. There is no evidence of a specific effect of the physicochemical properties of fillers on the permeation process, because the concentrations of the compounds filled with zinc oxide or quartz did not significantly differ.

YABLOCHKIN, V. D.

SPRS 56, 499
14 July 72

INVESTIGATION OF VOLATILE SUBSTANCES RELEASED BY SOLDIER
CONSTRUCTION MATERIALS

Article by V. D. Yablochkin, A. H. Popov, A. I. Gorbunova,
V. A. Shchirnyaya, V. V. Golodkin and E. I. Chukhina, *Construc-
tion Materials*, Vol. 1, No. 1, Moscow, 1971, pp 294-
299. Problems in Space Biology and Medicine.

I. Block, Sheet and Granulated Plastics

During recent years there has been a considerable broadening of the field of applicability of plastics as construction materials (U. Bohr, 1967). Thermoplastics on the basis of poly-carbonates, polyimides and copolymers of the ABC type (Spencer, 1969) have shown the greatest possibilities of use in this direction. The content of volatile substances in polymers exerts a substantial effect on their physicochemical properties and stability (G. E. Vyatkovskaya, V. V. Iapshin, 1964; V. S. Yablochkin, 1969). Accordingly, the purpose of this study was an investigation of the combination of a complex of volatile substances released by some block, sheet and granulated plastics under conditions simulating the external medium in the process of using polymer construction materials.

Experimental Part

We studied a group of block, sheet and granulated construction materials, including 10 samples on the basis of: phenol-formaldehyde resins, polycarbonate (dillon), polyamide, polymethyl methacrylate and butadiene-styrene-acrylonitrile copolymer (ABC resin).

All the samples were investigated at normal (20-25°C) temperature and with an exposure of 10 days. In addition, on the basis of ABC copolymer, we investigated at increased

YABLOCHKIN, V. D.

STUDY OF VOLATILE SUBSTANCES RELEASED BY FOAMER CONSTRUCTION MATERIALS

(Article by V. D. Yablochkin, V. A. Shchekolova, A. V. Pogoda, A. I. Gorbunova, Ye. V. Polshina and M. V. Chokhina; Moscow, Institute for Space Technology Problems, 1 Medvedevskiy (Current Problems in Space Biology and Medicine), Moscow, 1971, pp 301-305)

III. Foam and Porous Plastics Based on Isobutylene and Polyurethanes

Taking into account the peculiarities of practical use, one can expect polymer construction materials to be affected by different environmental factors, especially temperature. As experience demonstrates, the latter leads to the formation and release of great quantities of volatile substances (V. D. Yablochkin, 1969). The objective of this study was an investigation of a complex of volatile substances released by foam and porous plastics under conditions simulating the parameters of the surrounding medium in the course of their use.

Experimental Part

In our study we collected a group of nine samples of foam and porous plastics on the basis of foam polyurethane and foam-porous polyurethane, including: foam plastics on the basis of emulsion and heated polyurethane Ps-1, Ps-4 and Ps-5; hard foam plastic, polyurethane elastic, incompressible porous plastic, porous, lashed with glass plastic by means of glass based on solutions of silicone rubbers, porolon and articles made from it (porolon matting).

The method for formulating and conducting the analytical investigation of the volatile substances released by polymer construction materials, including chemical, spectrophotometric and gas chromatographic analysis, did not differ from that described in communication I.

SPRS #56,499
14 JULY 72
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UDC: 519.24

YABLOCHNIK, A. L.

"Programmed Teaching and its Application for Instructing Foreign Students
in the General Theory of Statistics"

V sb. Vopr. statistich. metodol. i statistiko-ekon. analiza (Problems of
Statistical Methodology and Statistical-Economic Analysis--collection of
works), Moscow, "Statistika", 1971, pp 275-282 (from RZh-Kibernetika, No
9, Sep 71, Abstract No 9V113)

[No abstract]

1/1

- 3 -

Acc. Nr:

170036540

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,
PP 137-140

EFFECT OF THE CROSS-LINK DENSITY
AND SUPERMOLECULAR STRUCTURES ON THE PROPERTIES OF POLYURETHANE
COATINGS

G. A. Yablokov, L. A. Sukhareva, M. R. Kliselev, P. I. Zubov

Summary

The kinetics of the build up of internal stresses and the rate of formation of physical and chemical bonds during the production of polyurethane coatings have been correlated with the supermolecular structure nature and the cross-link density. The effect of the chemical bonds distribution inside supermolecular structures and between them on the physico-mechanical properties of coatings and the swelling kinetics has been studied.

d.n.

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19721388

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1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
 TITLE--AN INVESTIGATION OF PERTURBING FORCES AND DISTRIBUTION OF
 NONSTATIONARY PRESSURES OVER THE PROFILE IN TURBINE STAGES -U-
 AUTHOR--SAMOYLOVICH, G.S., PISMIN, I.N., YABLOKOV, L.D.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TEPLONERGETIKA, NR 3, 1970, PP 79-82

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ENERGY CONVERSION
 (NON-PROPULSIVE)
 TOPIC TAGS--TURBINE BLADE, VIBRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1987/1417

STEP NO--UR/0096/70/000/003/0079/0082

CIRC ACCESSION NO--AP0104731
 UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104731

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL DATA ARE QUOTED CONCERNING DISTRIBUTION OF NONSTATIONARY PRESSURES ON WORKING VANES OF A TURBINE STAGE AT SUBSONIC VELOCITIES. THE PERTURBING FORCES CAUSING VIBRATIONS OF VANES WERE DETERMINED.

UNCLASSIFIED

USSR

UDC 539.3:534.1

BRUSILOVSKIY, A. D., SHMAKOV, V. P., and YABLOKOV, V. A. (Moscow)

"A Method for Calculating the Natural and Forced Oscillations of Elastic Shells of Revolution Filled With an Ideal Incompressible Fluid"

Moscow, Mekhanika Tverdogo Tela, No 3, May-June 1973, pp. 99-110

Abstract: An algorithm is proposed for calculation of the natural and forced oscillations of elastic shells of revolution filled with an ideal incompressible fluid. The algorithm is based upon reduction of the boundary-value problem for a system of integrodifferential equations to the corresponding Cauchy problems that are integrated by the method of orthogonal successive elimination. The axisymmetrical oscillations of a cylindrical and an ellipsoidal shell are dealt with as an illustration.

A description is given of the general algorithm for calculation of the dynamic characteristics (frequencies, forms, attached masses) of the natural oscillations of fluid-filled shells of revolution, as well as of an algorithm for determination of the reaction of a fluid-filled shell to an arbitrary harmonic load. In the solution of the latter problem, account is taken of energy dispersal in the material of the shell on the basis of the hypothesis of a complex modulus of elasticity. 4 figures. 22 references.

1/1

Acc. Nr:

APO 101518

Abstracting Service:

CHEMICAL ABST. 6-70

Ref. Code:

UR 0195

120834h Organic peroxide compounds of Group IVB elements. II. Kinetics of the rearrangement of mono- and diarylalkyl hydroperoxides. Yablokov, V. A.; Petrova, S. A.; Livadonova, A. B. (Gor'k. Gos. Univ. im. Lobachevskogo, Gorki, USSR). *Kinet. Katal.* 1970, 11(1), 51-6 (Russ). The study concerns the effect of structure of substituted cumene hydroperoxides (I) on the rate of their rearrangement and the kinetics of rearrangement of *p*- and *m*-diisopropylbenzene dihydroperoxides (II). Rearrangement of I in the presence of H_2SO_4 in AcOH or dioxane, is a 1st order reaction in respect to H_2SO_4 concn. Rate consts. of rearrangements of a series of substituted I, their ΔH^\ddagger and ΔS^\ddagger are tabulated. The reactivity agreed with the Hammett equation. A mechanism for II rearrangement is proposed. HMJR

B S

REEL/FRA
19851428

UDC 669.71.472(088.8)

USSR

YABLOKOV, V. G., KUZNETSOV, V. A.

"Machine for Loading the Anode Mass into the Anode Shells of Aluminum Electrolyzers"

USSR Author's Certificate No 254107, Filed 25 Oct 66, Published 17 Mar 70
(from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G170P)

Translation: To improve the degree of mechanization, a design is proposed for a machine whose anode mass bin is made from several independently controlled sections and a common system for unloading them. The unloading system involves a receiving hopper, a guide chute, and spouts which are hinged to the metal structure of the machine. The machine is equipped with an auxiliary nozzle system for the formation of an air suspension over the open upper electrolysis section. There are 6 illustrations.

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USSR

UDC 669.71.042.63(088.8)

NIKIFOROV, V. P., KUZNETSOV, V. A., and YABLOKOV, V. G.

"Machine for Semicontinuous Casting of Ingots"

USSR Author's Certificate No 260837, filed 15/04/64, published 11/05/70, (from Referativnyy Zhurnal-Metallurgiya No 1, 1971, Abstract No 1 G114 P)

Translation: A machine is suggested for semicontinuous casting of ingots of Al and its alloys. The machine includes crystallizers and a platform with stools and counterweights, supported on flexible couplings and moving in guides. In order to eliminate the possibility of movement of the platform in any plane and to provide copying without spacing of the position of the platform guides, the platform is articulated to sprung guiding shoes. The weight of the counterweights exceeds the weight of the platform and ingots, in order to simplify the drive system.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HYPERFINE STRUCTURE AND NATURE OF EXCHANGE INTERACTIONS IN COPPER
CARBOXYLATE -U-
AUTHOR--(04)-YABLOKOV, YU.V., GAVRILOV, V.V., ABLOV, A.V., MILKOVA, L.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL AKAD. NAUK SSSR 1970, 191(5), 1102-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYPERFINE STRUCTURE, COPPER COMPOUND, COMPLEX COMPOUND, IONIC
BONDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/1260 STEP NO--UR/0020/70/191/005/1102/1105
CIRC ACCESSION NO--AT0138271
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0138271

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EPR HYPERFINE STRUCTURE OF CU SUB2 (O SUB2 CR) SUB4 .2L, WHERE R EQUALS ME, ET PHCH SUB2, CLCH SUB2, CL SUB3 C, AND L EQUALS 2,CHLOROPYRIDINE, PH SUB3 P, UREA, QUINOLINE, BETA NAPHTHOQUINOLINE, ALPHA PICOLINE, WERE INVESTIGATED. WITH AN INCREASE OF THE ELECTRONEGATIVITY OF THE ACID GROUP THE CU-O SIGMA BOND BECOMES MORE IONIC. THE IONIC CHARACTER OF THE CU-O BOND ALSO INCREASES WITH INCREASE OF THE ELECTRON DONOR PROPERTIES OF THE AXIAL LIGANDS IN THE COMPLEX. WITH A CHANGE IN THE CHARACTER OF THE CU-O SIGMA BOND, THE CHARACTER OF THE PLANAR PI BOND CHANGES IN THE REVERSE DIRECTION. THESE RESULTS CAN BE USED TO ELUCIDATE THE MECHANISM OF THE EXCHANGE INTERACTION OF CU-CU AS HAVING INDIRECT CHARACTER, AND THE OBSD. SIGNIFICANT EXCHANGE INTEGRAL IS PROBABLY DUE TO JOINT MANIFESTATIONS OF INTERACTIONS THROUGH SIGMA AND PI BONDS OF CU-O AND O-C. FACILITY: KAZAN. FIZ.-TEKH. INST., KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 621.355.8(088.8)

MOZALEVSKAYA, V. A., SHIL'NIKOV, A. I., YABLOKOVA, I. Ye., KAZAKEVICH, G. Z.

"An Alkaline Battery"

USSR Author's Certificate No 300914, Filed 11/09/69, Published 26/05/71,
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No
2 L217 P from the Resume).

Translation: An alkaline battery is suggested, for example a silver-zinc battery, containing an additional electrode (E), connected to the positive E of the battery, differing in that in order to stabilize the voltage during the process of operation of the battery, this additional E, made for example, of manganese dioxide, is made with a more positive redox potential than the positive E. The additional E is made by smearing an active mass with graphite (10%) and binder (3% PVA solution) on a copper lattice.

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1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--BEHAVIOUR OF SILVER IN ALKALI ON ANODIC POLARIZATION BY AN
ASYMMETRIC CURRENT -U-
AUTHOR--(03)-KAZAKEVICH, G.Z., KIRKINSKY, V.A., YABLOKOVA, I.YE.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA, MAR. 1970, 6, (3), 361-365
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SILVER, X RAY DIFFRACTION, ANODE POLARIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0304 STEP NO--UR/0364/70/006/003/0361/0365
CIRC ACCESSION NO--AP0124063
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124063

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME SPECIAL CHARACTERISTICS OF THE BEHAVIOUR OF AG ELECTRODES IN ALKALI SOLUTIONS ARE DESCRIBED IN CONTINUATION OF EARLIER WORK IN THE SAME FIELD (IBID., 1966, 2, 1055). ON APPLYING AN ASYMMETRIC CURRENT, TO POLARIZE THE ELECTRODE ANODICALLY, TWO DIFFERENT FORMS OF TETRAGONAL OXIDE ARE CREATED ON THE SURFACE; THESE DIFFER IN POLARIZATION BY VIRTUE OF THEIR DIFFERING TEXTURE AND PARTICLE SIZE. IT IS ALSO POSSIBLE, THOUGH NOT CERTAIN, THAT SMALL QUANTITIES OF A MONOCLINIC OXIDE MAY ALSO BE FORMED; THESE (IF PRESENT) ARE INSUFFICIENT TO DETECT BY X RAY DIFFRACTION.

UNCLASSIFIED

YABLOKOVA, R.A.

Effect of the extent
AND type of cyclic
Deformation on the
strength of rayon cord

TECHNICAL TRANSLATION

AMFSTC-ET-23-619-71

D 5

ENGLISH TITLE: EFFECT OF THE EXTENT AND TYPE OF CYCLIC DEFORMATION ON THE STRENGTH OF RAYON CORD

FOREIGN TITLE: VLIYANIYE VELICHINY I VIDA TSIKLICHESKOY DEFORMATSII NA PROCHNOST' VISKOZNOGO KORDA

AUTHOR: A. G. ALEXANDER, N. A. PAVLOV, G. P. LILISTAYN, R. A. YABLOKOVA and G. A. ROZOVINA

SOURCE: KHIMICHESKIYE VOLOKNA, No. 5, 1969 pp. 51-53

Translated for FSTC by ACST

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Acc. Nr: AP0043937

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 2, pp 8-13
IMMUNOGENIC AND ALLERGENIC ANTIGENS OF MYCOBACTERIA TUBERCULOSIS

Report I

A Study of Laboratory Models for Assessment of the Immunizing Capacity of Tuberculosis Vaccines

T. B. Yablokova, T. P. Kozheunikova, D. T. Levi

This report is a part of combined work intended to be carried out according to the WHO program together with specialized laboratories of a number of countries. The principal task of these investigations is elaboration of a standard test of protection against tuberculosis on animals.

The first comparative study of live vaccines and of immunogenic substances of mycobacteria in various test-systems pointed to the difference between individual preparations in some of the experiments, and similarity in others. A higher immunological activity of live BCG vaccine was regularly noted. Analogous results were obtained by other participants of this work.

Further combined investigations are deemed expedient, but the number of test-vaccines and test-systems should be limited so as the materials obtained were more accessible for comparative analysis.

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1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ANTIGENIC COMPOSITION OF THE ADRENALS BEFORE AND DURING
PRESERVATION BY THE FLOW TECHNIQUE IN TYRODE'S FLUID -U-
AUTHOR--(02)-KILIMNIK, A.M., YABLOKOVA, V.I.
COUNTRY OF INFO--USSR
SOURCE--AKUSH. GINEKOL. (MOSCOW) 1970, 46(2), 48-51
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTIGEN, ADRENAL GLAND, ALPHA GLOBULIN, BETA GLOBULIN, GAMMA
GLOBULIN, ALBUMIN, PROTEIN, ORGAN TRANSPLANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY RELL/FRAHE--3006/0765 STEP NO--UR/0580/70/046/002/0048/0051
CIRC ACCESSION NO--AP0134408
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134498

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADRENALS OF CATTLE AND HUMAN SUBJECTS WERE ANALYZED BY ELECTROPHORESIS AND IMMUNOELECTROPHORESIS IN AGAR GEL. THE ANTIGENIC COMPN. INCLUDED 5-7 FRACTIONS CORRESPONDING TO THE ALPHA SUB2, ALPHA SUB1, BETA AND GAMMA GLOBULINS AND TO SOME ALBUMINS PRESENT IN BLOOD SERUM. HUMAN ADRENALS IN THE FRESH STATE (WITHIN 12 HR AFTER DEATH) CONTAINED MORE FRACTIONS. DURING PRESERVATION, E.G., WITH TYRODE'S FLUID, PROTEIN COMPS. ARE WASHED OUT OF THE PREPNS. THE ADRENAL TISSUE IS METABOLICALLY ACTIVE, ESP. IN THE 1ST 10 DAYS OF PRESERVATION. IT IS RECOMMENDED THAT HUMAN ADRENALS BE USED FOR TRANSPLANTATION WITHIN 10-15 DAYS AFTER COLLECTION AND PRESERVATION. FACILITY: KUBAN. MED. INST., KRASNODAR, USSR.

UNCLASSIFIED

USSR

UDC 77

YABLONKA, S., MARKOTSKIY, V.

"Application of a Hydrocyclone to Increase the Concentration of a Photoemulsion"

V sb. Mezhdunar. kongress po fotogr. nauke, Moskva, 1970. Priroda fotogr. chuvstvitel'nosti (International Congress on Photographic Science, Moscow, 1970. Nature of Photosensitivity -- Collection of Works), no place of publication given, Vneshtorgizdat, no year given, pp 325-328 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1298)

Translation: A study of the possibilities of hydrocyclone equipment to concentrate the solid phase of photographic emulsions is continued (for beginning see RZhFiz, 1969, 8D1000). The effect of the parameters of the initial emulsion, conditions of input to the device, and the structural parameters of the latter on the degree of concentration of the solid phase obtained and the effectiveness of the concentration is investigated. The results obtained in a series of model emulsions were tested under industrial conditions in a two-stage quadruple concentration of a coarse-grained x-ray emulsion, and it was shown that the fine-grained fraction goes into the overflow. A. L. Kartuzhanskiy.

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USSR

YABLON'KO, Yu. P.

"Rendezvous of Spacecraft by the Method of Free Trajectories"

Uch. zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Aero-Hydrodynamic Institute], Vol 2, No 5, 1971, pp 73-85, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 A62 by V. I. Toloknov).

Translation: The problem is studied of the rendezvous of two spacecraft in similar elliptical orbits by the method of adjustment of the Kepler trajectories. In the case of low values of reference orbit eccentricity for trajectories with a range on the order of one revolution, a method of asymptotic integration is suggested, similar to the small parameter method of Poincare. For any experiment involving trajectories with a limited rendezvous time, it is suggested that the method of recurrent relationships be used, based on determination of the solution in the form of series with respect to powers of an independent variable.

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UDC 636+576.8.093.2

USSR

NOVALENKO, YA. R., SIDOROV, M. A., TATARINTSEV, N. T., and LABLOV-
SKAYA, I. YA., All-Union Institute of Experimental Veterinary
Medicine

"Environmental Factors and Immunobiological Reactivity in Animals"
Moscow, Sel'Skokhozyaystvovaya Biologiya, No 2, 1970, pp 235-244

Abstract: Experiments with swine, mice and rabbits showed that sudden changes in environmental factors (exposure to cold, heat, or sun's rays without preliminary adaptation) and alteration of the diet (reduction of the normal protein content) induced a stress reaction which resulted in a lowering of general resistance and increased susceptibility to erysipelas, cholera, and typhoid. Sharp changes in temperature, maintenance conditions, or diet weakened, prevented, or delayed the development of immunity in vaccinated animals. The mechanism of action of the physical stressors differs from that of hypoproteinemia. The physical stressors stimulate the body's defensive forces, giving rise to the general adaptation syndrome. This weakens the metabolic processes and exhausts the physiological reserves, including the function of the immunocompetent

USSR

KOVALENKO, YA. R., et al., Moscow, Sel'skokhozyaystvennaya Biologiya, No 2, 1970, pp 235-244

organs, so that the reaction to antigen is not as strong as under ordinary vaccination conditions. With a protein deficiency, the dissimilation process does not take place normally, and the latent energy of cells is not converted to the kinetic energy needed for the proliferation and transformation of lymphoid into plasmatic cells.

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CHEMISTRY OF UNSATURATED ETHERS. XXX. DIENE CONDENSATION OF
1,ALKOXY,1,3,DIENES WITH CARBONYL COMPOUNDS. CONFIGURATIONS AND
AUTHOR--(05)--YABLONOVSKAYA, S.D., SHEKHTMAN, N.M., ANTONOVA, N.D.,
BOGATKOV, S.V., MAKIN, S.H.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 871-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DIENE, CARBONYL COMPOUND, HETEROCYCLIC OXYGEN COMPOUND,
CATALYTIC HYDROGENATION, ISOMER, GAS CHROMATOGRAPHY, NMR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2087 STEP NO--UR/0366/70/006/004/0871/0877
CIRC ACCESSION NO--AP0125674
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30JCT70

CIRC ACCESSION NO--AP0125674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION OF $ROCH=CHCH=CH$ SUB2 (R IS ME OR ET) WITH $OHCO$ SUB2 R PRIME1 (R PRIME1 IS ME, ET, OR BU) GAVE 2,RC,6,RO SUB2 C,DISUBSTITUTED,DELTA PRIME3,DIHYDROPYRANS (I). HYDROGENATION OF I OVER PTO SUB2 CATALYST GAVE THE TETRAHYDRO ANALOGS (II). I AND II ISOMERS ARE SEPD. BY GAS CHROMATOG.; NMR SPECTRA ARE DISCUSSED, THE TRANS ISOMERS, CONTG. AXIAL RO GROUPS, HAVE SHORTER RETENTION TIMES THAN THE CIS ISOMERS (DIEQUATORIAL CONFORMATION). THE THEORETICAL CALCNS. OF THE STABILITY OF THESE ISOMERS CONFIRM THE NMR DATA. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMCNOVOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616.981.71-092.9-097-02:615.371

YABLONSKAYA, V. A., Institute of Epidemiology and Microbiology imeni Gamaleya,
Academy of Medical Sciences USSR

"Immunogenesis in Guinea Pigs during Immunization with a Different Type of
Rickettsiosis Vaccines"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 47, No 6,
Jun 70, pp 133-134

Abstract: The first results of a study of the reaction of lymphoid tissue (guinea pig spleen) to immunization with rickettsiosis vaccines of various types are presented. The reaction was studied by the indirect Erne-Nordin method modified for application to rickettsiosis. Cell suspensions and extracts from guinea pigs killed on the second to 32nd day after injection of the preparations were investigated. The development of antibody-producing cells was observed in the spleen. The number of these cells varied considerably among different animals (frequently from 40-50 to 150-300 cells). When spleen extracts were studied in the Erne reaction, it was found that antibodies were present by the 4th day after immunization with an antigen solution and a live combined exanthematous typhus vaccine in concentrations of 1:10 to 1:20, and on the 5th day in remaining guinea pigs immunized with a live exanthematous typhus vaccine in a concentration of 1:10. It was found that lymphoid tissue in earlier periods of immunogenesis was different, depending on the type of
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USSR

YABLONSKAYA, V. A., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 47,
No 6, Jun 70, pp 133-134

preparation used. Inasmuch as in these early stages (the first 10 days) some immunity is already observed, it must be assumed that within a given period the lymphoid tissue does not play a decisive role in establishing immunity to infection. In later stages, the lymphoid tissue is of greater importance and affects the immunological properties and protective properties of antibodies.

2/2

USSR

UDC 577.4

ROZENSHEYN, G. SH, and YABLONSKIY, A. I.

"On Games of One Class of Stochastic Automata with Multiple Actions"

V sb. Teoriya igr (Theory of Games--collection of works), Yerevan, 1973, pp 282-285
(from RZh Matematika, No 11, Nov 73, Abstract No 11 V532)

Translation: The functioning in a random environment of a group of interacting automata using a randomizing algorithm determined in the paper is examined (a game of stochastic automata). The convergence of strategies of the group in a game with common interests and an antagonistic game of automata are studied (a number of theorems are proved). A new class of automaton games is suggested--controllable games.

Abstract by the author.

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- 11 -

USSR

UDC: 8.74

ROZENSHTEYN, G. Sh., YABLONSKIY, A. I.

"Randomized Strategy in a Simple Teaching Model"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 213-216 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V690 by the authors)

Translation: The paper deals with the problem of decision making in the case where averaging over a set is not equivalent to time averaging. The analysis is based on the example of behavior of an automaton in a random medium which is described as a controlled Markov process. An optimum algorithm is proposed for such behavior for which randomized decision making is essential on each stage to minimize the conditional risk rather than the average risk.

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USSR

KONDRATENYA, S. G.; YABLONSKIY, A. I. (Institute of Mathematics, Belorussian Academy of Sciences)

"Singular Points in Solutions of Systems of Second-Order Differential Equations"

Minsk, *Differentsial'nyye Uravneniya*; November, 1970; pp 1970-5

ABSTRACT: In the system of differential equations $\frac{dx}{dz} = \frac{P(x, y, z)}{R(x, y, z)}$,

$\frac{dy}{dz} = \frac{Q(x, y, z)}{S(x, y, z)}$ -- where P, Q, R, and S are polynomials in x and y with

coefficients which are holomorphic functions of z in the region D -- sufficient and (in isolated cases) necessary and sufficient conditions are found for the existence of algebraic and certain nonalgebraic solutions $[x(z), y(z)]$ with the property $x(z) \rightarrow \infty, y(z) \rightarrow \infty$ for $z \rightarrow z_0 \in D$. The conclusions drawn are a generalization of the results of an article by the authors

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USSR

KONDRATENYA, S. G. and YABLONSKIY, A. I., *Differentsial'nyye Uravneniya*, November 1970, pp 1970-5.

appearing in a previous issue of the same journal (Vol 4, No 6, 1968; pp 983-90) in which similar questions were considered for normal systems of second-order differential equations with polynomials in x and y and having the right sides holomorphic with respect to z . A theorem is presented.

The article includes 23 equations. There are two references.

USSR

UDC: 621.385.1

Y
YABLONSKIY, F. M.

"New Gas Discharge Devices and Their Applications"

Moscow, Radiotekhnika, No. 6, 1970, pp 1-9

Abstract: The theory of operation and the characteristics of new devices in the category of stabilitrons, thyratrons, decastrons and polytrons, indicators for visual information displays, power pulse generators, and gas discharge tubes are given. Some of the heavy discharge stabilitrons and thyratrons discussed are the SG204X, the TKh8G, and the TKh11G; the first is a sectioned device permitting the acquisition of two stabilized voltage values, the second a logic thyatron, and the third an electrometric thyatron. Tables of these and other gas discharge devices and their specifications are given in addition to characteristic curves. Also presented are schematics showing typical applications.

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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SELF ASSOCIATION OF TERT BUTYL AND TERT AMYL HYDROPEROXIDES STUDIED
BY NMR AND IR SPECTROSCOPIC METHODS -U-
AUTHOR--(04)-YABLONSKIY, O.P., BYSTROV, V.F., VINOGRADOV, A.N., BELYAYEV,
V.A.
COUNTRY OF INFO--USSR
SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 116-21
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYDROPEROXIDE, NMR SPECTRUM, IR SPECTRUM, DIMERIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1504 STEP NO--UR/0397/70/006/001/0116/0121
CIRC ACCESSION NO--AP0128899
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSIGN NO--AP0128899

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SELF ASSOEN. OF TERT BUOH AND
TERT C SUB5 H SUB11 OOH IN CCL SUB4 TWO PROCESSES WERE FOUND:
CYCLODIMERIZATION, FOLLOWED BY LINEAR ASSOEN. EQUIL. CONSTS. FOR THESE
PROCESSES WERE DETD. AND DISCUSSED. FACILITY: NAUCH.-ISSLED.
INST. MONOMER. SIN. KAUCH., YAROSLAVL, USSR.

UNCLASSIFIED

II. Combinatory Analysis. Graph Theory
A. General Theory of Combinatory Analysis

USSR

KULISH, YE. N. and YABLONSKIY, P. M.

"The Problem of Reliability of a System Working in Two Modes"

Gibrid. Vychisl. Tekhn. i Elektronika [Hybrid Computer Equipment and Electronics -- Collection of Works], Kiev, Nauk. Dumka Press, 1972, pp 267-276 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V278)

Translation: The system operates in two modes. The time of operation in either mode is a random quantity with fixed distribution. Failures occur according to an exponential rule with parameters dependent on the mode. The Laplace-Stilt'es transform of the mean time between failures of the system is written. One particular case is studied, when the time spent in each mode is a deterministic quantity.

Abstractor's note. The formula for $P(t)$ can be produced somewhat more simply by replacement of time $\tau = \int_0^t \lambda(x) dx$, where $\lambda(x)$ is the intensity of failures at moment x .

I. Kovalenko

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USSR

UDC 577.4

YABLONSKIY, S. V.

"On the Design of Repeated Dead-End Experiments for Automata"

V sb. Raspoznavniye obtazov (Pattern Recognition -- collection of works),
Moscow, 1973, pp 187-193 (from RZh-Matematika, No 11, Nov 73, Abstract No
11 V555)

Translation: This note is a brief exposition of the author's report presented at a symposium on the practical application of pattern recognition methods (Moscow, automata, expressed in a previously published work by the author (RZh Mat, 1959, 10 905) and related to the concept of the dead-end test. This approach makes it possible to formulate the problem of diagnostics for automata and indicate the methods of their solution, in principle, in the most general terms. As an illustration, it is noted that this makes it possible to achieve an extremely simple proof of Moore's well-known theorem on experiments for automata. A complete report will be published in Tr. Mat. in-ta AN SSSSR, vol 133.

1/1

Functional Analysis

USSR

UDC 519.95

ZAKHAROVA, Ye. Yu., and YABLONSKIY, S. V., Institute of Applied Mathematics,
Academy of Sciences USSR

"Some Properties of Nondegenerate Superpositions in P_k "

Moscow, Matematicheskkiye Zametki, Vol 12, No 1, Jul 72, pp 3-12

Abstract: Many synthesis problems require that, by means of superpositions of functions of a given finite system, a function which depends essentially on $r \geq N$ arguments (where N is arbitrarily large) be obtained by the method which is simplest in a certain sense. The article shows that the multiple-valued case in this question differs from the double-valued case in essence. It is known that from any finite system $\mathcal{R}(2) \subset P_2$ containing a function which depends essentially on $m \geq 2$ arguments, it is possible to obtain a function which depends essentially on an arbitrarily large number of arguments. An important property of double-valued functions is the fact that in the substitution of some function for the essential argument of another function, all essential arguments of the inner function prove to be essential arguments of the entire superposition. The complexity of generating "long" functions in the system $\mathcal{R}(2)$ is characterized by the reduced weight $\rho_{\mathcal{R}(2)}$ of the

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USSR

ZAKHAROVA, Ye. Yu., and YABLONSKIY, S. V., Matematicheskiye Zametki, Vol 12, No 1, Jul 72, pp 3-12

system $\mathcal{R}(2)$. The complexity $L^*(N)$ of the "cheapest" function that depends essentially on N arguments satisfies the following asymptotic equality:

The article shows that this definition of reduced weight is inapplicable in P_k when $k > 2$. A new definition of reduced weight $P_{\mathcal{R}(k)}$ for $P_{\mathcal{R}(k)}$, based on the analog of (1) is introduced. A lower limit which is higher than that given by R. Ye. Krichevskiy is obtained for the complexity of the realization of functions from P_k by formulas.

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USSR

UDC 534.322.3+534.83

GENKIN, M. D., YELEZOV, V. G., YABLONSKIY, V. V.

"Methods for the Active Reduction of Vibrations With Mechanisms"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 70-88 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh502)

Translation: The effectiveness and stability of two systems for the active reduction of vibration are analyzed. The systems show promise for application in shockproof mechanisms over wide frequency ranges. The basic element in the system is an electromagnetic or electrodynamic vibrator controlled by an amplified signal from the vibration pickup or a dynamometer. The vibrator partially compensates for the vibration effects at the base in the shock absorber. 15 ref. Authors abstract.

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USSR

UDC 534.322.3+534.83

MOROZOV, K. D., YABLONSKIY, V. V.

"Analyzer of Relative Spectrum and Frequency Characteristics"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 117-122 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh506)

Translation: A two-channel analyzer is described that was developed for determining the components of the relative spectrum or the spectral density of vibration-acoustical processes and also for recording the real and imaginary parts of the frequency characteristics of a system under a sinusoidal action with noise (in a servo filter mode). Authors abstract.

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USSR

UDC 534.2

GENKIN, M. D., ~~YABLONSKIY, V. V.~~

"New Methods of Measuring the Parameters of Multidimensional Vibrations of Linear Mechanical Systems"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 58-69 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh480)

Translation: New generalized methods are discussed for measuring the total mechanical resistance or dynamic compliance applicable to the analysis of linear multidimensional vibrations of mechanical systems under the action of multi-point and multidimensional force effects. A practical method is proposed for measuring parameters with the aid of six or eight vibration pickups placed on each "rigid surface" so that the vibrator acts with a concentrated source on six or eight points of the area in turn. A diagram is given of a multichannel complex of equipment for determining frequency characteristics and the mutual vibration spectrum of complex mechanical systems. Some instruments of the complex are briefly described. Authors abstract.

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YABLONSKIY, V.V.

Mechanics/Vibration Analysis

50 SPES 55466

19 Nov 72

Debris

TWO-CHANNEL NOISEPROOF ANALYZER OF AMPLITUDE-FREQUENCY AND PHASE-FREQUENCY CHARACTERISTICS

Article by A. D. Mironov, V. V. Yablonskiy, Moscow, Vibration Institute, *Mekhanicheskoye i Tekhnicheskoye Priborostroyeniye*, Russian, 1971, pp 259-266

The vibrations of most machines are generated not by one, but by many sources. Therefore an extremely complex spectrum is almost inevitable, and in order to reveal the physical picture of the generation and propagation of vibratory energy of each source individually it is necessary to extract from the spectra the individual components of identical parts and compare them with respect to amplitude and phase with the corresponding components of one of the investigated signals, used as a reference signal. Such determination of frequency characteristics is possible when the investigated signal, used as the reference, is of purely sinusoidal form. Otherwise the measurement of frequency characteristics involves intolerably large error. To avoid these errors the analyzer described herein incorporates the principle of tracking the first harmonic of the reference signal, whereupon it is possible to analyze the phase-frequency characteristics with a reference signal of arbitrary shape.

Many spectrum analyzers, including acoustic [1], are described both in Soviet and foreign literature. Of the entire collection of analyzers we will briefly discuss acoustic analyzers in the generally accepted sense of this term -- instruments for recording the current spectrum of initial signals themselves.

They are subdivided in turn, on the basis of the methods of solving this problem, into analyzers with selective filters and instruments without selective filters, which perform directly an approximate Fourier transform.

Noteworthy of analyzers with selective filters are instruments incorporating the heterodyne method of analysis as the most suitable for automatic recording of the entire spectrum without separation into sub-ranges. These instruments are extremely sophisticated, but they have disadvantages, such as poor selectivity in the bottom part of the range and excessively high selectivity in the top, difficulty in adjusting the

YABLONSKIY, Y. V.

POWER MECHANICS

SO: IPRS 55460
17 Mar 72

DEBIF

MECHANISM AS A MULTIPOLAR VIBRATION GENERATOR

Article by M. D. Genkin, Y. V. Yablonskiy, Moscow, Vibroakusticheskiye Aktivnosti, Mekhanizmy i Zvuchivyye Predmetny, Russian, 1971, pp 161-167

The character of propagation of vibrations from their source -- to its supports and then through shock absorbers to the foundation in the form of structural noise depends on the general and local structure of each "subsystem" of the mechanism, shock absorbers and foundation, on the character of their connection and on frequency. The effect of these factors on the vibratory energy, determining the vibro-activity of the mechanism [1], must be analyzed by combining experimental analysis of the subsystems themselves with calculation methods of evaluating their interaction. For this purpose it is convenient to view a system as a chain of three mechanical networks: active source (s), passive transition component (p) and load (z) (Figure 1). The subsystems are connected to each other by rigid couplings. Each "cross" section of these couplings is characterized by n-variate vectors of forces of interaction F₁ and also of velocities V or other dynamic variables. Restricting the study to the case of low harmonic vibrations, we will assign the vectors as columns of complex amplitudes of vector coordinates in a n-variate space of known base.

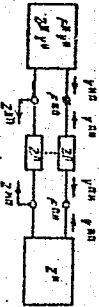


Figure 1. Mechanism, shock absorbers and foundation as a system of networks. (V = s; II = p; III = z)

Sykes [2] and Rubin [3] examined the parameters in general form of active and passive networks and some matrix expressions giving the vectors F and V in sections according to the given parameters. In order to calculate the vibrations of real engineering systems it is necessary to select the principle of reduction of subsystems to a network, relate the equivalent parameters of the mechanism with the exciting forces and parameters of the internal structure. It is necessary, moreover, that all basic relations be derived for vibration of the source-shock absorber-load system in addition to those found in Sykes' work [2].

USSR

UDC: 669.25.532.67

BAR'YAKHTAR, F. G., DATSKO, O. I., KUSHNEREV, V. I., PILIPENKO, N. P.,
POGORELOV, V. A. and YABLUKOV, B. G., Donetsk Physicotechnical Institute.

"Study of the Internal Friction of Cobalt Near 300°C"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 32, No 5, Nov 71,
pp 1101-1104

Abstract: Earlier research indicates the 300°C region as the position of low-frequency maximum internal friction for cobalt. Described here is an attempt to explain its nature and properties. The experiment involved machined specimens of 99.98% pure Co measuring 3x10 mm and specimens additionally deformed by drawing (by 8%). The specimens were gradually annealed at 300, 500 and 900°C and cooled down to room temperature. The measurements included internal friction (150-350°C), oscillation frequency (7 cps) and maximal shearing strains ($2 \cdot 10^{-6}$). Interrupted anneal of the material appears to lower the maximum friction temperature position which is most pronounced at 900°C and particularly manifest on the drawn specimen. The relationship between the temperature position of maximum internal

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SSR

BAR'YAKHTAR, F. G., et al, Fizika metallov i metallovedeniye, Vol 32, No 5, Nov 71, pp 1101-1104

friction of Co, the thermomechanical treatment of the material and the conditions of polymorphous transformation indicate its close association with crystal lattice defects, i.e., the maximum internal friction of Co at 300°C is of deformational nature. It is most likely to be caused by the plastic deformation of the material, including polymorphous transformation of Co. (2 illustrations, 3 bibliographic references).

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USSR

UDC 576.851.48.095.38

YABLONOVSKY, V. G., Kiev Scientific Research Institute of Advanced Training
of Physicians, Kiev

"Antagonistic Relationships Between Pathogenic Serotypes of E. coli and Their
Role in the Epidemiology of Coli Infection"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 5, Sep/Oct 71, pp 647-649

Abstract: A study of the capacity to produce colicin and of the resistance to its action was carried out on 110 strains of E. coli. The pathogenic serotypes of E. coli isolated from sick children with a coli infection that resulted in an intestinal disturbance exerted an antagonistic effect on the common untyped E. coli. This action was due to an inhibiting effect on the common strains of colicin formed by pathogenic E. coli. Pathogenic E. coli isolated from healthy children (bacillus carriers) produced a similar inhibiting effect, but to a lesser extent. Pathogenic E. coli from sick children had an activity 2.8 times higher than that of strains from healthy children in inhibiting pathogenic E. coli. Colicinogenicity was apparently associated with pathogenicity and was one of the factors giving rise to bacteriosis. The degree of colicinogenicity of pathogenic serotypes of E. coli decreased with increasing age of the children.

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USSR

UDC 615.472.616.33-085.832.9-031.84-72

YABMARKOV, L. G., STADNITSKIY, YU. P., and GALLINGEP, YU. I., Moscow Instrument Factory, II Moscow Medical Institute imeni N. I. Pirogov

"New Apparatus for Local Hypothermy of the Stomach"

Moscow, Meditsinskaya Tekhnika, No 3, 1971, pp 20-23

Abstract: Groups of engineers from the Moscow Instrument Factory and researchers from the Second Moscow Medical Institute imeni N. I. Pirogov collaborated in the development of a new device, the AGZh-1, for producing local cooling of the stomach and other organs. A 50% alcohol/water solution (4 liters) is introduced through an overflow opening in a two-section chamber; a connecting cock is kept open until the upper mark of a level gauge is reached. The air contained in the chamber is driven out through the connecting cock to the outside. A diaphragm pump evacuates a latex ballon which envelops a double sonde protruding from the measuring section of the device. After the air has been evacuated, the latex ballon is sealed off around the sonde, lubricated with glycerin and inserted into the stomach of the patient. The alcohol/water solution is chilled in the heat-exchange section of the vessel into which are built the vaporizers from Freon coolers which are equipped with special condensers. The temperature of the solution is lowered automatically to a present level by 1/2

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USSR

YABMARKOV, L. G., et al., Meditsinskaya Tekhnika, No 3, 1971, pp 20-23

an automatic unit consisting of a rectifier with a quenching resistor, a transistorized amplifier and intermediate relays of the MKU-48 type. The temperature in the heat exchange chamber is usually maintained at 2° to -8°C , within $\pm 1^{\circ}$. The latex ballon is filled with the cooled alcohol/water mixture, by means of the diaphragm pump. Approximately 600-900 ml are filled into the ballon, under control by the level guage. Electrothermometers are used to measure the temperature of the alcohol/water mixture, the body temperature of the patient, and the stomach temperature. The electrothermometers are calibrated by a microammeter, and they can measure temperatures in the range from 16 to 42° with an accuracy of $\pm 0.2^{\circ}$. An autotransformer is used to control the productivity of the pump. The device is capable of keeping a constant volume of cooling mixture in the latex ballon for the entire procedure (without exceeding atmospheric pressure in the ballon) at a required temperature and with controlled pumping. The device was succesfully tested on 34 patients with acute pancreatitis and gastro-duodenal bleeding. It was possible to reduce by stomach cooling the number of operations and the death rate in destructive forms of acute pancreatitis. The device is claimed to be simple, convenient, and free of danger to operate. It can be used for local cooling of the intestine, urinary bladder, and other caval organs.

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USSR

UDC 615.373.6

YABROV, A. A., Physicotechnical Institute imeni A. F. Ioffe

"An Agent for Improving the Nonspecific Resistance of Cells"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 12, Apr 72, Author's Certificate No. 333949, Division A, filed 14 Sep 70,
published 30 Mar 72, p 18

Translation: Application of protein hydrolysates as an agent for increasing
the nonspecific resistance of cells to cytotoxic and cytopathogenic action
is described.

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USSR

UDC 576.3:612.017:615.5

YABROV, A. A.; YEKIMOVA, V. A., and ZEYTLINOK, N. A.

"The Effect of Dibazole on Interferon Activity", pp 62-64, Sintez Belka i Rezistentnost' Kletok, (Protein Synthesis and Cell Resistance), Leningrad, "Nauka," 1971, 104 pp

Abstract: The results of this work indicate the stimulating effect of dibazole on the antiviral activity of the interferon inducer and of interferon in a culture of chick embryonic tissue.

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R

UDC:669.046.558.7:669.015.3

KALINNIKOV, Ye. S., EFROS, D. I., BORODETS, I. V., YABUROV, S. I., IZMANOVA, T. A., and POKROVSKIY, V. A.

"Some Properties of the Ingots of Chrome-Nickel-Molybdenum Steel Treated With Liquid Synthetic Slag and in Vacuum"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 226-234

Translation: Three melts of structural chrome-nickel-molybdenum steel were made in a basic 50-T open hearth furnace. In the ladle, the metal of each melt was treated using one of three versions of technology:

- I--refining with liquid synthetic slags;
- II--evacuation in the ladle;
- III--refining with liquid synthetic slag with subsequent evacuation in the ladle.

The structural and chemical heterogeneity of a 2.85-T ingot and the mechanical properties of the cast metal were studied.

The steel produced by versions I and II were distinguished by low sulfur content, 0.007 and 0.006% respectively, while type II steel had minimum hydrogen content. The structural zones of all ingots were developed practically identically. Ingots of versions I and III showed stability of

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USSR

KALINNIKOV, Ye. S., et al., Proizvodstvo Chernykh Metallov, No 75, Metallurgiya Press, 1970, pp 226-234

chemical composition both in height and in cross section. The steel treated with the synthetic slag differs from the vacuum steel in its higher mechanical properties. Vacuum treatment of the steel after treatment with synthetic slag did not cause a further increase in properties. It is established that the influence of sulfur on the development of non-axial heterogeneity and changes in the mechanical properties of cast steel is more significant than the influence of hydrogen. 7 figures; 6 tables; 6 biblio. refs.

2/2

USSR

UDC 632.9:595.768.12

ARAPAVA, L. I.; YACHENYA, S. V.; Belorussian Scientific Research
Institute of Plants Protection

"Concerning the Destructiveness of the Potato Colorado Beetle"

Minsk, Izvestiya Akademii Navuk BSSR, Seriya Sel'skokhozyayst-
vennykh Nauk, No 3, 1971, p 130

Abstract: Experiments on the destructiveness of the Colorado beetle were conducted in 1966-1967 in Pruzhanskiy Rayon, Brestskaya Oblast with the pest feeding on naturally infected potato fields with sandy soil and a flat topography. Possible losses to potato crops from the Colorado beetle in the absence of control measures in a single generation of the predator were studied. Results indicated that 25, 50, and 100% destruction of the leaf surface of the Vekaragis variety of potato reduced the crop yield by 30, 52, and 86% and the weight of tubers by 39, 64, and 97%; the figures for the Skorospelka 1, Zazerskiy, and Foran varieties are 12-28, 35-43, and 69-84% respectively, and for tuber weight 3-11, 40-54, and 86-98%. The quantity of starch

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USSR

ARAPAVA, L. I., et al, Izvestiya Akademii Navuk BSSR, Seriya Sel'skokhozyaystvennykh Nauk, No 3, 1971, p. 130

was not reduced as a result of a 25% destruction of the leaf surface. A 50% injury to the potato plant reduced starch content in the tubers of the Foran variety 4.46%; a 100% injury in the Skorospelka and Foran varieties reduced starch content 2.07% and 4.76%.

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USSR

UDC 621.382.3

YACHEVSKIY, V.I., SOLOV'YEV, V.V.

"To A Computation Of The Transients During Opening Of A Transistor"

V sb. Poluprovodn. pribory i ikh primeneniya (Semiconductor Devices And Their Application--Collection Of Works), Issue 24, Moscow, "Sov.radio," 1970, pp 76-85 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B237)

Translation: The paper analyzes the delay time and the front of the collector current in a circuit with a common emitter, for the three most common forms of the input signal front: linear, in the form of a section of a sine curve, and exponential; problems of an approximation of the expressions obtained are considered. 5 ill. 3 ref. Author's abstract.

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USSR

UDC: 543.42.062

MIRONOV, V. A., FEDOROV, B. V., SHICHKOV, V. V., YACHIN, V. N.

"Universal Spectral Analyzer for Liquid Media"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp55-60 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1093 by V. S. Krasnova)

Translation: The Special Design Bureau of the Weather Bureau, Academy of Sciences, USSR has developed an experimental model of a universal spectral analyzer (A) for liquid media for measurement of action spectra (characteristic and effective). The A includes a two-wave radiator with controlled output spectra, a thermo-stated cuvette with regulator and temperature measuring device, interchangeable converters and electronic measuring devices and a recording potentiometer. The outputs of both channels of the radiator produce spectra of equal power with an error of equalization relative to the maximum standard level of not over 5% in the 300-760 $m\mu$ wave range. The A allows curves of the change of electrical conductivity, partial oxygen pressure and photo-potentials to be measured as functions of wavelength of the incident radiation, radiation intensity, temperature and composition of liquid and gas media, surrounding the objects studied.

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USSR

UDC: 51

SKERUS, S. L., YACHYUSKAS, I. P.

"A Coalition Differential Game for Three Players"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1971, 11, No 4, pp 887-898 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V432)

Translation: A coalition differential game of three persons is reduced to a coordination game in which the values of the characteristic function are computed as gains in certain situations of equilibrium in coalition-less differential games. The existence of a unique Neumann-Morgenstern solution coincident with the C-kernel is proved for this cooperative game. Authors' abstract.

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USSR

UDC: 621.396.6:620.32:620.178.3(088.8)

SILIN"SH, Ya. Ya., YADCHENKO, K. I.

"A Method of Testing Radio Equipment"

USSR Author's Certificate No 286005, filed 19 Sep 68, published 12 Jan 71
(from REh-Radiotekhnika, No 6, Jun 71, Abstract No 6V283 P)

Translation: This Author's Certificate introduces a radio equipment test method based on vibration or shock jarring of operating equipment under the maximum permissible electrical load. To shorten the production cycle in detecting latent flaws in the equipment during the tests, the moving elements of the equipment being tested (e. g. the band selector switch) are operated at a high speed.

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USSR

UDC 577.4

YADINA, V. F.

"Algorithm for Defining Diagnostic Functions for Check Tests of a Combination Automaton"

V sb. Vopr. sinteza konechn. avtomatov (Problems of Synthesizing Finite Automata -- collection of works), Riga, Zinatne Press, 1972, pp 161-170 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V438)

No abstract

1/1

USSR

SKOROKHOD, A. V., YADRENKO, M. I.

"Absolute Continuity of Measures Corresponding to Homogeneous Gaussian Fields"

Teoriya Veroyatnostey i Ee Primeneniya [Theory of Probabilities and its Applications], 1973, Vol 18, No 1, pp 30-43 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V72, by the authors).

Translation: The general problems of absolute continuity and singularity of Gaussian measures were studied in the works of Ya. Gayek, J. Feldman and Yu. A. Rozanov. However, in the study of specific Gaussian measures, it is desirable to be able to answer these questions, using only the determining characteristics of the corresponding processes.

As we know, to solve the problem of absolute continuity and determine the density, one must solve a certain operator equation which, for ordinary processes, is reduced to an integral Fredholm equation of the first kind. The existence of a solution of this equation provides absolute continuity. However, the question of existence of solutions of such equation is quite complex. The problem therefore arises of determining the conditions of absolute continuity of measures not utilizing the fact of existence of a solution of the corresponding equations.

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USSR

Skorokhod, A. V., Yadrenko, M. I., *Teoriya Veroyatnostey i Ego Primeneniya*, 1973, Vol 18, No 1, pp 30-34.

For stable processes, a number of conditions expressed through correlation functions of spectral densities were suggested by Yu. A. Rozanov; other general conditions were presented in the review article of I. I. Gikhman and A. V. Skorokhod, as well as the book by the same authors.

In the present article, similar conditions, using only the spectral functions and densities, are found for homogeneous Gaussian fields. The authors have limited themselves to the case when the mean values of the Gaussian fields are equal to 0, while the correlation functions differ. The case of identical correlation functions and different means was studied in an article by M. I. Yadrenko. Combining the results of this last work with those in the present article, one can produce conditions of absolute continuity of homogeneous fields with various means and correlation functions. We should particularly note the case of isotropic Gaussian fields, which are studied separately. The conditions of absolute continuity and singularity of measures corresponding to Gaussian random fields have not yet been sufficiently studied.

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USSR

YADRENKO, M. I.

"Absolute Continuity of Measures Corresponding to Gaussian Homogeneous Random Fields"

Teoriya Veroyatnostey i Mat. Stat. Mezhd. Nauch. sb. [Theory of Probabilities and Mathematical Statistics, Interdepartmental Scientific Collection], 1972, No 7, pp 152-161 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V158 by the author).

Translation: Conditions of absolute continuity of measures are studied, corresponding to Gaussian homogeneous random fields with identical correlation functions, with particular attention given to homogeneous and isotropic random fields.

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USSR

UDC: 519.21

YADRENKO, M. I.

"Isotropic Random Fields of Markov Type"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1971, vyp. 5, pp 128-137 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V151)

Translation: This paper deals with Gaussian random fields having certain special Markov properties. The finite-dimensional distributions of these fields are invariant relative to rotations about a fixed point. Author's abstract.

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USSR

YADRENKO, M. I.

UDC: 519.21

"On an Interpolation Problem for a Homogeneous and Isotropic Random Field"

Teoriya veroyatnostey i mat. stat. Mezhved. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1971, vyp. 4, pp 212-220 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V233)

Translation: The paper deals with the problem of linear extrapolation for a homogeneous and isotropic random field observed on a denumerable system of spheres. For fields with a bounded spectrum in the case of special selection of the radii of the spheres, an explicit interpolation formula is derived which is analogous to the Kotel'nikov-Shannon formula. Author's abstract.

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USSR

YADRENKO, M. I.

UDC: 519.2

"Isotropic Random Fields on a Sphere in Hilbert Space"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1972, vyp. 6, pp 142-146 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V120)

Translation: The paper gives a spectral representation of an isotropic random field on a sphere in Hilbert space. Gaussian random fields which have a certain Markovian property are studied. Author's abstract.

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USSR

UDC: 519.2

YADRENKO, M. I.

"Statistical Problems for Isotropic Random Fields"

Tr. VIII Letney mat. shkoly (Works of the Eighth Summer Mathematics School), Kiev, 1971, pp 237-283 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V227 by A. Tempel'man)

Translation: The following are found for isotropic random fields in terms of spectral characteristics: explicit expressions for the best estimates of coefficients of regression, the criterion of equivalence of two measures corresponding to Gaussian isotropic fields with different characteristics, and an expression for the Radon-Nikodim derivative of such measures. The initial sections give the results of the spectral theory of isotropic fields which are utilized in later sections (and most of which are attributable to the author). Bibliography of 25 titles.

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USSR

UDC: 519.2

BREY, V. V., NAGORNYI, V. N., POGORELYI, L. V., YADRENKO, M. I.

"On Modeling Some Classes of Random Processes"

Vychisl. i prikl. mat. Mezhd. nauch. sb. (Computational and Applied Mathematics. Interdepartmental Scientific Collection), 1972, vyp. 17, pp 39-50 (from *REh-Kibernetika*, No 10, Oct 72, abstract No 10V199 [authors' abstract])

Translation: Computational formulas are presented for digital computer modeling of Gaussian stationary processes with correlation functions

$$B(\tau) = e^{-a|\tau|}, \quad E(\tau) = e^{-a|\tau|} \cos b\tau,$$

$$B(\tau) = e^{-a|\tau|} \left(\cos b\tau + \frac{a}{b} \sin b|\tau| \right).$$

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USSR

UDC: 519.2

NAHORVYY, V. N., YADRENKO, M. Y.

"Polynomial Interpolation of Random Processes"

Visnyk Kiyiv. un-tu. Ser. mat. ta mekh. (Kiev University Herald. Mathematics and Mechanics Series), 1971, No 13, pp 10-12, 145 (from RZh-Kiber-
netika, No 4, Apr 72, Abstract No 4v86)

Translation: Interpolation of random processes using S. N. Bernshteyn's polynomials is considered. The behavior of the mean-square error is examined. Authors' abstract.

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YADROV, V. I.

Electronic engineering

TECHNICAL TRANSLATION

FTIC-NI-23-822-71

5048

ENGLISH TITLE: Correlation of Volt-Ampere Characteristics of Coaxial Plasmatron with Magnetic Arc Stabilization

FOREIGN TITLE: Otnosheniye Volt-Ampernykh Kharakteristik Konkajnoy Plazmatrona s Magnitnoy Stabilizatsiej Elektricheskogo Tuzja

AUTHOR: V. S. Kiselev, B. A. Ursinoy, V. I. Yadrov

Elektronnoe Inzhinerstvo

SOURCE: Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR No. 8(2), 1967, pp. 105-108

Translated for FTIC by Leo Kammor Associates

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1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ISOTOPIC EFFECTS IN PHOTONUCLEAR REACTIONS -U-
AUTHOR--(02)-OSOKINA, R.M., YADROVSKIY, YE.L.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSR, SER. FIZ. 1970, 34(1), 182-9
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PHOTONUCLEAR REACTION, NUCLEAR SHELL MODEL, TIN ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0282 STEP NO--UR/0048/70/034/001/0182/0189
CIRC ACCESSION NO--AP0105356
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105356

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SHELL MODEL ANAL. OF EXPTL. DATA
ON THE PHOTODISINTEGRATION OF SN ISOTOPES (PRIME114 SN, PRIME118 SN,
PRIME120 SN, PRIME122 SN, AND PRIME124 SN) WAS MADE. FACILITY:
VSES. NAUCH.-ISSLED. INST. YAD. GEOFIX. GEOKHIM., USSR.

UNCLASSIFIED

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UDC 547.298.6

ISMAGILOV, R. K., YAFAROVA, R. L., and RAZUMOV, A. I.

"Reaction of Ethyl Chloroformate with Potassium Derivatives of Diphenylphosphonylacetic Ester"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, p 2113

Abstract: The potassium derivative obtained from ethyl ester of diphenylphosphonylacetic acid and ethylchloroformate was stirred for 3 hrs at 50-60° in toluene producing $(C_6H_5)_2P(O)CK(COOC_2H_5)_2$, which upon acidification with 5% HCl yielded $(C_6H_5)_2P(O)CH(COOC_2H_5)_2$, m. p. 119-121°. Removing toluene from the residue followed by extraction with hexane-ether precipitated $(C_6H_5)_2P(O)CH_2COOC_2H_5$, m. p. 74-76°. Evaporation of the solvent yielded $(C_6H_5)_2P(O)OC_2H_5$, b. p. 145-150° (0.1 mm). The residue from the extraction represented tarry product $(C_6H_5)_2P(O)CH_2C(O)CH_2COOC_2H_5$.

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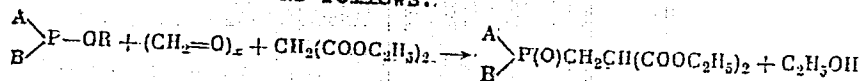
UDC 547.241

RAZUMOV, A. I., YAFAROVA, R. L., and ISMAGILOV, R. K., Kazan Chemical-Technological Institute imeni S. M. Kirov

"An Investigation into a Series of Derivatives of Phosphinic and Phosphinous Acids. LXXV. Synthesis and Certain Properties of Esters and Hydrazides of Phosphinylmethylmalonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1022-1024

Abstract: In studying the derivatives of phosphorylated carboxylic acids, which have shown high biological activity, the synthesis of phosphorylated dibasic carboxylic acids was used as a basis for the present work. The synthesis of the esters proceeded as follows:

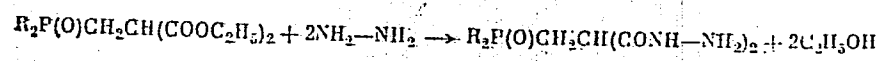


The resulting liquids were colorless, odorless and miscible with alcohol and acetone. The dihydrazide was produced in high yields from the esters as follows:

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RAZUMOV, A. I., et al., Zhurnal Obshchey Khimii, Vol 41, No. 5, May 1971, pp 1022-1024



The product was a crystalline compound soluble in water and alcohol, but not ether.

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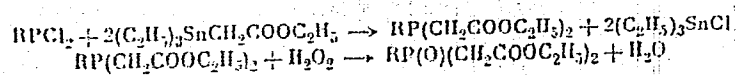
UDC: 547.298.6

ISMAGILOV, R. K., RAZUMOV, A. I., YAFAROVA, R. L., Kazan' Institute of
Chemical Technology imeni S. M. Kirov

"Research in the Series of Phosphinic and Phosphinous Acid Derivatives.
LXXXIV. Methyl(Aryl)-bis(carbohydrazinomethyl) phosphine Oxides and Some of
Their Properties"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1248-1249

Abstract: Continuing their research on synthesis of dihydrazides of phosphorylated dibasic carboxylic acids, the authors investigated compounds containing both carbohydrazinoalkyl groups associated with the phosphorus atom, i.e. compounds of the type $RP(O)(CH_2C(O)NHNH_2)_2$. The alkyl(aryl)bis(carboethoxymethyl)phosphine oxides required for the synthesis were obtained by reacting ethyl triethylstannylacetate with primary dichlorophosphines with subsequent oxidation of the tertiary phosphines:

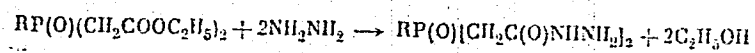


The synthesized tertiary phosphines add sulfur with heating. Methyl(aryl) bis(carboethoxymethyl)phosphine oxides react with hydrazine hydrate to form

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ISMAGILOV, R. K., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1248-1249

the corresponding dihydrazides:



The properties of the synthesized compounds are summarized in tabular form.

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UDC: 539.107.45

AZIMOV, S. A., AYDINOVA, D. M., MUMINOV, R. A., YAFASOV, A. Ya., Physico-technical Institute imeni S. V. Starodubtsev, Academy of Sciences of the UzbekSSR

"Concerning Certain Characteristics of Si(Li) Nuclear Emission Detectors"

Tashkent, Izvestiya Akademii Nauk UzSSR, Ser. Fiz.-Mat. Nauk, No 1, 1973, pp 59-62

Abstract: Research is done on diffusion-drift, spectrometric detectors based on a p-i-n structure made from p-type single-crystal silicon with and without dislocations and with various conductivities. The parameters of the detectors are compared, and optimum conditions are determined for using such detectors and realizing their advantages. The thickness of the working section was 2-6 mm, area 1.25-2.5 cm², and minimum dead layer approximately 12 nm. It is shown how dislocations affect the nuclear physics characteristics of the detectors. Optimum operating conditions are determined for similar detectors used as spectrometers for beta-rays, soft gamma-rays, and x-rays.

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