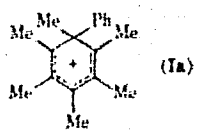
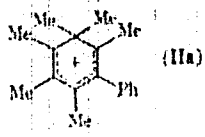
Acc. Nr: AP0041860 Abstracting Service: CHEMICAL ABST. 4/70 K Ref. Code: UR0366

89594d Isomeric phenylhexamethylbenzenonium ions and their intermediates. Kontyng, V. A.; Mozulenko, L. M. (Novosibirsk. Inst. Org. Khim., Novosibirsk, USSR). *Zh. Org. Khim.* 1970, 6(1), 102–7 (Russ). The Grignard reaction of 1-phenyl-1,2,3,5,6-pentamethylcyclohexa-2,5-dien-4-one with MeMgI gave 4-methylene-1-phenyl-1,2,3,5,6-pentamethylcyclohexa-2,5-diene (I). Similarly, 4-methylene-3-phenyl-1,1,2,5,6-pentamethylcyclohexa-2,5-diene (II) was prepd. NMR spectroscopy showed that in BF_3-HF mixt. at −90 to −80°, I, II, or 4-phenyl-1,1,2,3,5,6-hexamethylcyclohexa-2,5-dien-4-one (III) give, resp., 1-, 3-, or 4-phenylhexamethylbenzenonium ions. The temp. increase of I soln. in BF_3-HF mixt. from −90 to −10° causes the formation of 3-phenyl-1,1,2,4,5,6-hexamethyl-



(Ia)



(IIa)

benzenonium ion (IIa) besides 1-phenyl-1,2,3,4,5,6-hexamethylbenzenonium ion (Ia). At 0° the mixt. contains 2 S Ia-IIa mixt. Heating I-III in concd. HCl gave 2,3,4,5,6-pentamethylbiphenyl. CJR

REEL/FRAME
19751741

Acc. Nr: AP0053767 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0366

110864d Isomeric transformations of substituted methylenecyclohexadienes. Mozulenko, L. M.; Koptyug, V. A. (Novosibirsk. Inst. Org. Khim., Novosibirsk, USSR). *Zh. Org. Khim.* 1970, 6(2). 313–16 (Russ). In CCl_4 soln. 4-hydroxy-4-phenyl-1,1,2,3,5,6-hexamethylcyclohexa-2,5-diene (V. A. Koptyug, *et al.*, 1970) loses H_2O and in 2 hr at room temp. it is converted into 6-methylene-4-phenyl-1,1,2,3,5-pentamethylcyclohexa-2,4-diene (I). Addn. of 0.66% CF_3CO_2H to the soln. causes isomerization of I to 6:2:2 4-methylene-3-phenyl-1,1,2,5,6-pentamethylcyclohexa-2,5-diene–4-methylene-2-phenyl-1,1,3,5,6-pentamethylcyclohexa-2,5-diene–4-methylene-1-phenyl-1,2,3,-5,6-pentamethylcyclohexa-2,5-diene mixt. The isomerization proceeds through "phenylhexamethylbenzenonium ion." CPJR

1/1

REEL/FRAME 19830830

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--STRUCTURAL FEATURES OF SOME DIPHENYL OXIDE DERIVATIVES -U-

AUTHOR-(02)-BAKHVALOV, O.V., KOPTYUG, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 143-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC OXIDE, BENZENE DERIVATIVE, BROMINATED ORGANIC COMPOUND, PHENOL, POTASSIUM HYDROXIDE, COPPER, IR SPECTRUM, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1669 STEP NO--UR/0062/70/000/001/0143/0145

CIRC ACCESSION NO--AP0100273

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 022

CIRC ACCESSION NO--AP0100273

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. HEATING 82 G P-C SUB6 H SUB4 BR SUB2 WITH 41 G PHOH AND 19 G KOH IN THE PRESENCE OF 0.36 G FRESHLY PPT. CU 6 HR AT 180DEGREES WITH REMOVAL OF H SUB2 O CONTINUOUSLY GAVE 27PERCENT (P-BRC SUB6 H SUB4) SUB2 O (I), B SUB0.3 92-5DEGREES: AT 220DEGREES THE YIELD OF I WAS 35PERCENT. SIMILAR REACTION OF P-BRC SUB6 H SUB4 OH AND PHBR WITH KOH AND CU GAVE BUT 7PERCENT I. IR SPECTRA OF THE PRODUCTS WERE EXAMD. AND IT WAS INDICATED THAT THE CLAIM OF EXISTENCE OF 2 CONFORMERS OF I IS DUBIOUS (RUDENKO, ET AL., 1969). THE RESULTS REPORTED BY R. ARE PROBABLY CAUSED BY IMPURITIES.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--USE OF MASS SPECTROMETRY FOR DETERMINING THE POSITION OF THE LABEL IN CARBON 13 LABELED NAPYTHALENES -U-

AUTHOR-(03)-KOPTYUG, V.A., ISAYEV, I.S., GORFINKEL, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 845-9

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, CHEMISTRY

TOPIC TAGS--MASS SPECTRUM, CARBON ISOTOPE, CHEMICAL LABELLING, NAPHTHALENE, GRIGNARD REACTION, KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1015 STEP NO--UR/0062/70/000/004/0845/0849

CIRC ACCESSION NO--AP0134727

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134727

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GRIGNARD SYNTHESIS STARTING WITH CARBOXYLATION OF PHCH SUB2 CH SUB2 CH SUB2 MGBR WITH PRIME13 CO SUB2, FOLLOWED BY DEHYDRATION OF THE ACID WITH POLYPHOSPHORIC ACID AND HEATING THE TETRAHYDRONAPHTHALONE WITH NAOH,KOH AT 220DEGREES GAVE ANPHTHALENE 1 PRIME13 C IN 54PERCENT RADIOCHEM. YIELD. FROM PHCH SUB2 CH SUB2 MGBR AND PRIME13 CO SUB2 WAS PREPD. THE TAGGED PENYYLPROPANOL BY REDN. WITH LIALH SUB4 OF THE INTERMEDIATE ESTER; THE ALC. CONVERTED TO RBR AND THIS CONVERTED TO RMGBR, THEN CARBOXYLATED WITH ORDINARY CO SUB2 GAVE AS ABOVE 50.6PERCENT NAPHTHALENE,2 PRIME13 C. THESE WERE OXIDIZED CONVENTIONALLY TO 1,4,NAPHTHOQUINONE, PRIME13 C WHICH ON ELECTRON IMPACT DISSOCD.INTO PARTICLES WHOSE SPECTRUM WAS RECORDED IN A MASS SPECTROMETER. TYPICAL DISTRIBUTION PATTERNS WERE OBTAINED AND THESE, WITH SUITABLE EMPIRICAL EQUATIONS, WERE FOUND TO BE USEFUL FOR DETN. OF THE SITE OF THE PRIME13 C TAG IN NAPHTHALENE. FACILITY: NOVOSIBRISK. INST. ORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR UDC: None

KOPVILLEM, U. Kh., SMOLYAKOV, B. P., and SHARIPOV, R. Z.

"Electron Spin Echo for Cr^{3+} in the Ruby Laser"

Leningrad, Fizika Tverdogo Tela, vol 14, No 5, 1972, pp 1444-1446

Abstract: In this paper, the authors set themselves the problem of finding, in the wavelength range of 3 cm, a quantum transition other than that found earlier and with better conditions for observing electron spin echo in ruby. Theory shows that for these conditions to be realized, the transition should be $3 \leftrightarrow 4$ in a field of 5430 gauss, at an angle of $\pi/2$. This theoretical conclusion was confirmed by experiment. Using a crystal of Al_2O_3: Cr^{3+} with a chromium ion concentration of the order of $3 \cdot 10^{-4}$, the experimenters detected an electronic echo from the Cr^{3+}. Curves are plotted for the echo amplitude as a function of the interval between oscillating pulses, and for the form of the echo signal as a function of the magnetic field intensity.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--NUCLEAR ACOUSTIC RESONANCE STIMULATED BY VIRTUAL FIELDS OF PHONONS AND CONDUCTION ELECTRONS -U-

AUTHOR--KOPVILLEM, U.KH.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 716-19

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR MAGNETIC RESONANCE, ACOUSTIC RESONANCE, MAGNESIUM OXIDE, PHONON INTERACTION, QUADRUPOLE MOMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1985 STEP NO--UR/0181/70/012/003/0716/0719

CIRC ACCESSION NO--AP0105059

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105059

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORETICAL STUDY WAS MADE OF THE POSSIBILITY OF THE SEARCH FOR ACOUSTICAL MAGNETIC RESONANCES BY MEANS OF THE FIELDS OF VIRTUAL PARTICLES. IN TERMS OF THE EXPTL. DATA OF ALREADY OBSD. ACOUSTICAL RESONANCES ON VIRTUAL PHONONS IN MGO:FE PRIME2POSITIVE AND THEORETICAL EVALUATIONS, IT IS SHOWN THAT ACOUSTICAL HEXADECAPOLE RESONANCE RECENTLY OBSD. IN INAS CAN' BE EXPLAINED BY THE QUADRUPOLE TRANSITIONS OF THE NUCLEI PAIRED BY THE ITERACTION, BY MEANS OF THE FIELD, OF THE VIRTUAL PHONONS. NEW SYSTEMS ARE PROPOSED FOR THE SEARCH FOR THE EFFECTS OF FIELDS OF VIRTUAL PARTICLES. FACILITY: KAZAN. FIZ. TEKH. INST., KAZAN, USSR.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PEAK STRUCTURE OF LASER PULSE AND PHOTON ECHO -U-

AUTHOR-(04)-KOPVILLEM, U.H., ERSHOV, G.M., NAGIBAROV, V.R., SAMARTSEV, V.V.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS, NETHERLANDS, VOL. 31A, NO. 2, P. 87-8, 26 JAN. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER PULSE LENGTH, PHOTON EMISSION, LASER EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0501 STEP NO--NE/0000/70/031/002/0087/0088

CIRC ACCESSION NO--AP0111694

UNCLASSIFIED

2/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111694

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS GIANT PULSES CONSIST OF MANY ULTRASHORT PEAKS (SIMILAR TO 10 NEGATIVE PRIME13 SEC) THERE IS A POSSIBILITY OF USING THEM FOR THE EXCITING OF PHOTON ECHO IN MEDIA WITH INTENSIVE INNER MOTION (LIQUIDS, GASES, GLASSES AND CRYSTALS AT A TEMPERATURE HIGHER THAN THAT OF LIQUID HELIUM). THE CONDITIONS OF THIS EXCITEMENT ARE DISCUSSED. FACILITY: KAZAN PHYSICAL TECHNICAL INST. ACAD. SCI., USSR.

UNCLASSIFIED

1/2 046 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ACOUSTIC ELECTRIC RESONANCE IN A LASER PULSE FIELD -U-

AUTHOR-(02)-YERSHOV, G.M., KUPVILLEM, U.KH.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA TVERDOGO TELA, VOL. 12, MAR. 1970, P. 931, 932.

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER PULSE, ACOUSTIC RESONANCE, RUBY, RESONANCE ABSORPTION, RADIATION INTENSITY, MEASUREMENT, ACOUSTIC FREQUENCY, LIGHT PULSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1461 STEP NO--UR/0181/70/012/000/0931/0932

CIRC ACCESSION NO--AP0112455

UNCLASSIFIED

2/2 046 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS SHOWING THAT IN A RUBY CRYSTAL SUBJECTED TO THE STIMULANEOUS EFFECT OF LASER AND ACOUSTIC PULSES, THE SOUND MAY EXPERIENCE RESONANT ABSORPTION AND CAN CHANGE THE DIRECTION OF THE SPONTANEOUSLY EMITTED SHORT LIGHT PULSE. THIS SHOULD MAKE IT POSSIBLE TO DETERMINE THE INTENSITY OF LASER EMISSION, BY MEASURING THE ACOUSTIC FREQUENCY, AND TO STUDY THE BEHAVIOR OF SHORT LIGHT PULSES IN RUBY. AN EXPERIMENTAL PROCEDURE FOR THIS PURPOSE IS PROPOSED. FACILITY: AKADEMIIA NAUK SSSR FIZIKO-TEKHNICHESKII INSTITUT, KAZAN, USSR.

UNCLASSIFIED

USSR

IVANOVA, V. S., KOP'YEV, I. M., BOTVINA, L. R., and SHERMERGER, T. D.

Uprochneniye metallov voloknami (Strengthening Metals with Filaments), Moscow, "Nauka," 1973, 206 pp

Translation of Annotation: The book summarizes the results of experimental investigations and examines theoretical questions. Coefficients are calculated for elasticity in heterogeneous systems, features are shown of deformation and breakdown of composite materials and of the performance of these materials and of the performance of these materials in static, cyclic, and dynamic load conditions. The technology for producing composite materials is considered. The book is intended for researchers and practical workers -- metallurgists, technical engineers, technology innovators, and students at machine building and metallurgical institutions of higher learning. There are 27 tables, 137 illustrations, and 333 bibliographical citations.

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IVANOVA, V. S., et al., Strengthening Metals With Filaments, Moscow, "Nauka," 1973, 206 pp

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IVANOVA, V. S., et al., Strengthening Metals with Filaments, Moscow, "Nauka," 1973, 206 pp

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IVANOV, V. S., et al., Strengthening Metals with Filaments, Moscow, "Nauka," 1973, 206 pp

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IVANOVA, V. S., et al., Strengthening Metals with Filaments, Moscow, "Nauka," 1973, 206 pp

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IVANOVA, V. S., et al., Strengthening Metals with Filaments, Moscow, "Nauka," 1973, 206 pp

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USSR UDC 669.14.018.295:620.183

PROKOF'YEV, D. I., and KOP'YEV, I. M., Moscow

"Phase Composition and Thermal Stability of High-Strength Fine Steel Wire"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 74, pp 134-137

Abstract: The effect of heat treatment on phase composition of steel wire and its stability in relation to annealing time and temperature were studied for the purpose of determining the best steel wire to use as the reinforcing fiber in composite materials. Fine steel wires were made from three steels with a tensile strength above 250 kg/mm^2. The steels used were: EP 322 (Kh13N13M2) with unstable austenite, maraging MS200 (N18K9M5T), and an Fe-Co-Ni-Cr aging steel 40KhNMVMTYu. Steel EP 322, after annealing at 450 and 500° C, retains structural stability, i.e., the austenite-martensite ratio is practically unchanged. Annealing at 600° C for 100 hours increases austenite content to 72%. After annealing at 400 and 500o C, steel MS200 retains tis structural stability, having only martensite. Annealing at 600 and 700° C leads to the formation of austenite in MS200 -- reverse martensite transformation. The austenite content formed is almost 78% after soaking for two hours at 700° C. Steel 40KKhNMVTYu has an austenite structure after all modes of heat treatment.
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USSR

PROKOF'YEV, D. I., and KOP'YEV, I. M., Izvestiya Akademii Nauk SSSR, No 1, Jan/Feb 74, pp 134-137

Weakening (softening) of wire made from this steel was associated with phase coalescence and deformed austenite recovery. The effect of softening during annealing of steel EP322 was linked with the occurrence of recovery and development of the reverse martensite transformation, and for steel MS200 the softening effect is the result of possible "overaging" of the martensite and dissolution or excess phases in the austenite being formed during annealing. Four figures, one bibliographic reference.

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(1)

USSR

UDC 620.17:539.562:669.7

BANNYKH, O. A., BUSALOV, YU. YE., KLEKOVKIN, A. A., KOF'YEV, I. M., and PROKOF'YEV, D. I., Institute of Metallurgy imeni A. A. Baykov

"High-Strength Wires for Reinforcement of Light Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973, pp 40-45

Abstract: A study was made of the mechanical properties, depending on tempering temperature and time, of high-strength wires from steels of industrial melts: U8A carbon steel (1), VNS9(2Kh15N5AM3) austenitic martensite steel (2), MS200(N18K9M5T) martensite-aging steel (3), EP322(CKh14N14M1) austenite steel (4), and an aging alloy based on Fe-Co-Ni-Cr (40KNKhMVTYu) (5). X-ray structural analysis revealed that the loss of strength of the wire at increasing tempering tempreature is generally determined by processes of recovery in cold-deformed martensite, the development of $\alpha(M) \rightarrow \gamma$ transformation, and also by coagulation of particles of excess phases. Wires of steel (1) weakened at temperatures $> 300^{\circ}C$, of steels (2), (3), and (4) - at temperatures $> 500^{\circ}C$, and of (5) - at tempetatures $> 650^{\circ}C$. The selection of the technology for producing a light alloy-wire composite depends on the loss-of-strength temperature of the wire. A liquid-phase technology can be applied in strengthening with

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USSR

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BANNYKH, O. A., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1973, pp 40-45

fibers of alloy (5). In strengthening wires of alloy steels (2), (3), and (4), only solid-phase methods with heating $\leqslant 500^{\circ}C$ can be applied, and only short-duration heating $< 300^{\circ}C$ can be applied for composites strengtened by steel (1) wires. Three figures, two tables.

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USSR

UDC 539.4

KOP'YEV, I. M., GEMINOV, V. N., KUDINOV, V. V., GALKIN, YU. A., OVCHINSKIY, A. S., Moscow

"Testing of Composite Materials in Circular Specimens"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 120-122

Abstract: The possibility is demonstrated of using circular specimens for tensile testing of composite materials reinforced with wire (the matrix was pure aluminum and the armature was wire made from EP-322 steel). The peculiarities of the stress and strain states of the specimens are studied. Results of testing of circular and flat specimens are compared. Three figures, four bibliographs references.

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USSR

UDC 669.71:539.4

KOP'YEV, I. M., USTINOV, L. M., Moscow

"Method of Selecting Reinforcement Fibers to Produce Fibrous Composites With Predetermined Strength Properties"

Moscow, Fizika i khimiya obrabotki materialov, No 2, Mar-Apr 72, pp 97-99

Abstract: Proposed is a new method of selecting and proportioning fibers to produce composite materials with predetermined strength properties. Equations are derived expressing tensile strength, tensile to rupture, modulus of elasticity, and specific weight of compositions of multioriented discrete or continuous structures. A solution to a problem is cited for strengthening a matrix to a given strength, modulus of elasticity, and specific weight using the derived equations and conditions for proportioning fibers with appropriate property values. The method does not claim complete accuracy in predicting the strength characteristics of composites but offers a means for selecting combined pairs of materials and fibers which (aside from factors unrelated to strength) permits meeting the problem in principle. 1 illustration, 3 bibliographic references

USSR

UDC 669.715.3.85.86.018.29(088.8)

DRITS, M. Ye., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I. M., DEMIDOV, Yu. S., LEYKIN, A. I., YEGOROV, N. I. [Institute of Metallurgy imeni A. A. Baykov]

"Aluminum-Based Alloy for Foil"

USSR Author's Certificate No. 276419, Filed 13/11/68, Published 16/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, I748P).

Translation: The alloy has the following composition (%): Cu 0.5-2.0, at least one of the REM 0.1-0.5 and Zr 0.05-0.15, impurities $\leq$ 0.01, remainder Al. The introduction of Cu and the rare and refractory metals increases its physical and mechanical properties. The alloy shows σ_b 30 kg/mm^2, withstands $30 \cdot 10^6$ cycles without rupture, and can be rolled into a foil 10-20μ thick.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401430008-0"

USSR

UDC 669.715.22.85.86.296.018.2(088.8)

DRITS, M.Ye., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I.M., DEMIDOV, Yu.S., LEYKIN, A. I., YEGOROV, N. I.

"Aluminum-Based Alloy for Foil"

USSR Author's Certificate No. 276420, Filed 13/11/68, Published 16/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, 75OP).

Translation: This alloy has the following composition (%): Ag 0.75-2, REM 0.1-0.5, Zr 0.05-0.15, impurities $\leq$ 0.01, Al remainder, has high σ_b (26 kg/mm^2) and high durability and stability of properties with cyclical loading, has good technological properties for rolling to a thickness of 10-20μ; the foil has good surface qualities.

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USSR

UDC 669.71:669-416:539.4:539.52

DRITS, M. YE., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I. M.

"Variation of the Strength and Plastic Properties of Aluminum Foil and Sheet Aluminum as a Function of Composition"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 28-32 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I625)

Translation: A study was made of the dependence of the mechanical properties of Al rolled material A99 2-0.02 mm thick. It was established that the specific properties of the foil (a sharp drop in plasticity and an increase in strength) begin to appear with a thickness of the rolled material of 0.1 mm. A study was made of the dependence of the mechanical properties of the 2 mm sheet and 0.02 mm foil on composition for binary alloys of the Al-Cu, Al-Zn, Al-Mg, Al-Mn, and Al-Ti systems. The properties were determined both in the peened and annealed states. The nature of the dependence of the mechanical properties on the composition is analogous for foil and sheet, but the alloying effect is exhibited appreciably more strongly in the foil. The observed deviations from this relation are connected with the harmful effect of oxidation of the interfaces (internal and external) and the presence of microdefects caused by inclusions of solid and brittle phases. Stress relief of the foil has a cross section. 3 illustrations and a 6-entry bibliography.

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USSR

UDC: 539.385

GEMINOV, V. N. and KOP'YEV, I. M., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Study of Fine Wire Fatigue"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 109-111

Translation: A device has been made for fatigue tests using bending with rotation for fine wire with a diameter of the order of tenths of a millimeter. The wire rotated by a motor is force-bent over a specific radius in a fluoroplast block with a circular groove. The tests were conducted on molybdenum wire, 0.12 mm in diameter, under two-stage loading. Curves have been plotted to demonstrate molybdenum sensitivity to changes in loading. (2 illustrations, 2 bibliographic references; summary).

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USSR UDC: 539.385

DRITS, M. YE., KADANER, E. S., KOP'YEV, I. M., TOROPOVA, L. S. and DEMIDOV, YU. S., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Factors Affecting the Fatigue Characteristics of Aluminum Foil of Various Compositions"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 112-116

Translation: Aluminum foil finds applications in the production of miniature computer membranes operated under cyclic loading conditions. There are almost no data in reference sources on the fatigue strengths of aluminum foil. This study deals with the effect of alloying components on the limited service life of aluminum foil. Ordinary fatigue curves have been plotted for pure A99 aluminum and Al alloy with 4% Zn. The effect of the foil's microgeometry on fatigue properties was studied on foil from Al alloy with 4% Zn. It is shown that the fatigue strength of foil from aluminum alloys depends on: 1) foil composition, governing the presence or absence of internal defects; 2) alloy strength; and 3) the state of internal and external interfaces. (2 illustrations, 4 biblio. ref.; summary)

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401430008-0"

USSR

UDC 669.28:620.178.3

GEMINOV, V. N., and KOP'YEV, I. M.

"Study of Fatigue of Thin Wires"

V sb. Ustalost' met. i splavov (Alloy and Metal Fatigue -- Collection of Works), Moscow, "Nauka" (Science), 1971, pp 109-111 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1I778 by authors)

Translation of Abstract: A device has been developed for the rotating-beam fatigue testing of thin wires with a diameter of the order of tenths of a millimeter. The wire, rotated by an electric motor, is force-bent on a given radius in a block made of Teflon with a circular slot. Tests were made of Mo wire 0.12 mm in diameter under a two-stage stress schedule; curves of Mo sensitivity to load variation were plotted. Two illustrations. Bibliography with two titles.

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UDC 669.71:621.762

USSR

BUSALOV, YU. YE., KOP'YEV, I. M., Moscow

"Ceramics Reinforced With Metallic Fiber: a Survey"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 70, pp 57-69

Abstract: Composite materials possessing the best qualities of ceramics (heat-resistance, corrosion-resistance, etc.) and metals (tensile strength, etc.) would offer great structural advantages. The authors reviewed the published data on the physical and chemical properties of (metal) fiber-reinforced ceramics. It is concluded that: 1) at least in principle a satisfactory metal-fiber - ceramic combination can be developed, the most promising fibers being of continuous, net or ribbon type; 2) the maximal volumetric proportion of metallic fiber is about 30-40%; 3) reinforcement of this sort greatly improves the quality of the matrix; in particular, impact toughness and thermal shock resistance; and 4) promising compositions are found in pure Al_2O_3, SiO_2, SiC, mullite and mullite-Al_2O_3 mixtures (58.5% and 41.5%), reinforced with molybdenum and niobium.

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1/2 062 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CERAMIC REINFORCED WITH METAL FIBRES, REVIEW -U-

AUTHOR-(02)-KOPYEV, I.M., BUSALOV, YU.YE.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I KHIM. OBRABOT. MAT., JAN.-FEB. 1970, (1), 57-69.

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL FIBER, FIBER METALLURGY, COMPOSITE MATERIAL, ALUMINUM OXIDE, SILICON, MOLYBDENUM, NICKEL, CERAMIC PRODUCT, THERMAL SHOCK, IMPACT STRENGTH, BIBLIOGRAPHY, MECHANICAL STRENGTH, REINFORCED MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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CIRC ACCESSION NO--AP0125900

UNCLASSIFIED

2/2 062 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125900

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENT STATE OF KNOWLEDGE REGARDING THE CREATION OF COMPOSITE MATERIALS WITH A CERAMIC BASE AND A NETWORK OF REINFORCING METAL FIBRES IS REVIEWED. THE MOST SUITABLE FORM OF THE REINFORCING METALLIC COMPONENT IS THAT OF CONTINUOUS FIBRES OR STRIP. THE MAX. VOLUME PROPORTION OF THE FIBRES PROVIDING INCREASED MECHANICAL STRENGTH IS SIMILAR TO 35PERCENT. REINFORCING THE BASE IN THIS MANNER GREATLY INCREASES THE MECHANICAL STRENGTH, PARTICULARLY THE IMPACT STRENGTH AND RESISTANCE TO THERMAL SHOCK. METALS PARTICULARLY SUITABLE FOR REINFORCING SUCH CERAMIC MATERIALS AS AL SUB2 O SUB3, SIC, AND SIO SUB2 ARE MO AND NI.

UNCLASSIFIED

UDC: 621.382.3

USSR

ALFEROV, Zh. I., AMOSOV, V. I., GARBUZOV, D. Z., ZHILYAYEV, Yu. V., KONNIKOV, S. G., KOP'YEV, P. S., and TROFIM, V. G.

"Investigating the Dependence of the Luminescent Characteristics of n and p Type GaP_xAs_{1-x} and $Al_xGa_{1-x}As$ Solid Solutions"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1879-1887

Abstract: The present article is the latest of a series published by the first-named author in collaboration with these or other researchers regarding the nature of photoluminescence spectra in solid solutions of GaP_xAs_{1-x} and $Al_xGa_{1-x}As$. In the present paper, results are given of experimental investigations into the position of the fringe band maximum radiation and the relative radiation intensity in the band as they depend on the composition of the solid solutions of both n and p types. The experimental specimens were in the form of epitaxial layers obtained by the liquid and gas transport method, their compositions being determined by the microroentgen spectral method with the JXA-5A analyzer. The luminescence was excited by a DRSh-250 lamp with a filter system removing the yellow and green mercury lines, and the radiation spectra were recorded by the MDR-2 monochromator with a grating of 1/2

USSR UDC: 621.382.3 (3)

ALFEROV, Zh. I., Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1879-1887

600 lines/mm. The radiation receivers were germanium photodiodes or the FEU-22. The authors express their gratitude to N. V. Klepikova and V. P. Kuz'min for their assistance with the experiments, and V. M. Tuchkevich for his interest in the work.

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USSR

UDC 621.382.3

KOPYL, G. F., MOSENKIS, L. M.

"Forecasting the Stability of Noise in Transistor Circuits"

Kiev, Pribory i sredstva avtomatiki (Devices and Means of Automation), "Nauk. dumka," 1970, pp 103-112 (from RZh-Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B197)

Translation: The dependence of the noise factor of combined transistor circuits on the internal resistance of a signal source is determined. The minimum noise level of the circuit is observed when the magnitude of the resistance of the signal source is close to the nagnitude of the impedance input of the circuit. Change of the noise factor in time is explained by the instability of the flicker noise of a transistor caused by irreversible changes in the body and on the surface of semiconductor devices. 4 illustrations, 6 references. N.K.

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USSR

GAVRILOV, M. A., KOPYLENKO, V. M.

"The Method of "Transition Tables" for Synthesis of Multiple-Output Combination Structures of Arbitrary Elements"

Abstraktn. i Struktur. Teoriya Releyn. Ustroistv. [Abstract and Structural Theory of Relay Devices -- Collection of Works], Moscow, Nauka Press, 1972, pp 7-32 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V613 by the authors).

Translation: A procedure of directed search is based on application of special criteria allowing variables to be found which are closest to the assigned function, considering actual limitations as to number of inputs, number of branches of outputs, connections of elements with each other, etc.

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USSR UDC: 8.74

KUROTCHENKO, V. I., KORYLENKO, V. M.

"Conditions of Existence of a Series of Sub-Blocks Which Realize a Given Relay Device"

V sb. Metody postroyeniya inform.-logicheskk. ustroystv (Methods of Constructing Information-Logic Devices--collection of works), Frunze, "Ilim", 1971, pp 140-150 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V957)

Translation: Conditions are formulated for noncontradictory realization of a relay device with the aid of a given series of sub-blocks. Requirements are outlined and the basic criteria are given which are necessary in construction of a unified series of sub-blocks for a given class of circuits. Authors' abstract.

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UDC: 681.3

USSR

KOPYLENKO, V. M.

"Synthesis of Reliable Structures From Unreliable Elements of a Logic Module"

V sb. Printsipy postroyeniya i metody sinteza funkts. uzlov telemekh. sistem (Principles of Construction and Methods of Synthesizing Functional Modules of Remote Control Systems--collection of works), Frunze, "Ilim", 1971, pp 32-41 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V781)

Translation: A method is outlined for synthesizing structures which are stable in spite of a predetermined number of failures of the functional elements in the logic module. The method is designed for synthesis of structures from an extensive class of complete functional sets of elements. Author's abstract.

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USSR

UDC: 51.621.391

KOPYLENKO, V. M.

"Algorithms for Synthesis of Structures of Relay Devices in Certain Functionally Complete Sets of Elements"

V sb. Printsipy postroyeniya i metody sinteza funkts. uzlov telemekh. sistem (Principles of Constructing and Methods of Synthesizing the Functional Elements of Remote Control Systems--collection of works), Frunze, "Ilim", 1971, pp 3-21 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V693)

Translation: The author considers the problem of realizing arbitrary Boolean functions (both completely and incompletely defined) by circuits based on functional elements. A decomposition-type multiple-step method of synthesis is described, which is essentially as follows. Let there be a certain set Q_i of Boolean functions on the i-th step which differ from the input variables (Q_1 is the set of assigned functions for the realization which do not coincide with the input variables). One function f is selected from Q_i and realized at the output of E -- one of the functional

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KOPYLENKO, V. M., Printsipy postroyeniya i metody sinteza funkts. uzlov telemekh sistem, Frunze, "Ilim", 1971, pp 3-21

elements of the basis; both the input variables and certain functions of the input variables may be sent to the inputs of the functional element in the general case. Let $\psi_1, \psi_2, \ldots, \psi_k$ be the functions (defined in the process of synthesis) which are to be sent to the inputs of E. The set Q_{i+1} for the next $i+1$-th step is formed from the set Q_i by removing the function f and adding the functions $\psi_1, \psi_2, \ldots, \psi_k$ (or by simply removing f if only input variables are sent to the inputs of E). If the set Q_{i+1} is not empty, then the next $i+1$-th step is undertaken; but if the set Q_{i+1} is empty, then the process of synthesis is completed on the i-th step. Sorting out the possible modifications of selection of the function f, the element E and the functions to be sent to the input of E becomes practically impossible when realizing functions of even a very small number of input variables. In this connection, it is proposed that a test for the complexity of realization of Boolean functions be used on each step (in selecting $f, E, \psi_1, \psi_2, \ldots, \psi_k$). It is stated without proof that the described synthesis algorithm enables realization of a given Boolean function within a given number of steps by a nonredundant circuit (the circuit S which realizes the function ϕ is considered nonredundant if

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KOPYLENKO, V. M., Printsipy postroyeniya i metody sinteza funkts. uzlov telemekh. sistem, Frunze, "Ilim", 1971, pp 3-21

a function different from ϕ is realized at the output of S when an absolute zero or an absolute one is substituted for the variable sent to any input of an element of the circuit). N. Red'kin.

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USSR

UDC: 681.3

KOPYLENKO, V. M.

"Synthesis of Competition-Free Structures in the Logic Part of a Relay Device"

V sb. Printsipy postroyeniya i metody sinteza funkts. uzlov telemekh. sistem (Principles of Constructing and Methods of Synthesizing the Functional Elements of Remote Control Systems--collection of works), Frunze, "Ilim", 1971, pp 22-31 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V908)

Translation: A method is given for synthesis of competition-free structures in a logic unit where the operational algorithm does not cover the variation of p variables. The method is designed for synthesis of structures in an extensive class of noncontact elements. Author's abstract.

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USSR

UDC: 681.3

KOPYLENKO, V. M.

"Synthesis of Reliable Structures in the Presence of Unreliable Inputs and Memory Elements in the Relay Device"

V sb. Printsipy postroyeniya i metody sinteza funkts. uzlov telemekh. sistem (Principles of Constructing and Methods of Synthesizing Functional Elements of Relay Devices--collection of works), Frunze, "Ilim", 1971, pp 42-51 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V907)

Translation: A method is outlined for synthesizing the structures of relay devices which are resistant to a predetermined number of failures of the external inputs and memory elements of the relay device. The method is designed for synthesizing structures from an extensive class of functionally complete elements. Author's abstract.

USSR UDC: 681.3

KOPYLENKO, V. M., VOSTROVA, Z. N.

"Algorithm for Synthesis of Relay Devices Based on Standard Sets of Elements"

V sb. Metody postroyeniya inform.-logicheskk. ustroystv (Methods of Constructing Information-Logic Devices--collection of works), Frunze, "Ilim", 1971, pp 3-22 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V906)

Translation: A description is given of the flowchart and logic diagram of an algorithm for synthesis of relay devices given by generalized tables of states on standard sets of elements: AND, OR, NOT, AND-NOT, NOR, majority elements, etc. Criteria are presented for directed selection of the realization. Authors' abstract.

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USSR

UDC: 620.17.171

KONONCHUK, N. I., AKIMOV, L. M., VASIL'YEV, B. N., LAPITSKIY, Yu. A., BELYAYEV, M. S., BICHUTSKAYA, O. V., KOPYLOV, A. A., TIKHONTROVA, V. A., Moscow

"Study and Evaluation of the Kinetics of Fatigue Rupture of Heat-Resistant Alloys"

Kiev, Problemy Prochnosti, No 11, 1970, pp 19-23

Abstract: The results of an investigation of the fatigue resistance of heat-resistant alloys with symmetrical and asymmetrical loading cycles show significant and varied sensitivity to asymmetry in the loading cycle, depending on the type of alloy and test mode (temperature, number of loading cycles, etc.). This paper studies the kinetics of the development of fatigue cracks in heat-resistant alloy on the basis of the actual endurance characteristics with symmetrical and asymmetrical loading cycles. The process of specimen rupture was divided into two stages: the stationary stage before formation of the main crack and the nonstationary stage of development of the main crack to a certain depth, for example 10% of the

USSR

KONOCHUK, N. I., AKIMOV, L. M., VASIL'YEV, B. N., LAPITSKIY, Yu. A., BELYAYEV, M. S., BICHUTSKAYA, O. V., KOPYLOV, A. A., TIKHOMIROVA, V. A., Moscow, Kiev, Problemy Prochnosti, No 11, 1970, pp 19-23

specimen thickness. A formula is produced for the "viability factor" which, in combination with calculation of the values of Δt_i and t_{tr}, can describe the kinetics of development of fatigue cracks in various alloys. This factor expresses the sensitivity of the alloy to the development of the fatigue crack on the basis of the experimental characteristics of endurance of real alloys.

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USSR

UDC 539.4

TAVER, Ye. I., RYSKIN, A. N., KOPYLOV, A. K., SIDOROV, N. G., KRICHEVSKIY, Ye. Yu., SUKHOTIN, A. M., ANTROPOV, N. P., ANTONOVSKAYA, E. I., Leningrad

"Strength of Welded Joints in High-Strength Stainless Steels at Cryogenic Temperatures"

Kiev, Problemy Prochnosti, No 6, 1972, pp 93-96.

Abstract: The influence of the geometry of welded seam made by austenitic wire on the strength of welded joints of martensitic stainless steels at cryogenic temperatures is studied. The influence of technological defects (such as under- and overheating) on strength of welded joints of two types of steels at low temperatures is studied. It is established that designers must consider both reduced strength of seam metal under normal conditions and impermissibility of any stress concentrators in the seam zone.

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USSR UDC 539.4

SENIN, A. M., LAMASHEVSKIY, V. P., SIDOROV, N. G., KOPYLOV, A. K., NOVIKOV, N. V., and LEBEDEV, A. A., Kiev, Institute for Problems of Strength, Academy of Sciences UkrSSR

"Strength of Welded Pipe Joints from Heterogeneous Metals at Room and Low Temperatures"

Kiev, Problemy Prochnosti, No 8, Aug 70, pp 64-69

Abstract: The results are presented of an investigation of the strength of welded pipe joints made from heterogeneous metals, such as Kh18N10T steel and AMG-6 alloy, using friction welding and a soft AD1 aluminum interlayer. Tests were conducted under various loading conditions at room (20°C) and low temperatures (-180°C). The effect of the scale factor on strength was investigated by varying the pipe diameter, the width of the interlayer, and the shape of the joints. The results show that the width of the soft interlayer in a square butt joint substantially affects the strength of the joint, and that qualitatively different effects are obtained at different temperatures. At room temperature the strength of the joint decreases with interlayer width, while at -196°C the strength increases.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401430008-0"

USSR

SENIN, A. M., et al, Problemy Prochnosti, No 8, Aug 70, pp 64-69

In order to determine the magnitude of thermal stress, an investigation was made of the stress level in the soft interlayer and in joined items during cooling. The measurement of thermal deformations of welded joint elements was conducted tensometrically. The investigation of the effect of loading conditions on strength characteristics was conducted on a test bench designed for combined loading of pipe samples by axial force and internal pressure under conditions of room and low temperatures. The axial and tangential stresses were computed by Lamé formulas for a thick wall cylinder under internal pressure. The fracture stress levels, during application of axial force, internal pressure, and combined proportional loading by axial force and internal pressure at 20° and -180°C are presented in graphs and tables.

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KOPYLOV, A. M.

Radio broadcasting

30: JPRS 5914
18 Jan 61

THE FEEDING OF BROADCASTING PROGRAMS TO RADIO RELAY STATIONS

[Article by Engineer A. M. Kopylov, Moscow, Vestnik Svyazi, Russian, No 9, September 1960, pp 18-19]

The directives of the 21st Party Congress provided for "the further development of communications, radio broadcasting and television on the basis of use of the latest technical facilities." An important problem is the introduction of TPV (trekhprogrammyy provodnoye veshchaniye; three-program wire broadcasting). At the present time it embraces over 220 cities of the Soviet Union. In this article new methods of feeding broadcasting programs to radio relay stations are examined.

Divided pairs of a city telephone system are usually used to feed broadcasting programs to radio relay stations and obtain reverse audio monitoring. Therefore with the introduction of TPV the requirements for connecting lines have increased considerably. The introduction of TPV is hampered by an absence of the latter in remote regions of cities.

At the same time, KRR-30/60 equipment has become widespread in city telephone systems. To introduce TPV in regions where there are not enough coupling lines, the laboratory of the Novosibirsk Oblast Production and Technical Administration of Communications (OPTUS) has attempted to use that equipment to feed broadcasting programs. Transceiver units have been converted to obtain duplexed telephone channels. An experimental channel has met the requirements of quality class II in its main indices. However, a broadcasting channel with the required quality indices was not successfully obtained because of a high noise level. The noises were scattered over the entire spectrum and it does not appear possible to separate them from the useful signal.

Broadcasting channels with acceptable quality indices have been created by using phantom circuits of high-quality

- 10 -

[redacted]

Figure 1

[redacted]

Figure 2

[redacted]

Figure 3

USSR UDC: 621.316.825

BORODIN, I. F., KOPYLOV, G. A.

"Approximating the Volt-Ampere Characteristic of Posistors"

Dokl. Mosk. in-ta inzh. s.-kh. proiz-va (Reports of the Moscow Institute of Agricultural Production Engineering), 1970, 6, No 3, pp 100-107 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V316)

Translation: In order to approximate the voltage-current characteristic of a posistor, three equations are selected, two of which give a fairly accurate approximation of the initial section of the curve and can be used in designing circuits with posistors. The third equation approximates the final section of the characteristic and can be used for instance in calculating relay circuits. Two illustrations, bibliography of six titles. N. S.

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USSR UDC: 621.315.3

KOPYLOV, K. I., MENCHIKOV, L. P., OKUN', Ye. L., SMIRNOV, V. M., SHERSTOBITOV, A. Ye.

"An Installation for Making Microwires in Glass Insulation"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 134-143 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V419)

Translation: The authors present the results of development of specialized installations for casting type ULP-5, ULP-6 and ULP-6M microwires in glass insulation. The schematic diagrams of the installations are described and their technical characteristics are given. Resumé.

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USSR

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KOPYLOV, P., MEDVEDEV, E., and TACHKOV, A.

"Holography and Television"

Moscow, Radio, No 5, May 1970, pp 15-24

Abstract: The authors review the development and explain the basic principles underlying holography. They point to the advantages inherent in hologram as to brightness of transmission which is not possible with focused images either with standard photography or television. The use of holographic methods in television is proposed and the various existing drawbacks enumerated. If the dimensions of holograms can be decreased, then there exists a real possibility of utilizing existing television systems for the transmission of holograms. A practical method for doing this is illustrated where the hologram is broken down into individual, elementary rectangles. These are magnified by lenses until the structure of the transformed hologram is coarse enough to be read by the electron beam of a television camera tube. The hologram may be transmitted through a channel with the aid of a "scanning beam" type television pickup. The raster of the scanning electron beam is projected onto the hologram. This is done with the aid of an optical system forming a microraster on the hologram. The video signal formed on the load of the photoelectron multiplier is amplified and corrected by a preamplifier and a videoamplifier. The section of the hologram transmitted through the channel then appears on the picture tube.

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USSR

KOPYLOV, P., MEDVEDEV, E., and TACHKOV, A., Moscow, Radio, No 5, May 1970, pp 15-24

Practical examples of hologram transmission are given; however something was lost in each instance. Despite this, the authors express confidence that these shortcomings will be overcome.

USSR

SHMAKOV, P.V., KOPYLOV, P.M.

"Stereo Television And Holography"

Tekhnika kino i televideniya, No 5, May 1972, pp 47-53

Abstract: This paper is concerned with an approach to a solution of certain problems of holographic television. The diagrams of a holographic television system and a multi-camera angle television system are discussed. The construction is shown of the receiving part of a multi-camera angle holographic system. Preparation of synthesized holograms from a series of photographs and from a sequence of diapositives is described. The principles of the use of a holographic reflecting screen are considered. It is concluded that even at present the partial use of holographic methods makes it possible to create multi-camera angle images from a series of images obtained by one of the known methods. This paper was presented at the All-Union Scientific-Technical Conference In Commeration Of Radio Day, Moscow, 1971. 8 fig. 16 ref.

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USSR

UDC 621.397-2

SHMAKOV, P. V., ZHEBEL', B. G., KOPYLOV, P. M., MEDVEDEV, E. V., TACHKOV, A. N.

"Reproduction of Three-Dimensional by the Use of Coherent Light"

Moscow, Elektrosvyaz'(Electrical Communications), No 2, Feb 70, pp 5-10

Abstract: The authors conclude that: 1) In broadcast holographic television systems a decrease of the information transmitted is possible because of the elimination of vertical parallax and preservation of a limited number of foreshortenings in the horizontal direction; 2) The method of transmission of a series of images focused in normal light and the forming of them at the receiving end of the holograph, making it possible to perceive depth and to examine the image of three-dimensional objects, is undoubtedly of great interest and merits careful and thorough investigation; and 3) Progress in analysis, transmission, and reproduction of complete holographic information is obviously possible only by using scanning and modulated laser beams. The image of a cannon and a bell photographed with a magnified holograph is shown as it looked before and after transmission on the Moscow--Minsk facsimile channel. The arrangement of the system is shown in several drawings. 5 fig. 21 ref. Submitted 19 May 69.

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1/2 040 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--RECONSTRUCTION OF THREE DIMENSIONAL IMAGES USING COHERENT LIGHT -U-

AUTHOR-(05)-SHMAKOV, P.V., ZHEBEL, B.G., KOPYLOV, P.M., MEDVEDEV, E.V., TACHKOV, A.N.
COUNTRY OF INFO--USSR

SOURCE--ELEKTROSVIAZ', VOL. 24, FEB. 1970, P. 5-10

DATE PUBLISHED-------70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--HOLOGRAM, COHERENT LIGHT, TV NETWORK, BANDWIDTH COMPRESSION

CONTROL MARKING--NO RESTRICTIONS

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CIRC ACCESSION NO--AP0118771

UNCLASSIFIED

2/2 040 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118771

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF DIFFERENT METHODS FOR REDUCING THE VOLUME OF HOLOGRAPHIC INFORMATION TO FACILITATE TRANSMISSION OVER STANDARD TELEVISION CHANNELS. FOR AN IDENTICAL RATE OF TRANSMISSION OF A SINGLE FRAME, THE BANDWIDTH OF THE HOLOGRAPHIC SYSTEM SHOULD BE FOUR TO SEVEN TIMES WIDER THAN A STANDARD TELEVISION CHANNEL. IT IS POSSIBLE TO REDUCE THE VOLUME OF HOLOGRAPHIC INFORMATION BY (1) RECORDING HOLOGRAMS WITH LOW SPATIAL FREQUENCIES, (2) REDUCING THE BANDWIDTH OF THE SPATIAL FREQUENCIES WITH THE AID OF A SCATTERING MEDIUM PLACED IN THE SYSTEM, AND (3) LIMITING THE DIMENSIONS OF THE ANALYZED HOLOGRAPHIC SEGMENT. IT IS SHOWN THAT THE BEST WAY OF REDUCINT THE INFORMATION IS BY REMOVING VERTICAL PARALLAX AND BY CONSERVING A LIMITED NUMBER OF ASPECTS IN THE HORIZONTAL DIRECTION. A METHOD IS DESCRIBED FOR TRANSMITTING A SEQUENCE OF IMAGES FOCUSED IN ORDINARY LIGHT, WITH SUBSEQUENT FORMATION OF A HOLOGRAM AT THE RECEIVING END.

UNCLASSIFIED

USSR

UDC 621.3.049.75

KOPYLOV, S. G., KAZAKOV, S. N., YEGUNOV, A. V., KUZ'MICHEV, V. S., MELIK-OGANDZHANYAN, P. B., IGNATOV, B. M., FEDOTOV, V. A., YAKOVLEV, YE. G.

" Multilayer Printed Board"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, 8 May 70, p 43, Patent No 270029, Filed 4 Mar 68

Translation: This Author's Certificate introduces a multilayer printed board containing alternating layers of dielectric and electrically conducting material designed for mounting integral circuits with flat leads in which grooves are cut out on both sides of the integral circuit. The interlayer connections are made in these grooves. They are executed by welding or soldering. The board is distinguished by the fact that in order to insure high density of arrangement of highly reliable interlayer connections with a minimum number of them and also to lower the labor involved in manufacturing the boards, the interlayer connections are executed in the form of bunches of printed conductors made during the process of pressing the multilayer printed board, and the number of bunches leading into the groove is determined by the number of leads of the integral circuits mounted on the board.

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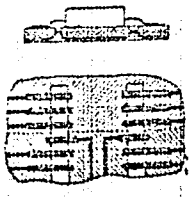
KOPYLOV, S. G., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, 8 May 70, p 43, Patent No 270029, Filed 4 Mar 68



USSR

UDC 536.244:538.124

ROMANOVSKIY, S. G., and KOPYLOV, V. F., Minsk

"Experimental Investigation of the Heat Exchange of Ferromagnetic Solids Heated in the Electromagnetic Field"

Kishinev, Elektronnaya Obrabotka Materialov, No. 3 (39), 1971, pp 50 —54

Abstract : The heat exchange process of ferromagnetic solids heated in the electromagnetic field was experimentally investigated according to a shown block diagram on a steel plate and a steel plate in contact with a capillary-porous ceramic plate. The carried out experiments are described and the results are analytically discussed by reference to the heating—time curves. It was found that the profile of the heat flux and its density on the surface of the steel plate heated by electromagnetic induction and heated conductively from the electroheating element differ considerably. The observed effects and regularities can

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USSR

ROMANOVSKIY, S. G., and KOPYLOV, V. F., Elektronnaya Obrabotka Materialov, No 3 (39), 1971, pp 50-54

be explained somehow on the basis of the theory of elastic, heat, and electric phenomena in ferromagnetic solids. Their physical source may be found in the effect of d-electrons on the behavior of s-electrons which determine the electronic part of ferromagnetic heat transfer. At low temperatures, it can be anticipated that the heat resistance is dependent on the scattering not only of s-electrons on phonons, but also on elementary excitations of the system of internal d-electrons. Three illustr., 5 formulas, 3 biblio. refs.

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USSR UDC: 547.915.5

MITSNER, B.I., SYRTSOVA, ZE.S., KOBYLOV, V.M., ZVONKOVA, YE.N., and ANDRIANOV, K.A.
Moscow Institute of Fine Chemical Technology imeni M.V. Lomonosov, Moscow,
Ministry of Higher and Secondary Specialized Education RSFSR

"Studies in the Field of Complex Lipids. New Synthesis of Erythro-2-N-stearoyl-sphinganyl-1-O-aminoethyl Phosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 942-943

Abstract: A new general method is suggested for the synthesis of erythro-2-N-stearoyl-sphinganyl-1-O-aminoethyl phosphate, based on the use of potassium organosilylamide. The method may also be used for sphingenine derivatives.

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1/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF HYDROGEN IN A SODIUM HEAT TRANSFER AGENT -U-

AUTHOR-(03)-KOPYLOV, V.S., KOROTAYEVA, M.N., KUNOVALOV, E.YE.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(3), 241-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LIQUID METAL COOLED REACTOR, SODIUM, METAL IMPURITY, HYDROGEN, THERMAL ANALYSIS, HYDRIDE, HYDROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0054 STEP NO--UR/0089/70/028/003/0241/0242

CIRC ACCESSION NO--AP0120754

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0120754

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOTAL H CONTENT IN THE NA USED AS COOLANT IN NUCLEAR REACTORS IS DETD. BY A THERMAL DECOMPN. METHOD (IVANOVSKII, ET AL., 1968); THE H BOUND AS HYDRIDE IS DETD. BY THE METHOD OF WHITE, ET AL. (1954); AND THE H BOUND AS HYDROXYL IONS IS DETD. BY THE DIFFERENCE. A STATISTICAL ANAL. OF THE RESULTS OF 35 DETNS. (AT A TOTAL H CONTENT OF 4.7 TIMES 10 PRIME NEGATIVE4 MINUS 8.6 TIMES 10 PRIME NEGATIVE2 WT. PERCENT) SHOWS THAT THE RELATIVE ERROR RANGES FROM 6 TO 24PERCENT, THAT THERE IS NO SYSTEMATIC ERROR, AND THAT THE SENSITIVITY OF DETN. OF HYDRIDE AND HYDROXYL H IS 1 TIMES 10 PRIME NEGATIVE4 AND 2 TIMES 10 PRIME NEGATIVE4 WT. PERCENT, RESP.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PREPARATION OF POLYPHENYLENE OXIDES -U-

AUTHOR-(02)-KOPYLOV, V.V., PRAVEDNIKOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 267,074
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHENOL, CONDENSATION REACTION, CATALYST, PHENYLENE, ORGANIC OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1807 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132073
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132073

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(PHENYLENE OXIDES) WERE PREPD. BY THE OXIDATIVE POLYCOMBINATION OF ALKYL SUBSTITUTED PHENOLS ON A CUPRAMINE CATALYST IN THE PRESENCE OF ALKALI OR ALK. EARTH METAL HYDROXIDES AT GREATER THAN OR EQUAL TO 60DEGREES.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SIMULATION OF ABRASIVE WEAR OF THE INTERNAL SURFACES OF LIGHT ALLOY DRILL PIPES -U-

AUTHOR-(03)-KULYABIN, G.A., BOLSHAKOV, I.F., KOPYLOV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(2), 31-4

DATE PUBLISHED--------70

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

TOPIC TAGS--CELLULOSE, ALLOY, WELL DRILLING MACHINERY, WEAR RESISTANCE/(U)CM CELLULOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1636 STEP NO--UR/0152/70/013/002/0031/0034

CIRC ACCESSION NO--AT0118615

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AT0118615
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WEAR OF TURBODRILL PIPES WAS MAINLY DUE TO THE ABRASIVE EFFECT OF THE SAND PARTICLES INCLUDED IN THE DRILLING FLUID. A WEAR OF 1 MM OF THE INTERNAL DIAM. WAS ATTAINED AFTER 1100-50 HR WITH WATER, CONTG. 2PERCENT SAND AT FLOW VELOCITY 2.7 M-SEC. ADDN. OF 0.3PERCENT CM CELLULOSE BASED ON THE DRILLING FLUID REDUCED THE WEAR BY 50PERCENT. A MORE THOROUGH REMOVAL OF SAND WAS RECOMMENDED. A SCHEME OF THE EXPTL. INSTALLATION AND RESULTS ARE PRESENTED.
FACILITY: TYUMEN. IND. INST., TYUMEN, USSR.

UNCLASSIFIED

USSR UDC: 772.99

AVRORIN, A. V., KOPYLOV, Ye. A., KUZNETSOV, V. V., LAZAKOV, V. N., Novosibirsk

"Optical Production of Images by Means of SHF Holograms"

Novosibirsk, Avtometriya, No 5, Sep-Oct 73, pp 78-79.

Abstract: This article presents the results of experiments on SHF holography in the centimeter waveband, in which an improvement is achieved in the quality of images produced by some improvements in the circuit for electronic processing of the signals received, to achieve linearity of recording of the signals on the photographic material. The maximum Rayleigh resolution, defined by the geometry of the equipment was 2.7 cm. Indeed, bands separated by 30 mm are clearly shown as separate bands in the photographs presented with the article.

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USSR UDC 537.311.35:541.135.1

KOPYLOV, YU. A., and YANCHENKO, V. YA., Dnepropetrovsk Agricultural Institute

"Some Properties of Electrolytic Deposits in Organic Semiconducting Liquids"

Moscow, Zhurnal Fizichskoy Khimii, Vol 46, Vyp 8, 1972, pp 1948-1951

Abstract: Conductivity dynamics of 28 organic semiconducting liquids and 17 binary systems were compared with visible electrode deposits. Both pure liquids and binary systems that regenerate current carriers at the point of maximum conductivity, reached after the polarity is reversed, and liquids in which a point of maximum conductivity is not attained were selected. It was found that overall conductivity decreases as the liquids free ion concentration is reduced and the ions are deposited on the cathode. When the polarity is reversed this electrode if freed of the deposited ions, conductivity increases to a maximum, and then decreases as ions are deposited on the opposite electrode. Organic liquids exhibiting such a response to polarity reversal are termed metastable. It was concluded from visual observations that the amount of deposits depends directly on a liquid's conductivity. Metastable deposits are dendritic, and the deposition rate depends directly on applied voltage and temperature. When current-carrier regeneration is unipolar the cathode (before reversion) is entirely freed of

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USSR

KOPYLOV, YU. A., and YANCHENKO, V. YA., Zhurnal Fizichskoy Khimii, Vol 46, Vyp 8, 1972, pp 1948-1951

deposit; when current-carriers of both polarities are regenerated (eg isobutyl bromide), polarity reversal causes changes in deposit structure. Liquids in which current-carrier regeneration does not occur at maximum current (eg ethyl iodide) produce spherical cathode deposits that disappear with time. Upon reversal of polarity the electrode is quickly freed of such deposits. Deposits are barely noticeable with such binary systems as triacetin +10% phenyl iodide, though a point of maximun conductivity does occur. Pure benzene bromide forms no deposits, while addition of 10% amyl chloride causes deposits of the cathode. Spectral analysis of the hard deposits suggests that they are formed by electropolymerization and are composed of long polymer chains with conjugated systems.

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USSR

UDC 541.135.1;541.133;537.311.35

KOPYLOV, YU. A., YANCHENKO, V. YA.

"Regeneration Laws of Current Carriers in Organic Semiconducting Liquids. II. Concentration Dependencies of the Current and Regeneration in Binary Systems"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 174-176

Abstract: A study was made of the possibility of improving the degree of regeneration of current carriers in the total electrical conductivity of working fluids by creating binary systems. The concentration dependencies of the current and carrier regeneration in various binary systems were studied for 14 organic fluids with different physical-chemical properties (ethyl bromide, ethyl iodide, amyl chloride, amyl bromide, iso-amyl chloride, bromobenzene, iodobenzene, cyclohexanone, N-heptyl bromide, N-heptyl iodide, o-bromanizene, N-octyl iodide, N-nonyl iodide, and triacetine). A study was made of more than 150 systems by the previously described procedure [Yu. A. Kopylov, Izv. vyzov. Fizika, No 4, 129, 1970]. The volumetric component, the electrode component, the maximum current and the degree of regeneration were plotted from these data as functions of concentration for all systems. The creation of binary systems does not improve the degree of regeneration. The greatest and most stable degree of regeneration occurs usually in individual liquids with

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KOPYLOV, YU. A., et al., Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 174-176

Low specific electrical conductivity -- no more than 10^{-6} $ohm^{-1} \cdot cm^{-1}$ (cyclohexanone, ethyl bromide).

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S/019/62/000/008/106/121
A154/A126

6.1340

AUTHORS: Bashmakov, V.V.; Musatov, V.I.; Kopylov, Yu.M.

TITLE: A three-position noncontact reversible switch

PERIODICAL: Byulleten' izobreteniy, no. 8, 1962, 74

TEXT: Class 42q, 205. No. 146613 (737042/24-6 of June 16, 1961). A three-position noncontact reversible switch for automatic temperature control comprises a four-arm transistor bridge whose diagonal is connected to the operating load. It differs from others in that, to provide for automatically transferring the switch from its operating position to a neutral position, the bases of two triodes are connected to two additional control triodes. When the latter receive the control signal there should arise a sudden unbalancing of the bridge to a maximum current value in the load, as a result of switching of two bridge arms in a saturation condition. The switch should be returned from operating to neutral position each time when the control signal is being taken up.

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UDC 612.741

MART'YANOV, V. A., KOPYLOV, YU. A., GNUTOV, N. I., Physiology Department, Laboratory of Programmed Sports Training and Physiology of Fitness for Work, State Central Order of Lenin Institute of Physical Culture, Moscow

"Degree of Utilization of the Possibilities of the Muscular System With Maximum Voluntary Effort"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9, 1972, pp 1,390-1,396

Abstract: A study was made of the degree of utilizing the possibilities of the muscular system with maximuj voluntary effort. The force of a maximum voluntary contraction of the muscles participating in moving the first finger and that cuased by electric stimulation of the isometric contractions were compared. The force of a voluntary contraction of the m. adductor pollicis was below the force of an evoked contraction in 50% of the cases, but it was an average of 94.1±5.7% of the latter. On moving the first finger with the participation of several muscles (m. adductor pollicis and m. flexor pollicis longus), the force of the voluntary contraction was in all experiments appreciably below the force of an evoked contraction, and it was an average of 84.9±7.2% of the latter. Special instruction combined with

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MART'YANOV, V. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9, 1972, pp 1,390-1,396

certain procedural conditions resulted in an increase in the force of the voluntary contraction to the evoked level. Electrical stimulation does not lead to an increase in the voluntary contraction force in the absence of a neuro-muscular block judging from the M-responses. This indicates complete activation of the muscular system. The optimal frequency of electrical stimulation to cause the greatest evoked contraction force was determined leading to the use of square pulses with a frequency of 50 sec^{-1} for the experiments.

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PREPARATION AND STUDY OF BARIUM STRONTIUM NIOBATE SINGLE CRYSTALS -U-

AUTHOR-(05)-DUDNIK, O.F., GROMOV, A.K., KRAVCHENKO, V.B., KUPYLOV, YU.L., KUZNETSOV, G.F.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 386-8

DATE PUBLISHED--------70

K

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NIBIUM COMPOUND, BARIUM COMPOUND, STRONTIUM COMPOUND, CURIE POINT, SINGLE CRYSTAL GROWTH, DIELECTRIC CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1566 STEP NO--UR/0070/70/015/002/0386/0388

CIRC ACCESSION NO--AP0125192

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125192

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTALS OF BA SUBX SR SUB1-X NB SUB2 O SUB6 WERE GROWN BY THE CZOCHRALSKI METHOD IN AN INDUCTION FURNACE FROM POWD. MIXTS. OF NB SUB2 O SUB5, SRCO SUB3, AND BACO SUB3. WHEN USING PT CRUCIBLES, COLORLESS CRYSTALS WERE OBTAINED, AND IN IR CURCIBLES, DARK AMBER ONES. THE HABIT OF THE CRYSTALS WAS DETD. BY 24 FACES OF 4 PRISMS: (110), (120), (100), AND (130), THESE FACES BEING DIFFERENTLY DEVELOPED FOR CRYSTALS OF DIFFERENT COMPN. TEMP. DEPENDENCES OF DIELEC. CONSTS. ALONG THE C AXIS (EPSILON SUBC) AND ALONG THE ALPHA AXIS (EPSILON SUBALPHA) WERE DETD., AS WELL AS CURIE TEMPS.: FOR BA SUB0.25 SR SUB0.75 NB SUB2 O SUB6, 56 PLUS OR MINUS 3DEGREES; FOR BA SUB0.5 SR SUB0.5 NB SUB2 O SUB6, 119 PLUS OR MINUS 3DEGREES; FOR BA SUB0.75 SR SUB0.25 NB SUB2 O SUB6, 205 PLUS OR MINUS 3DEGREES. WITH INCREASING CURIE TEMP., AN INCREASE IN PEAK EPSILON SUBC VALUES WAS OBSD., AND DECREASE IN EPSILON SUBC VALUES AT ROOM TEMP. THE EPSILON VALUE ALONG THE ALPHA AXIS IS MUCH LESS THAN ALONG THE C AXIS, AND THE DIELEC. ANOMALY ALONG THE ALPHA AXIS IS VERY SLIGHT.

FACILITY: INST. RADIOTEKH. ELECTRON., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 621.791.4:052:539.378.3:669.14+669.71

KOPYLOV, YU. N., Candidate of Technical Sciences (Kuybyshev Aviation Institute), and LANTSMAN, P. SH., Engineer

"Electron-Microscopic Investigation of Steel-Aluminum Joints Welded Without Smalting"

Moscow, Svarochnoye Proizvodstvo, No 2 (460), Feb 73, pp 15-16

Abstract: The electron-microscopic method was used to study the breakdown surface of welded joints of 1Kh18N10T stainless steel with Amg6 alloy and AD1 aluminum, in order to determine the interaction of these materials on welding without smelting. Bimetal specimens of 1Kh18N10T steel and Amg6 alloy produced by V-welding in vacuum, with and without introduction of AD1 interlayer, were investigated. In pressure welding of the specimens after heating them up to 520-570°C, the V-shaped edge of the steel detail intruded into the face of the aluminum detail. The interrelationship of the breakdown character with the growth of the intermetallic phase in the contact zone of the welded joint was established. In the initial development stages, the intermetallides are not evident by methods of optical microscopy, but they already influencing the plastic characteristics of the joint. Three figures, six bibliographic references.

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USSR UDC 621.396.6.72:621.791

KOPYLOV, Yu. N., GRISHIN, I. S., SADOVSKIY, A. A.

"On the Problem of the Stressed State of Joints in Diffusion Welding"

V sb. Progressivn. tekhnol. i novoye oborud. dlya proiz-va elektron. priborov (Progressive Technology and New Equipment for Making Electronic Devices—collection of works), Saratov, 1970, pp 85-87 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V310)

Translation: The authors discuss the possibility of reducing residual stresses caused by the difference in physicomechanical characteristics of materials in welded joints of dielectrics with metals. The results of a study of welded joints in quartz glass show that minimum residual stresses are observed when high-ductility metals are used (Ag and Cu) in thin layers; etching of the ground-glass surface immediately before welding also promotes reduction of the stress level. N. S.

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UDC: 519.1

USSR

KOPYLOVA, A. N., PETRENYUK, A. Ya.

"Combinatorial Mathematics at Moscow State University"

Moscow, Kombinator. analiz--sbornik (Combinatorial Analysis--collection of works), vyp. 2, 1972, pp 106-109 (from RZh--Kibernetika, No 5, May 73, abstract No 5V412)

Translation: A report on a research seminar in combinatorial analysis which has been in progress for the last few years at Moscow State University under the direction of K. A. Rybnikov. Titles and brief annotations are given on some of the reports made in 1970-1972.

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USSR

UDC:629.78.015:533.601.18

KOPYLOVA, A. V.

"Behavior of a Stream of a Highly Rarefied Gas Near a Sphere with Ray Reflection on a Normal"

Aerodinamika Razrezh. Gazov [Aerodynamics of Rarefied Gases -- Collection of Works], No 6, Leningrad University Press, 1975, pp 29-33 (Translated from Referativnyy Zhurnal Raketostroyeniye, No 9, 1973, Abstract No 9.41.85)

Translation: Stable flow of a rarefied gas around a sphere is studied on the assumption that $M_\infty=\infty$; the Knudsen number $Kn\gg1$; the reflection of gas particles from the surface occurs in the direction of a normal at constant velocity U_s; the gas particles are solid balls. The first two coefficients are determined in the expansion of the gas dynamic quantities (included in the conservation equation) into a series with respect to Kn^{-1} in the flow field. The results of numerical calculation of these quantities in the area before the sphere with various U_s are presented. 3 Figures; 3 Biblio. Refs. Resume

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--NEW METHOD FOR SYNTHESIZING ARYTHIOLS -U-

AUTHOR-(03)-KOPYLOVA, B.V., KHASANOVA, M.N., FREYDLINA, R.KH.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER KHIM. 2970, (3), 633-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIOL, ORGANIC SYNTHESIS, PICRIC ACID, BENZENE DERIVATIVE, BORON COMPOUND, COMPLEX COMPOUND, CHLORINATED ORGANIC COMPOUND, CHEMICAL DECOMPOSITION, SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0736 STEP NO--UR/0062/70/003/000/0633/0636

CIRC ACCESSION NO--AP0124406
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124406

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 2 G 3,4 CL SUB2 C SUB6 H SUB3 N SUB2 BF SUB4 AND 1.8 G POWD. SC(NH SUB2)SUB2 HEATED IN H SUB2 O TO 50-60DEGREES UNTIL GAS EVOLUTION HAD CEASED GAVE, AFTER EXTN. WITH C SUB6 H SUB6 AND ADDN. OF PICRIC ACID IN ETOH, 1.5 G 3,4 CL(H SUB2 NC(:NH)S)C SUB6 H SUB3 SC(:NH) NH SUB2 2C SUB6 H SUB2(NO SUB2)SUB3 OH, M. 236DEGREES; SIMILARLY 2,6 CL SUB2 C SUB6 H SUB3 N SUB2 BF SUB4 GAVE 90PERCENT 2,6 DICHLOROPHENYLISOTHIURONIUM PICRATE, M. 223-4DEGREES. THE REACTION MIXT. PREPD. SIMILARLY FROM O CLC SUB6 H SUB4 N SUB2 BF SUB4 GAVE AFTER EXTN. WITH C SUB6 H SUB6 AND NEUTRALINATION WITH NAHCO SUB3, O-CHLORO PHENYLISOTHIURONIUM BICARBONATE, WHICH HEATED WITH AQ. H SUB2 SO SUB4 1-2 HR UNDER N GAVE 22PERCENT O CLC SUB6 H SUB4 SH, B. 204-6DEGREES; SIMILARLY WERE PREPD. O CHLOROPHENYLENEDITHIOL, 22PERCENT, B SUB10 120DEGREES; 2,6 DICHLOROTHIOPHENOL, 50PERCENT, M. 44-6DEGREES; AND P PHENYLENEDITHIOL, 20PERCENT, M. 98DEGREES. SPONTANEOUS DECOMPN. OF P NITROPHENYLENEDITHIOL BICARBONATE GAVE P O SUB2 NC SUB6 H SUB4 SH, DIRECTLY OXIDIZED IN AIR TO THE DISULFIDE, M. 178-9DEGREES. A REACTION MIXT. OF 11.3 G O CLC SUB6 H SUB4 N SUB2 BF SUB4 AND 7.6 G SC(NH SUB2) SUB2 IN H SUB2 O WAS EXTD. WITH C SUB6 H SUB6 AND THE AQ. LAYER, AFTER ADDN. OF CONCD. KOH UNTIL ALK., WAS REFLUXED UNDER N 2 HR TO YIELD AFTE ACIDIFICATION WITH HCL 25PERCENT O CLC SUB6 H SUB4 SH. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

BRESLAV, E., Deputy Chief Psychiatrist, City Health Division, LESHEPEKOVA, L., Chief Doctor, Psychoneurological Hospital imeni Academician I. P. Pavlov, and KOPYLOVA, I., Chief, Narcology Department No 5, Candidate of Medical Sciences

"They Work While They are Being Treated"

Moscow, Meditsinskaya Gazeta, 18 Oct 72, p 2

Translation: In Leningrad there is a network of medical establishments engaged in treating alcoholis. In all the rayon psychoneurological dispensaries of the city, narcology offices have been established where anyone who wishes can receive advice and consultation, and where necessary, go through out-patient therapy. In those cases where out-patient therapy is ineffective, patients are sent to a permanent hospital.

There is a narcology department at one of the city's psychiatric hospitals. There is a similar department at a suburban psychiatric hospital, although there they treat alcohol victims with marked personality degradation.

The administration of internal affairs system has a therapeuticlabor "profilaktoriy" [medical establishment where patients are released for work during the day], where patients are sent on a compulsory basis.

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USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

We consider therapy without being taken away from production to be most rationsl. It is well-known that during the time they are in a psychiatric hospital, patients develop dependent attitudes and the capital they accumulate during the time of free treatment may serve as a stimulus to abuse alcohol after they are discharged from the hospital.

The development of an aversion to alcohol is based on the conditioned reflex mechanism. Under the special "hothouse" conditions of the hospital, a less stable reflex is developed than in the dispensary and frequently, it is completely extinguished because the living conditions differ sharply from the hospital situation.

In addition, in economic terms, such therapy is expensive to the state. The cost of a bed-day in the psychiatric hospital where victims of alcoholism are situated fluctuates between 4 rubles and 5 rubles 60 kopecks.

All this forced us to think of new forms and methods of therapy in conditions approximating those of normal life with a full, regular labor load.

After familiarization with the work of the narcology department in the city of Podol'sk, Moscow Oblast, on the initiative of the Vasileostrovskiy Rayon Committee of the CPSU with active participation of the administration of the Sevkabel' Plant and rayon medical workers, an experimental

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BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

department for treating victims of alcoholism on voluntary principles was organized at one of the industrial enterprises of the city. It has been working for 18 months, and is one of the departments of the psychoneurological hospital No 7 imeni Academician I, P. Pavlov.

The Sevkabel' Plant allocated and prepared quarters, while staffs, medical equipment, food and treatment were secured through public health funds. The plant personnel division registers all persons entering treatment as temporary employees, and they receive wages according to the wage scale, on the same basis of primary plant workers. Parts of their earnings are deducted to a special hospital account and are expended to subsidize the department. Persons who have been treated receive 30% of the amount earned upon discharge. A special shop was not singled out for thelabor therapy, those undergoing treatment were put into the brigades and shifts of different shops at the plant.

This helped to instill a feeling of comradeship in those in the department, an awareness of their responsibility, the significance and importance of their labor, and a certain worker's pride in the enterprise which had become "their own." The best indicator of this is the fact that of the 290 people who went through therapy during the year, 32 stayed on to work at the Sevkabel' Plant.

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USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

We would like ot take note of the great deal of work done by party and trade union organizations of the enterprise with plant workers. They explained the importance of the task assigned and asked that those undergoing treatment be met with good will in the collective and helped to overcome their grave illness.

In order to make the therapy effective, the time spent in the department was extended to 3-3.5 months. This was dictated by characteristics of production and the necessity of combining labor and anti-alcohol therapy over a prolonged period.

The primary difficulty for the collective of medical workers was the fact that therapy had to be conducted for both the morning and evening shifts of workers. The collective was able to handle this problem. Armed with all the methods of psychotherapy, psychoprophylactics, and psychohygiene in the broad sense of these concepts, personnel were able to organize the patients into a disciplined collective, using "small group" procedures and other types of collective and group psychotherapy.

A council of patients has been established in the department and works actively, and the patients are partially on self-service. The first steps have been taken to organize a club for those who have been discharged from the dispensary but continue to maintain contact with the collective and personnel who helped them rid themselves of this grave vice which turned

USSR

BRESLAV, E., Meditsinskaya Gazeta, 18 Oct 72, p 2

into an illness.

After therapy in permanent psychiatric hospital No 5, the rate of recidivism was 35%, while after outpatient treatment at the dispensary it was 24%.

Of course, it should be taken into account that outpatient is given to persons in the early stages of alcoholism, with still incipient social degradation. The work of such departments are entered on temporary work at another industrial enterprise without being discharged from their primary place of work, and after therapy they ordinarily return to their old enterprise. Now, in connection with the abolition of hospital records for persons being treated for alcoholism, the question arises, how can we preserve continuity of time in service? The matter of wages is not clear either. After all, only 30% of the wages are paid to the patients or their relatives, and the rest of the money is transferred to the special hospital account. It is evident that with the abolition of hospital records, certain changes should be made in the system of wages.

But as for the fact that the creation of such departments is a realistic way to combat alcoholism, we have no doubt.

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1/2 041 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SOME COMPENSATORY MECHANISMS OF THE TRACE ELEMENT METABOLISM DISORDER IN PATHOLOGY -U-

AUTHOR-(05)-BALA, YU.M., AKSENOV, G.I., KOPYLOVA, L.M., LIFSHITS, V.M., PLOTKO, S.A.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 81-84

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TRACE ELEMENT, PATHOLOGY, METABOLISM, ENZYME, NICKEL, MAGNESIUM, VANADIUM, ERYTHROCYTE, PROTEIN, HYPOXIA, ANEMIA, BLOOD CIRCULATION, MYOCARDIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0264 STEP NO--UR/0504/70/042/004/0081/0084

CIRC ACCESSION NO--AP0127854

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401430008-0"

2/2 041 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127854

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF EXAMINATION OF 1200 PATIENTS WITH DIFFERENT DISEASES AND 300 ANIMAL THE AUTHORS DISCUSS THE ROUTES OF INVOLVEMENT OF TRACE ELEMENTS INTO THE COMPENSATORY AND ADAPTATIONAL PROCESSES. ONE OF THEM IS THE PARTICIPATION OF TRACE ELEMENTS IN ENZYMATIC REACTIONS. THREE MAIN COMPENSATORY MECHANISMS CAN BE SINGLED OUT; 1. A RESIDUAL ACCUMULATION OF NICKEL, MAGNESIUM, VANADIUM IN ERYTHROCYTES EXPECIALLY IN THE FRACTION OF NONHEMOGLOBIN PORTEINS OCCURRES IN DIFFERENT HYPOXIC CONDITIONS (ANEMIA, CIRCULATORY INSUFFICIENY). IT COULD BE ASSUMED THAT THIS ACCUMULATION IS ASSOCIATED WITH THE FUNCTION OF ENZYMES, WITH THEIR ACTIVIZATION WITH IONS OF HEAVY METALS. THIS REACTION DEVELOPS RATHER EARLY AND DOES NOT DEPEND UPON THE CASES PROVOKING HYPOXY. 2. PATHOLOGICAL AFFECTION OF A PORTION OF SOME IMPORTANT ORGAN NECESSITATES AND INTENSIFIED FUNCTIONING OF INTACT PORTIONS. THE CONTENT OF A NUMBER OF BIOLOGICALLY IMPORTANT TRACE ELEMENTS DECREASES AND IN THE SURROUNDING AREA, INCREASES. THE MENTIONED COMPENSATORY SHIFTS ARE ASSOCIATED WITH PECULIARITIES OF METABOLISM IN THESE TISSUES AND DEPEND UPON THE STAGE OF THE DISEASE. 3. DISTINCT PARTICIPATION OF TRACE ELEMENTS IN COMPENSATORY REACTIONS IS OBSERVED IN SO CALLED "ACUTE SYNDROMES" DEVELOP IN MYOCARDIAL INFARCTION. FACILITY: KAFEDRA FAKUL'TETSKOY TERAPII AND TSENTRAL'NAYA N-I LABORATORIYA VORONEZHSKOGO MEDITSINSKOGO INSTITITA.

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TITLE--RADIATION CAPACITY OF HEATED CARBON DIOXIDE AT 2100-500 CM PRIME NEGATIVE1 IN THE ABSENCE OF THERMODYNAMIC EQUILIBRIUM -U-

AUTHOR-(02)-KOPYLOVA, L.N., PODKLADENKO, M.V.

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2/2 017
CIRC ACCESSION NO--AP0135120
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIATION CAPACITY OF HEATED CO SUB2 AT 2100-2500 CM PRIME NEGATIVE1, IN THE ABSENCE OF THERMODYNAMIC EQUIL., WAS CALCD. WITHOUT THE USE OF ANY MODEL REPRESENTATIONS OF THE IR BANDS BY NUMERICAL SUMMATION OF THE CONTRIBUTIONS OF ALL THE BANDS PARTICIPATING IN THE RADIATION. THE CALCN. PROCEDURE CONSISTED IN THE SEQUENTIAL DETN. OF THE CENTERS OF THE VIBRATIONAL BANDS AND ROTATIONAL LINES, THEIR INTENSITIES, AND IN THE CALCN. OF THE NONOCHROMATIC ABSORPTION COEFF. IN THE SPECTRAL INTERVAL THAT YIELDS THE MAX. VALUE OF THE ABSORPTION FUNCTION.

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UDC 669-157:669.15-194.56

USSR

GOL'DSHTEYN, M. I., DENISOVA, I. K., ZAKHAROV, V. N., and KOPYLOVA, V. A., Ural Polytechnic Institute imeni S. M. Kirov

"Change of the Fine Structure of Heat-Resistant Austenitic Steel During Aging"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 742-746

Abstract: An experimental study was made of fine structure changes of three melts (1 - containing Mo, V, and Nb, 2 - not containing Mo and Nb, and 3 - not containing Mo, V, and Nb) of EI481 austenitic heat-resistant steel in the process of aging. The results are discussed by reference to diagrams showing the changes in width of the interferential line $(311)_{\alpha_1}$ of the austenite, the blocks and microdistortions, the density of dislocations, and of the lattice parameter. The fine austenitic structure of steel alloyed with Mo, V, and Nb (melt 1)

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GOL'DSHTEYN, M. I., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 742-746

and alloyed with only V (melt 2) were found to undergo considerable changes during aging; a crushing of blocks and a growing of microdistortions and of the density of dislocations take place. These changes in the structure of the matrix are accompanied by a considerable enlargement of interferential lines and by a change of the lattice parameter. The discussed changes of the fine structure of the matrix together with the influence of the very dispersion particles result in a considerable strengthening of steel in the process of dispersion hardening. Five figures, one table, ten bibliographic references.

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USSR

UDC 543.544

BARKETOV, E. S., KOPYLOVA, V. D., KARGMAN, V. B., DRUSIN, M. I. and SALDADZE, K. M., Scientific-Research Institute of Plastics, Moscow, State Committee

"A Study of Anion-Exchange Resins with Complexing Properties"

Moscow, Zhurnal Analiticheskoy Khimii, Vol XXV, No 3, Mar 70, pp 440-444

Abstract: In connection with obtaining new ion-exchange materials, researchers have devoted much attention to the synthesis of selective ionites which will absorb ions of one or several elements on a selective basis. These efforts have usually been complicated with various difficulties, including the necessity for multistage synthesis.

To overcome these difficulties, the authors studied the complexing properties of new anion-exchange resins based on copolymers of N-(β -(5-vinylpyridyl-2)ethyl)amines and N, N'-di (β -(5-vinylpyridyl-2)-ethyl-substituted diamines, in connection with bivalent copper, cobalt and nickel cations.

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