USSR

SHACHNEV, V. I., USKOV, A. G. UDC 621.315.592.3:669.782-416

"Thermodynamics of the Chloride Process of Growing Autoepitaxial Layers of Silicon Alloyed with Boron"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, p 138 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G488)

Translation: A thermodynamic calculation of the relative transition coefficient B defined as $\eta_B = \mu_B/\mu_{Si}$ is performed where μ_B and μ_{Si} are the B and Si yields from BCl_3(gas) and $SiCl_4$(gas), respectively. The process conditions of growing autoepitaxial layers of Si are the following: the ratios in the initial mixture $SiCl_4$(gas): H_2(gas) = 1 : 500 and BBr_3(gas) (BCl_3(gas): $SiCl_4$ (gas) = 10^3-10^8, temperature range 800-1,600° K. It is demonstrated that in alloyed $SiCl_4$(liquid), the initial BBr_3(liquid) is entirely converted to BCl_3(liquid), and BCl_3(gas) is found in the vapor phase. With an increase in the BCl_3(gas)/$SiCl_4$(gas) ratio in the initial gas mixture and an increase in

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USSR

SHACHNEV, V. I., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Materialy, 1970, vyp. 5, p 138

temperature, the relative transition coefficient B increases by several orders, approaching one. As a result of the strongly expressed dependence of n_B on temperature to obtain autoepitaxial layers of Si which are homogeneous with respect to specific resistance, exact control of the composition of the initial gas mixture and also keeping the temperature constant in the reaction zone are required.

2/2

USSR

UDC 539.239.28

MASHKEVICH, V. S., SHADCHIN, Ye. A., Institute of Physics, Academy of Sciences of the UkrSSR

"Theory of Cross Relaxation Induced by Resonance Transfer of Excitations in a Spectrally Nonhomogeneous Medium"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 10, Oct 72, pp 1667-1674

Abstract: The authors consider the transfer of excitations by resonance interaction in a system of two-level impurity centers in which the elementary excitations are excited states of the centers. An equation is derived for cross relaxation with respect to the spectral density of the excitations. The final relaxation equation takes a form which differs appreciably from the conventional phenomenological equation. A solution is found for the equation in the case of considerable nonhomogeneous broadening. The equation is derived from microscopic equations describing elementary acts of transfer of excitations. It is found that the process of relaxation of the spectral density to its equilibrium value is non-exponential.

1/1

USSR

MASHKEVICH, V. S., SHADCHIN, Ye. A., Institute of Physics, Academy of Sciences of the UkrSSR, Kiev

"On Cross Relaxation in a Spectrally and Spatially Nonhomogeneous Medium"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 2, Feb 73, pp 645-647

Abstract: The authors consider transmission of excitations in a system of two-level impurity centers. The excited states of the centers are the elementary excitations. An equation is derived for the spectral density of excitations, and cases in which the dipole moments of transitions of all centers are collinear and all directions of transitions are equally probable are considered. Analysis of the results shows that migration of excitations in a spatially nonhomogeneous system is accompanied by polarization ("migration polarization").

1/1

USSR

UDC 539.2

MASHKEVICH, V. S., and SHADCHIN, Ye. A., Institute of Physics of the Academy of Sciences UkrSSR, Kiev

"Spectral Equations for a System of Quasi-Two-Level Centers and Emission Modes"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 3, Mar 72, pp 397-407

Abstract: A spectral theory is developed for a system consisting of quasi-two-level centers and emission modes. Spectral distributions for modes of the electric field and center levels act in the capacity of dynamic variables. On the basis of spectral representation and with the help of correlation functions of the mode and the center and using their Fourier presentations, the authors derive equations characterizing the above-mentioned distributions and expressions for the modes and the levels. The solutions of the deduced functions were found by a previously described method by V. S. Mashkevich in the symposium "Kvantovaya Elektronika" (Kiev, "Naukova Dumka," Vol 5, 1971, p 131). Forty-four formulas, six bibliographic references.

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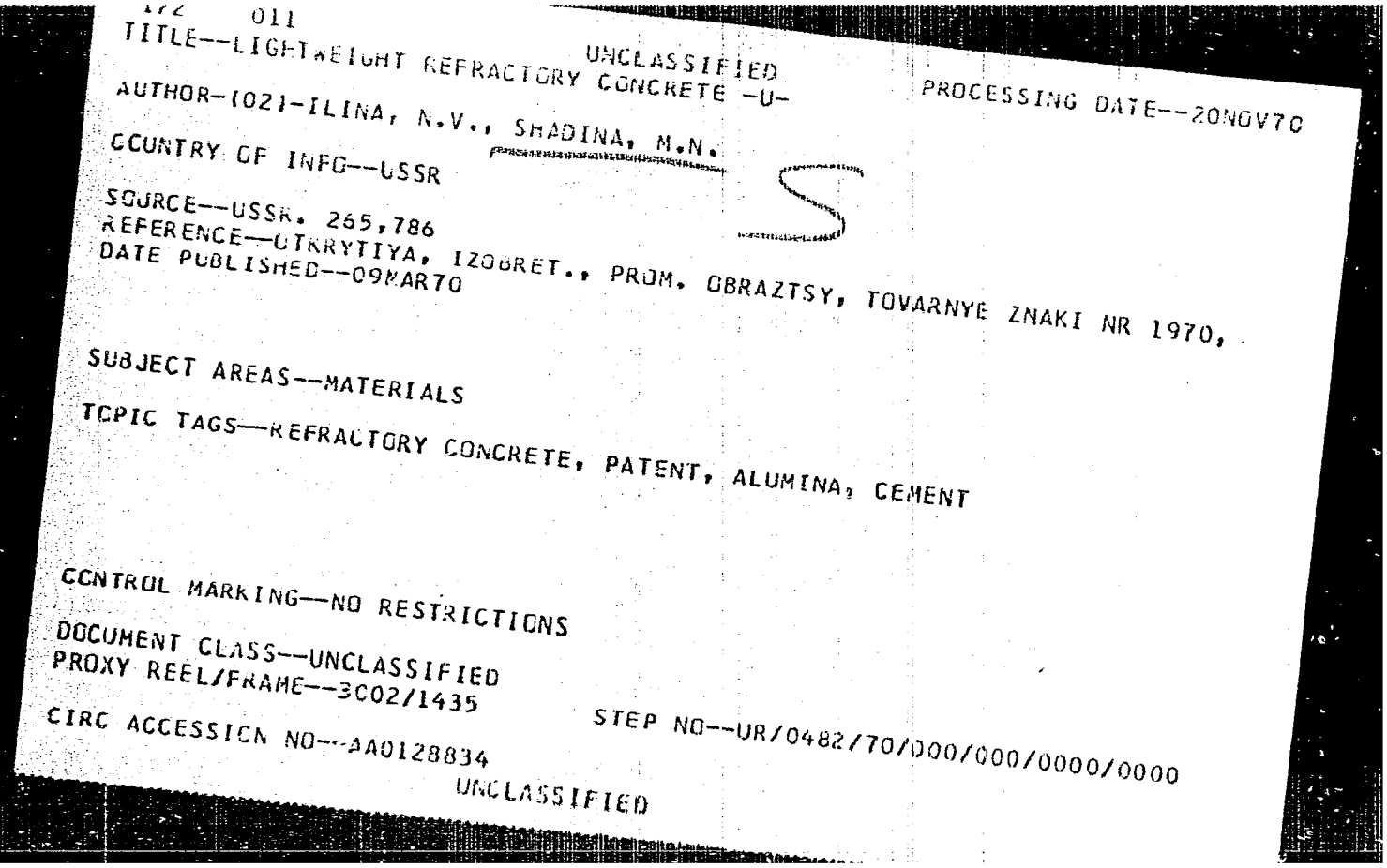

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LIGHTWT. REFRACTORY CONCRETE WITH GREATER THERMAL STABILITY AND DURABILITY HAS THE FOLLOWING COMPN.: HIGH ALUMINA RAW MATERIAL CONC. 47-57, EXPANDED PERLITE 7-10, WATER GLASS 29-31, PORTLAND CEMENT 0.5-1 AND PLASTIC REFRACTORY CLAY 6.5-10 WT. PERCENT FACILITY: STATE ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF THE CEMENT INDUSTRY.

UNCLASSIFIED

USSR

UDC 621.791.92:669.018.25

SHADRICHEV, V. A., Doctor of Technical Sciences, and SIDORKIN, V. I., Engineer, Northwestern Correspondence Polytechnical Institute

"Relative Wear Resistance and Running-In of Coatings Built Up in Carbon Dioxide"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 70, pp 30-32

Abstract: The article describes results of a study of the relative wear resistance and running-in of metal built up in carbon dioxide with three types of welding wire, viz. Sv-08G2S, Np-30KhGSA, and 2Kh13. The deposit specimens used were cylindrical rods 38 mm in diameter and 150 mm long, made of standardized steel 45. The investigations were conducted under conditions close to boundary friction. The running-in mate was a gray iron block (hardness HV 170) of the chemical composition (in percentages) 2.9 C, 0.4 Mn, 2.74 Si, 0.608 Ni, 0.149 P, 0.072 S, 0.487 Cr. Serving as the standard for comparing the wear resistance of the built-up specimens were rollers made of steel 45 and induc-

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USSR

SHADRICHEV, V. A., and SIDORKIN, V. I., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 30-32

tion-hardened to HRC 56-62. The structure of the deposited metal was studied microscopically before the wear test of the coatings, and the friction surface of the rollers was photographed afterwards.

The results indicate that specimens built-up with 2Kh13 wire have the greatest wear resistance and those built-up with Sv-08G2S the least. Standard specimens with the structure of martensite and high initial microhardness and surface purity values showed minimal wear. Of the metal coatings the least wear was found in specimens built-up with 2Kh13, which is due to structural features and high initial microhardness and surface purity values as compared to the other deposits. Most coatings displayed a new microgeometry as a result of running-in. There was no change in the microgeometry of induction-hardened steel 45 and steel built-up with 2Kh13 (i. e., materials with high microhardness and surface purity values). The greatest change

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USSR

SHAPRICHEV, V. A., and SIDORKIN, V. I., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 30-32

in surface purity during running-in was found in specimens built-up with Sv-08G2S. Each type of coating was found to have its own optimum surface purity after running-in, which in many respects determines subsequent wear resistance. Running-in also changes the microhardness of the coatings. The reduced microhardness of the standard specimens and specimens built-up with Np-30KhGSA with subsequent induction hardening is due to structural transformations in the thin surface layers under the action of the high temperatures occurring on the contacting areas during friction. There is almost no change in the microhardness of specimens built-up with 2Kh13 due to the high heat resistance of steels containing at least 12 percent chromium. There is somewhat of an increase in the microhardness of coatings built-up with Sv-08G2S and Np-30KhGSA without induction hardening, due to surface strengthening as a result of cold hardening.

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SHADRIKOV, O.A.

TECHNICAL TRANSLATION

FSTC-HT-23-2015-72

AD

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

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: L. A. DERYUGIN, ET AL.

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

Translated for FSTC by ACSI

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USSR

UDC 621.372.8.092.22

KATALEVSKIY, V. M., ZHDANOV, N. N., SHADRIN, A. I.

"Study of the Dispersion Properties of some Delay Systems"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 84-90 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B124)

Translation: The method of equivalent circuits was used to investigate the dispersion relation of complex delay systems. There are 5 illustrations and a 1-entry bibliography.

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USSR

UDC 616.988.75+616.2-036.11-022.61-097.3

SHADRIN, A. S., YAKUBENKO, A. A., MALYSHEVA, A. M., NAYKHIN, A. N., GROMOVA, M. I., RUMEL', N. B., and SMORODINTSEV, A. A., All-Union Scientific Research Institute of Influenza, Leningrad

"The Effect of Serum Antiviral Inhibitors on Resistance to Influenza and Acute Respiratory Diseases"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 582-586

Abstract: A study conducted on about 1000 men, women, and children living in Leningrad and Murmansk and on 129 volunteers revealed that the presence of beta-inhibitors in the blood significantly reduces the proportion of clinically severe forms of influenza and parainfluenza (a fall by a factor of 2.5), decreases the frequency of severe forms of experimental influenza (down by a factor of 2), and slows the development of immune response to vaccination with highly attenuated influenza strains. Beta-inhibitors do not exert an anti-infectious effect, that is, they do not prevent contraction of the diseases. Their protective value stems from their antitoxic effect, that is, reduction of the severity of influenza and parainfluenza without hindering the body's specific reaction to the infection.

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USSR UDC 669.71.042.62

BALAKHONTSEV, G. A., ANDREYEV, V. F., DEVYATKIN, A. B., TEMNIKOV, A. V., SHADRIN, G. G.

"Selection of Height of the Direct Cooling of an Ingot With Water During Continuous Casting With Blowing"

Tekhnol. Legkikh Splavov. Nauchno-tekhn. Byul. VILSa [The Technology of Light Alloys, Scientific and Technical Bulletin of the All-Union Institute of Light Alloys], 1970, No. 5, pp 9-12. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G155 by S. Krivonosova).

Translation: In order to determine the optimal height of the cooling band, electric modeling of the temperature fields in an ingot 720 mm in diameter was performed with a casting rate of 20 mm/min, using type-D16 alloy. Modeling was performed using a quasi-analog method, allowing both conductive heat transfer and heat transfer due to movement of the body (convection) to be considered. The optimal water blowing height was found to be 160±10 mm. However, the desired parameter is rigidly related to the quantities which determine it. For example, a change in blowing height by 20 mm changes the surface temperature from 50 to 150°. Therefore, when a new technology is being introduced, preliminary investigation of the process with the electric model is required. 4 figs.

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SHADRIN, L.M.

JPRS 59039

17 May 1973

OIL RECOVERY BY NUCLEAR EXPLOSION

[Article by Candidate of Technical Sciences L. M. Shadrin, Moscow, Nauka i Zhizn', Russian, No 2, 1973, pp 14-19]

The modern state of development of industry is characterized by consumption of enormous quantities of petroleum. It is not used simply for the production of various fuels and lubricants. With each passing year more and more petroleum is used for manufacturing synthetic rubber, synthetic fibers, plastics, drugs and thousands of other products.

According to the plan for 1975 480 million tons of oil will be extracted from the depth of the earth in our country alone. In order to achieve this the annual increment of oil recovery in the Ninth 5-year period will be an average of 30 million tons. New oil fields will have to be discovered and put into operation and tens of thousands of wells will have to be drilled. But it will take more than just the opening of new oil fields to increase oil production. More complete and rapid extraction of oil from underground store houses represents enormous potential. The problem of developing effective means of recovery, of increasing the extraction of oil and gas condensate from the depths is set forth in the directives of the 24th Party Congress on "The Development of the National Economy in the Ninth Five-Year Plan."

This article discusses one of the promising methods of stimulating the recovery of oil and gas, namely underground nuclear explosions.

Formation Energy

The global production of oil in 1971 was about 2.5 billion tons. But approximately 3 billion tons of petroleum remained buried in the depths of the deposit.

What is the explanation for this unextracted residual petroleum, which averages more than half of the initial geological reserves?

USSR

UDC 621.771-01

SHADRIN, V. A.

"Engineering Methods of Computing the Deformation of Metal During Rolling"

Moscow, Inzhenernyye Metody Raschetov Deformatsii Metalla Pri Prokatke, Izd-vo Metallurgiya, 1973, 112 pp

Translation of Introduction. One of the basic problems in the technical progress of ferrous metallurgy, in particular of rolling production, as was mentioned in the materials of the Twenty-Fourth Congress of the Communist Party of the Soviet Union is the expansion of the use of progressive technological processes.

In the field of rolling production science has made great achievements. The works of A. F. Golovin, I. M. Pavlov, A. I. Tselikov, A. P. Chekmarev, B. P. Bakhtinov, V. N. Bydrin, and many others are widely known.

In the contemporary development of the theory of rolling the factors which influence widening and drawing of the band have been studied quite well. To a lesser degree the relationship among these factors has been studied, for example, the in-

USSR

SHADRIN, V. A., Inzhenernyye Metody Raschetov Deformatsii Metalla Pri Prokatke, Izd-vo Metallurgiya, 1973, 112 pp

fluence of the coefficient of contact friction on the deformation of the band during rolling; there are few works in which the practical application is shown for methods of investigating the plasticity of metals in computing the calibration of rolling cylinders; there are insufficient materials on methods of calibrating cylinders for the rolling of complex profiles.

The book gives a simple method that is practical for computing the basic coefficients of deformation of a band during rolling. This method is based on the laws of least resistance and least energy.

Taking into account that the graphic construction of gauges has been thoroughly examined in many works of Soviet scientists in this work we study only questions pertaining to computations of the coefficients of deformation of the band (drawing and widening). It is also shown in the work that the results of the

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USSR

SHADRIN, V. A., Inzhenernyye Metody Raschetov Deformatsii Metalla Pri Prokatke, Izd-vo Metallurgiya, 1973, 112 pp

computations carried out according to the discussed method fully agree with the experimental data obtained during the rolling of metal on commercial rolling mills.

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SHADRIN, V. A., Inzhenernyye Metody Raschetov Deformatsii Metalla Pri Prokatke, Izd-vo Metallurgiya, 1973, 112 pp

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Forming

USSR UDC 621.983.1:678.664

KOMAROV, A. D., RYBYKH, A. A., SHADRIN, V. K., and KIROV, F. V.

"Stamping Sheet Parts with Polyurethane"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 9, Sep 73, pp 26-29

Abstract: The use of polyurethane cushions along with or instead of rubber cushions, due to their better properties, is described in the forming of aluminum alloys (D16AM, A16AT, AMTsM, AMg6M, and AMg3M), stainless steels, and titanium alloys of different thicknesses depending on the class of the formed parts (straight-line edges, small and large curvature convex sides, and small and large curvature concave sides). The class of straight-line edges allows thicknesses of 5, 1.5, and 1.2 mm to be stamped for Al, stainless steel, and Ti parts; small radius of curvature permits thicknesses of 3, 1.2, and 1 mm, respectively for Al, stainless, steel and Ti to be stamped; while for a large radius of curvature the thicknesses are 2 mm for Al and 1.2 for stainless steel (thickness not given for Ti). For straight-line stamping no manual finishing is required while for the other two classes, a small amount of manual finishing is required. During 1971-72, 4,727 parts were produced by stamping in a rubber-polyurethane container with a pressure up to 800 kgf/cm^2,

USSR

KOMAROV, A. D., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 9, Sep 73, pp 26-29

and almost 3,000 items were converted to cutting production using the same technology. The overall economic effect from introduction of cutting and forming processes in the described container, in conjunction with developed technology and equipment, amounted to 613,500 rubles/year. Six figures, 12 bibliographic references.

2/2

USSR

GROSS, Ye. F., PLYUKHIN, A. G., SUSLINA, L. G., SHADRIN, Ye. B.

"Luminescence and Resonant Combination Scattering in $Zn_xCd_{1-x}Te$ Crystals"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 6, 20 Mar 72, pp 312-315

Abstract: Resonant combination scattering in semiconductors has been the subject of a number of works. However, until now there have been no detailed investigations of the behavior of the intensity of the scattered light with a continuous change in frequency in the area of exciton absorption. This is the subject of the present article. The experiments were performed with a helium-neon laser at 4.2° K and 77° K. Concentration x in the specimens studied was varied between 0.4 and 0.5, corresponding to a change in the width of the forbidden zone from 1.905 to 1.965 ev at 4.2° K. The studies indicate that the resonant nature of combination scattering is related to excitation of free excitons in the mixed crystals studied.

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USSR

UDC 662.951.2.001.5

KAPUSTIN, A. M., KUZNETSOV, V. N., OVSYANNIKOV, V. V., and SHADRIN, YE. N.

"On the Effect of the Nozzle's Diameter on the Injection Ratio of GBP Type Burners"

Nauch. tr. Omsk. in-t inzh. zh.-d/ transp. (Scientific Works of the Omsk Institute of Railroad Transportation Engineers), Vol 142, 1972, pp 17-19 (from Referativnyy Zhurnal -- Teploenergetika, No 3, 1973, Abstract No 3T93 by V. A. Speysher)

Translation: The authors conducted experimental and theoretical investigations of the dependence of the injection ratio (U) of type GBP-140 panel burners, with full preliminary mixing, on the diameter of the gas nozzle (d) for various gas pressures (p_g). It is a well known fact that when p is constant, a reduction in d causes an increase in U. However, in order to insure that a furnace's heating power remains constant when the number of burners remains the same and d is reduced, it is necessary to increase p_g accordingly, so that the gas flow rate remains unchanged. These factors exert contradictory effects on U, which causes the effect of each of them to be weakened. As a result of their experiments, the authors established that a reduction in d (from 3 to 2.4 mm) can increase U somewhat. If a furnace's heating power is controlled this way, additional

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USSR

KAPUSTIN, A. M., et al., Nauch. tr. Omsk. in-t inzh. zh.-d. transp. Vol 142, 1972, pp 17-19

burners should be used. In the case where the number of working burners remains constant and a stable thermal state is maintained in the furnace, reducing d while simultaneously increasing the value of p_g will not cause any noticeable increase in U. (2 illustrations; 3 bibliog.ref.)

2/2

USSR

UDC: 662.998:536.4

BLAGINYA, F. V., KISELEV, G. A., KUTS, S. M., NIKIFOROV, D. S., and SHADRIN, Yu. A.

"Equipment for Investigating the Thermophysical Characteristics of Materials by Quasi-Stationary Methods"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 39-43

Abstract: Two types of devices are described for investigating the thermophysical characteristics of heat-insulating materials by the complex quasi-stationary method in a broad temperature range and with the dependence of the characteristics on the temperature taken into account. In addition, a system has been developed for automatically controlling the temperature in these devices by realizing the condition for the quasi-stationary mode in the 77-2000° K range. The design [illegible] of the plane and cylindrical types, the error [illegible] of each being given. Also shown is the [illegible] for programmed automatic control, [illegible] motor blocks of the [illegible] are connected with the Institute of [illegible], in Novosibirsk.

UDC 611.8:534.612.1

USSR

ALEKSANDROV, L. N., DYSKIN, YE. A., ZLATISKAYA, N. N., KONKIN, I. F., DEV, I. D., TIKHONOVA, L. P., FILATOV, A. I., and SHADRINA, N. S., Department of Normal Anatomy, Military-Medical Academy imeni S. M. Kirov

"Condition of Some Nerve Structures After Exposure to Powerful Shock Waves"

Leningrad, Arkhiv Anatomii, Gistologii i Imbriologii, No 10, 1971, pp 12-20

Abstract: Cats were exposed to a powerful shock wave with an excess pressure of 0.1 to 10 kg/cm^2 lasting about 0.1 sec. The effect was not lethal and after the experiment the animals were externally indistinguishable from normal cats. They were sacrificed at various times during the 30 days following exposure to the shock wave and the nerves in the walls of the vena cava, digestive organs, dura and pia mater of the brain and spinal cord, pancreas, and thyroid were histologically examined. The medullated fibers and preterminal portions of the receptors underwent the most distinct changes. The axial cylinders were swollen and the contours uneven. Along the course of the fibers were solitary or multiple varicosities. These reactive changes were largely reversible. However, some of the nerve elements proved to be quite resistant to the shock wave, notably the nonmedullated fibers, some afferent structures (e.g., diffuse receptors), and encapsulated cell bodies.

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Acc. Nr.: AP0042379

Ref. Code: UR0203
JPRS50162

Anomalous Secular Variation on Kamchatka

(Abstract: "Anomalous Nature of Secular Variation on Kamchatka," by I. M. Pudovkin, A. A. Tanichev, T. A. Shadrina, Ye. E. Blagoveshchenskaya and A. A. Tikhomirov, Leningrad Department, Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation; Moscow, Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 173-175)

This is the second part of this study of secular variation on Kamchatka (for part I, see Geomagnetizm i Aeronomiya, Vol X, No 1, 1970, pp 170-173). Geomagnetic measurements were made in a network of stations in southern Kamchatka separated by an average distance of 10-15 km. Repeated observations were made on the assumption that during the stage of formation of volcanic lavas deep processes can create localized and shallow high-temperature hearths. The magnetic properties of rocks involved in these processes can change relatively rapidly, which should cause changes in the geomagnetic field and thereby give the dynamic magnetic characteristics of deep processes. Observations were made at 24 stations with 2 to 5 observations at each. The results of observations, reduced to the middle of the year, show that the nature of field changes is similar to that observed throughout the regional network. However, the field changes at different

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stations vary. Over a five-year period H changes from -31 to +41 γ (the mean error in observing this component is 8 γ). During this same period D varies from -9.0 to 6.0' (observation error 2.0'). The structure of the field of anomalies of secular variation Δf_a is extremely complex. The regions of decrease in all magnetic elements are found in a relatively small region (diagrammatic maps of field components accompany the text). The results of observations at stations in the local net were reduced using data for the Yuzhno-Sakhalinsk Observatory and field variation stations. The configuration of the δf_a isopors for annual periods indicates that the nature of this field changes somewhat from year to year but the sites of the anomalies persist. Judging from the map of structural geology of southern Kamchatka, there is a definite relationship between structural elements and anomalies of secular variation. There is also some relationship between the nature of the δf_a field and solar activity. Since the secular variation anomalies on Kamchatka correlate with the elements of its structural-tectonic structure and with solar activity, it can be assumed that the causal relationship is of a double nature: 1) a change in the magnetic properties of rocks involved in deep processes and 2) presence of nonuniformity of electrical conductivity of deep layers in the crust and upper mantle.

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SHADRINTSEV, I. S.

STPRS 56, 4/59
14 July 72

EXPERIENCE IN CONSTRUCTING A SYSTEM FOR THE AUTOMATIC PROCESSING OF PHYSIOLOGIC INFORMATION

Article by O. K. Apanasyuk, I. S. Shadrintsev and E. A. Iz-
Kodifikiy (Current Problems in Space Biology and Medicine),
Nauka, 1971, pp 16-19

Prolonged space flights, investigations of a scientific and training nature, and other types of studies under conditions when man is subjected to the influence of external factors, are impossible without a reliable system of medical monitoring having high operational characteristics and resolution in the diagnosis of health and performance of crew members. The development of such a system is inseparably related to the creation of a system for the automated processing of physiologic information (APPI). This report gives some results of the practical application of the basic principles in constructing an APPI system based on an M220-A electronic computer. In addition to this electronic computer, the APPI system includes a device for coupling the information sources to the computer at the input and for coupling the computer at the output with devices for the printout and representation of the processed information, and also devices for the preliminary processing of physiologic signals (PPD) ensuring the compression of information prior to computer input or input into a magnetic recorder.

The sources of physiologic signals for the APPI system are a complex of sensors with amplifying apparatus and other devices constituting the system for the collection of medical information. Since all the physiologic signals are recorded parallel with the processed information on a six-track recorder, the latter can serve as an auxiliary source of information during repeated analysis in the absence of the patient. In addition, some of the data is fed from the measuring instruments of the life support system. Using portable data readout

Analysis and Testing

USSR

UDC:669.18.046.546.2

SYPKOVA, YE. A., GINIYATULLIN, I. N., SHADRUNOVA, A. P. and TRAKHTENGERTS, M. L., Magnitogorsk Mining and Metallurgical Institute

"Determination of the Content of Sulfur in Steel by a Thermoelectric Method"

Moscow, Metallurg, No 1, Jan 74, pp 23-25

Abstract: The influence of sulfur on the thermal emf of steel is slight, so that the content of sulfur in a sample of steel cannot be determined by direct measurement of the thermal emf. However, if a strictly measured quantity (1.5%) of aluminum is dissolved in the steel specimen, a portion of the aluminum is bonded with the sulfur, while a portion remains in solid solution. The quantity of aluminum remaining in solid solution is inversely proportional to tne quantity of sulfur in the specimen. Aluminum in solid solution has a great influence on the thermal emf, allowing an indirect determination of the content of sulfur in the steel. Laboratory and industrial experiments performed at two metallurgical combines have shown that the method provides good accuracy of sulfur determination (mean square variation from chemical method in sulfur content ranges 0.02-0.12% and 0.12-0.22% is ±0.0025 and ±0.0042% S respectively). The analysis time is not over 1.5-2 minutes.

1/1

1/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THERMOELECTRIC METHOD FOR DETERMINING THE DEPTH OF AN ALUMINIZED LAYER -U-

AUTHOR-(03)-SHADRUNOVA, A.P., GINIYATULLIN, I.N., DOLMATOVA, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 305-6

DATE PUBLISHED--------70

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

TOPIC TAGS--METALLURGIC RESEARCH FACILITY, METAL TUBE, METALLOGRAPHY, SOLID SOLUTION, IRON ALLOY, ALUMINUM ALLOY, INTERMETALLIC COMPOUND, METALLOGRAPHY, ALUMINIZING, METAL COATING, THERMOELECTROMOTIVE FORCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0529 STEP NO--UR/0032/70/036/003/0305/0306

CIRC ACCESSION NO--AP0126277

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126277

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE THERMAL EMF. UPON THE AL CONTENT WAS USED FOR DETG. THE DEPTH OF ALUMINIZED LAYERS OF STEEL TUBES. THE THERMAL EMF. HAS A MAX. AT THE SURFACE OF THE SAMPLE, PASSES THROUGH A MIN., THEN RISES TO A CONST. VALUE. THE ALUMINIZED LAYER THICKNESS INDICATED BY METALLOGRAPHIC ANAL. COINCIDES WITH THE MIN. OF THE THERMAL EMF. AND CORRESPONDS TO THE LOCATION OF THE FE SUB3 AL PHASE, WHILE THE THERMOELEC. METHOD GIVES THE ACTUAL DEPTH (UP TO THE POINT WHERE THE THERMAL EMF. BECOMES CONST.) THUS INCLUDING THE THICKNESS OF THE ALPHA SOLID SOLN. FACILITY: MAGNITOGORSK. GURNOMENT. INST. IM. NOSOVA, MAGNITOGORSK, USSR.

UNCLASSIFIED

USSR UDC: 537.312.62

BAYKOV, A. I., KUZNETSOVA, M. I., SHADSKIY, D. V., MEL'NIKOVA, L. V., MIKHAYLOV, S. M., GORBACHEVA, L. S.

"Technological and Superconducting Properties of 60T Alloy"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 193-202 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D555)

Translation: This article deals with the technological superconducting properties of 60T alloy. It is shown how the mechanical properties depend on the degree of cold deformation and the diameter of the wire. The mechanism of deformation of the alloy at high temperatures is considered. It is found that the high plastic properties of the alloy permit cold drawing of wire at a rate of 100 m/min. An investigation is made of the effect which intermediate annealing and quenching as well as final annealing have on the density of the critical current as a function of the external magnetic field. Seven illustrations, four tables, bibliography of four titles. Resumé.

1/1

USSR

UDC 669.295.5.018.5.537.312.62

BAYKOV, A. I., KUZNETSOVA, M. I., SHADSKIY, D. V., MEL'NIKOVA, L. V., MIKHAYLOV, S. M., GORBACHEVA, L. S.

"Technological and Superconducting Properties of 60 T Alloy"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 193-202. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I791 by the authors).

Translation: The technological and superconducting properties of 60 T alloy are studied. The dependence of mechanical properties on the degree of cold deformation and diameter of wire is shown. The mechanism of deformation of the alloy at high temperatures is studied. It is established that the high plastic properties of the alloy allow cold drawing of wire to be performed at a rate of 100 m/min. The influence of intermediate annealing and hardening, as well as final annealing, on the critical current density is studied as a function of the external magnetic field. 7 figs; 4 tables; 4 biblio refs.

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USSR

UDC 669.293.5:669.295.5

BAYKOV, A. I., KUZNETSOVA, M. I., SHADSKIY, D. V., MEL'NIKOVA, L. V., MIKHAYLOV, S. M., and BORBCHEVA, L. S.

"Technological and Superconducting Properties of 60T Alloy"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 193-202

Translation: The article studies the technological and superconducting properties of 60T alloy. The dependence of mechanical properties on the degree of cold deformation and diameter of the wire is demonstrated.

The mechanism of deformation of the alloy at high temperatures is studied. It is established that the high plastic properties of the alloy allow cold drawing of wire at 100 m/min. The influence of intermediate annealing and hardening and of final annealing on critical current density as a function of external magnetic field is studied.

7 figures, 4 tables, 4 biblio. refs.

1/1

USSR

UDC 669.721.046.4

MAURITS, A. A., MEDEUOV, Ch. K., SHADSKIY, S. V.

"Thermochemical Investigation of Ammonium Carnallite"

Tr. Vses. N-i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 77-83. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G190 by the authors).

Translation: The integral heats of dissolution of anhydrous, dihydrate, and hexahydrate ammonium carnallite at 25° are experimentally determined. Based on the data produced, the thermal effects of the processes of dehydration and decomposition of ammonium carnallite are calculated: $NH_4Cl \cdot MgCl_2 \cdot 6H_2O = NH_4Cl \cdot MgCl_2 \cdot 2H_2O + 4H_2O = 60.5$ kcal; $NH_4Cl \cdot MgCl_2 \cdot 2H_2O = NH_4Cl \cdot MgCl_2 + 2H_2O + 30.6$ kcal; $NH_4Cl \cdot MgCl_2 = MgCl_2 + NH_3 + HCl + 46.08$ kcal. 1 table, 8 biblio refs.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--PROTEINS DISTINGUISHING POTASSIUM AND SODIUM IONS FROM AMMONIUM IONS AND QUATERNARY AMMONIUM BASES -U-

AUTHOR-(03)-AKHVLEDIANI, K.S., AKHVLEDIANI, M.K., SHADURI, M.I.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(3), 677-9

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEIN, ION, POTASSIUM, SODIUM, AMMONIUM, RAT, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0210 STEP NO--UR/0251/70/057/003/0677/0679

CIRC ACCESSION NO--AP0135706

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CL SUB3 CCO SUB2 H PPT. FROM RAT BRAIN HOMOGENATE WAS TREATED WITH ETOH AND CENTRIFUGED TO GIVE AN EXT. CONTG. 10PERCENT BRAIN PROTEINS. ADDN. OF NH SUB4 OH, CHOLINE, ACETYL CHOLINE OR ET SUB4 NOH TO THIS EXT. PPTD. A PROTEIN 2PERCENT OF WHICH WAS H SUB2 O SOL., 14PERCENT SOL. IN 0.1M ACOH BUFFER, AND 6PERCENT SOL. IN 12PERCENT ACOH, WITH THE REMAINDER SOLUBILIZED BY TREATMENT WITH ACOH FOLLOWED BY ADDN. OF WATER TO 16PERCENT CONCN. OF ACID. SUBSTITUTION OF THE QUATERNARY AMMONIUM BASES BY KOH OR NAOH PRODUCED IRREVERSIBLY DENATURED PROTEIN, 2PERCENT OF WHICH WAS H SUB2 O SOL., WITH THE REMAINDER COMPLETELY INSOL. IN THE ABOVE SOLVENT SYSTEMS.

FACILITY: TBILIS. GOS. UNIV., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.6-181.48

MAL'TO, V. I., SHADURSKIY, G. P., KAYBANOV, S. G., UTLIK, A. F., RYSEVETS, V. A.

"Organization of Preventive Inspection of Photorepeaters"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, pp 99-100 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V264)

Translation: A structure is proposed for the organization of services in an enterprise for carrying out preventive maintenance on photorepeaters. Resumé.

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1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--TOXICOLOGICAL AND ANTISEROTONIN PROPERTIES OF SOME GUANIDINE DERIVATIVES -U-

AUTHOR-(03)-LUBAS, A.A., STANKYAVICHYUS, A.P., SHADURSKIY, K.S.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOLOGIYA I TOKSICOLOGIYA, 1970, VOL 33, NR 1, PP 17-21

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GUANIDINE, AMINE DERIVATIVE, BENZENE DERIVATIVE, ORGANIC SULFUR COMPOUND, SEROTONIN, INHIBITION, NERVOUS SYSTEM DRUG, TOXICOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1423 STEP NO--UR/0390/70/033/001/0017/0021

CIRC ACCESSION NO--AP0130366

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--27NOV79

CIRC ACCESSION NO--AP0130366

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THE TOXICITY OF THE INVESTIGATED COMPOUNDS INCREASES WHEN ONE AMINO GROUP FROM GUANIDINE IS REPLACED BY A PHENYL, METHYLTHIO, OR BENZYL GROUP. IT IS DECREASED WHEN AN AMINO GROUP IS INCORPORATED INTO THE HETEROCYCLIC SYSTEM. IN MICE THE INTOXICATION PASSES THROUGH A BRIEF EXCITATION STAGE, FOLLOWED BY DEPRESSION. COMPOUNDS WITH METHYLTHIO GROUPS PRODUCE NO DEPRESSION. COMPOUNDS WITH TWO OR THREE BENZYL GROUPS AT THE GUANIDINE NITROGEN SHOW ANTISEROTONIN ACTIVITY. FACILITY: KAUNASSKIY MEDITSINSKIY INSTITUT.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202830007-7"

1/2 032 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ABSORPTION, DISTRIBUTION, AND ELIMINATION OF DIMECARBINE PRIME14 C IN HEALTHY AND IRRADIATED ANIMALS -U-

AUTHOR-(02)-SHADURSKIY, K.S., TROFIMOV, F.A.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 44-7

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBON ISOTOPE, CHEMICAL LABELLING, BLOOD CHEMISTRY, RADIATION BIOLOGIC EFFECT, SELECTIVE DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0139 STEP NO--UR/0390/70/033/001/0044/0047

CIRC ACCESSION NO--AP0120839

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120839

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER SINGLE GASTRIC DOSES OF DIMECARBINE PRIME14 C IN RABBITS AND RATS RADIOACTIVITY IN ORGANS WAS HIGHER FOR ANIMALS IRRADIATED (600 R) 24 HR BEFORE DOSAGE THAN IN CONTROLS. BLOOD CONTAINED DETECTABLE PRIME14 C 45-60 MIN AFTER DOSAGE IN BOTH HEALTHY AND IRRADIATED ANIMALS. DIMECARBINE PRIME14 C WAS ELIMINATED MOSTLY IN URINE, UNCHANGED OR AS 2 METABOLITES, ONE GIVING A NEG. TEST FOR THE INDOLE RING. AFTER 5 DOSES THE ORGANS SHOWED MORE RADIOACTIVITY THAN AFTER 1 DOSE; AFTER 10 DOSES A DECREASE SET IN.

FACILITY: OTD. RADIATS. FARMAKOL., INST. MED. RADIOL., OBNINSK, USSR.

UNCLASSIFIED

USSR

LUBAS, A. A., et al, Farmakologiya i Toksikologiya, Vol 33, No 1, Jan-Feb 70, pp 17-21

activity was exhibited by the compounds $PhCH_2NHC(=NH)NHCH_2Ph \cdot HCl$ (I), $PhCH_2NHC(=NCH_2Ph)NHCH_2Ph \cdot 3HCl$ (II), and $p\text{-}ClC_6H_4CH_2NHC(=NH)NHCH_2Ph \cdot HCl$ (III). I, II, and III in a concentration of 1×10^{-5} g/ml prevented completely spasms of a section of the large intestine of rats produced by serotonin and inhibited development of diarrhea induced by 5-hydroxytryptophan in mice when administered in doses of 14.1, 5, and 16 mg/kg for I, II, and III respectively. These doses were effective in preventing diarrhea in 75, 80, and 50% of cases, respectively, after 5- hydroxytryptophan in a dose of 50 mg/kg had been injected intraperitoneally to the mice.

2/2

USSR

SHADURSKIY, R. S., Department of Radiation Pharmacology, Institute of Medical Radiology, Academy of Medical Sciences USSR

"Radiation Pharmacology, Its Problems and Prospects"

Moscow, Aktual'nyye Problemy Farmakologii i Farmatsii, pp 50-56.

Abstract: The ever-increasing use of radioactive substances in industry, medicine, and in connection with man's flights into space have confronted the science of radiation pharmacology with a number of urgent problems. Among these are the search for and study of chemical compounds which will increase the organism's resistance to and tolerance of irradiation; and the development of drugs which will be effective in the therapy of acute and chronic radiation sickness, and which can be used to detoxify the toxic substances forming and accumulating in the organism subjected to irradiation. Other problems requiring solution are determination of the effect of pharmacological preparations on a background of acute and chronic radiation.

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USSR

SHADURSKIY, R. S., Aktual'nyye Problemy Farmakologii i Farmatsii, pp 50-56

sickness induced by different doses, and sources of irradiation, determination of criteria which indicate or contraindicate the use of the preparations, and the study of their toxicity and effect on the physiological functions of the organism. Further study of the combined effect of radioprotective preparations and drugs used in the therapy of radiation injury, the use of radioactive compounds and preparations containing short-lived isotopes for diagnostic and therapeutic purposes, the use of labeled chemical compounds to determine the distribution and adsorption rates of such compounds in the organism, and the period of their retention and excretion from the organism are required. Chemicals making possible the early diagnosis of radiation injury, X-ray contrast drugs, drugs for the prophylaxis and therapy of genetic and teratogenic disorders, and drugs for detoxification and excretion of isotopes (incorporated into the organism or topically applied) are all urgently required. As yet little has been done in the development of radiation phar-

USSR

SHADURSKIY, R. S., Aktual'nyye Problemy Farmakologii i Farmatsii, pp 50-56

macology. The cooperative efforts of pharmacologists, chemists, and biochemists is required for the solution of these problems.

3/3

USSR

UDC 669.71.48(088.8)

BELETSKIY, G. V., GRAFAS, N. I., KHORYAK, A. K., SHAGALOVA, B. Yu., SHAFARENKO, A.I., and ZVEREV, S. N.

"Device for Extraction of Non-Oxidized Metal From Hot Furnace Skim"

USSR Author's Certificate No 266213, Filed 17/06/68, Published 24/07/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G172 P)

Translation: A device for the extraction of non-oxidized metals from hot furnace skim formed during melting of secondary aluminum alloys is presented. It consists of a cylindrical container with a perforated floor equipped with a mixer located inside the container and rigidly fastened to a vertical shaft. To allow rotation of the floor, it is freely supported on a horizontal, eccentric axis fastened to the walls of the cylindrical container and connected to a vertical member passing through the vertical shaft, which is made hollow, so that it can move.

1/1

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202830007-7"

USSR

UDC 513.6

PYATETSKIY-SHAPIRO, I. I. and SHAFAREVICH, I. R.

"Torelli Theorem for K3-Type Algebraic Surfaces"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Matematicheskaya, Vol 35, No 3, May-Jun 71, pp 530-572

Abstract: This article proves that a K3-type algebraic surface is uniquely determined by the representation of integrals of its own holomorphic differential form according to the base loops of a two-dimensional group of homologies, if the class of homologies of hyperplanar cross sections is extracted. The authors are concerned with algebraic surfaces with a zero canonical class. In this article they study only those surfaces which are determined over a field of complex numbers. Two classes of these surfaces exist, one comprises two-dimensional abelian sets, and the surfaces of the other type are simply-connected. However, both are termed K3 types. After stating the problem and giving the basic results, the authors proceed to a description of families of type K3 plotted surfaces using a theorem for this purpose. They then state another theorem for bunches of elliptical curves on type K3 surfaces along with the proof thereof. The next section is devoted to special Kummer surfaces, the findings in which are supported by detailed equations and one drawing.

1/2

USSR

PYATETSKIY-SHAPIRO, I. I., et al, Izvestiya Akademii Nauk SSSR, Vol 35, No 3, May-Jun 71, pp 530-572

Then a description is given of the Torelli theorem as concerns these special Kummer surfaces with an appendix wherein the topology of the Kummer surfaces is discussed with concomitant lemmas and proofs. Proof of the Torelli theorem is completed in the next section, accompanied by a supplement of known facts concerning even unimodular lattices for the readers' convenience and ease of comprehension. Finally the authors discuss automorphism and singular surfaces, supported by detailed equations and arguments. The article contains one figure and a bibliography of 20 titles.

2/2

UDC: 621.317.799:521.375.4.001.24.001.4

USSR

SHAFER, D. V.

"Regulation, Testing and Computational Verification of Transistorized Amplifiers"

Regulirovka, ispytaniya i proverochnyye raschety tranzistornykh usiliteley (cf. English above), Moscow, "Svyaz'", 1971, 312 pp, ill, 1 r. 14 k. (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D3 K)

Translation: The book gives methods of adjusting and testing aperiodic transformer-type and transformerless amplifiers, as well as resonance amplifiers. The reasons for deviation of the technical characteristics of amplifiers from preassigned characteristics are analyzed. Recommendations are given on organizing the work area and selecting measuring equipment for carrying out adjustment and testing jobs. The book is written for engineers and advanced radio amateurs. 122 illustrations, 19 tables, bibliography of 27 titles. Author's abstract.

1/1

- 2 -

1/2 039 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--THE WAYS OF PROPHYLAXIS AGAINST INFECTION OF THE OPERATIVE WOUNDS -U-

AUTHOR-(02)-SHAFER, I.I., ASHATKIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP 9-12

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, WOUND, SURGERY, UV IRRADIATION, SANITATION, ANTIBIOTIC, ENOMYCIN, GLUE/(U)BF6 GLUE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1024 STEP NO--UR/0589/70/104/005/0009/0012

CIRC ACCESSION NO--AP0109175

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

2/2 039

CIRC ACCESSION NO--AP0109175

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NUMBER OF MEASURES TO THE END OF COMBATING AGAINST INFECTION OF THE OPERATIVE WOUNDS AVAILABLE IN ANY SURGICAL DEPARTMENT ARE SUGGESTED, THEY ARE AS FOLLOWS: REGULAR SANATION OF THE NASAL CAVITY IN MEDICAL PERSONNEL, CONSTANT ULTRAVIOLET IRRADIATION OF ALL THE DIVISIONS OF THE OPERATION BLOCK, ARRANGEMENT OF A BORDERING SPACE BETWEEN THE LATTER AND A CORRIDOR LEADING TO THE SURGICAL DEPARTMENT, THE USE OF ANTIBACTERIAL SURGICAL GAUZE MASK, PROTECTION OF SKIN IN THE OPERATIVE FIELD BY A NEOPLAST FILM (PREPARATION CONSISTING OF BF-6 GLUE AND NEOMYCIN). THE USE OF SUCH MEASURES REDUCED NEARLY 6 TIMES THE INCIDENCE OF SUPPURATION OF THE OPERATIVE WOUNDS. FACILITY: KLINIKI OBSHCHEV KHIRURGII AND KAFEDRY MIKROBIOLOGII KRASNOYARSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CALCULATION OF EFFECTIVE CROSS SECTIONS OF K ELECTRON LOSS BY FAST HYDROGEN LIKE IONS DURING A COLLISION WITH NITROGEN ATOMS -U-

AUTHOR-(04)-SENASHENKO, V.S., NIKOLAYEV, V.S., SHAFER, V.YU., DMITRIYEV, I.S.

COUNTRY OF INFO--USSR

SOURCE--VESTN. MOSK. UNIV., FIZ., ASTRON. 1970, 11(2), 136-45

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR CROSS SECTION, HYDROGEN, NITROGEN, NUCLEAR COLLISION, ELECTRON LOSS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0093 STEP NO--UR/0188/70/011/002/0136/0145

CIRC ACCESSION NO--AP0138958

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING A NONRELATIVISTIC BORN APPROXN., THE CROSS SECTIONS ARE CALCD. OF K-E LOSS BY FAST H LIKE IONS OF ARBITRARY ELEMENTS DURING COLLISION WITH N ATOMS. SIMPLE APPROX. FORMULAS ARE FOUND FOR THE EFFECTIVE CROSS SECTIONS IN LIMITING CASES. THE THEORETICAL RESULTS ARE COMPARED WITH EXPTL. ONES.

UNCLASSIFIED

Electrochemistry

USSR

UDC 541.135.52

IVANOV, V. T., and SHAFEYEV, A. I., Bashkir State University imeni, 40-Letiya Oktyabrya, Ufa

"Electric Field in a Slotted Compartment"

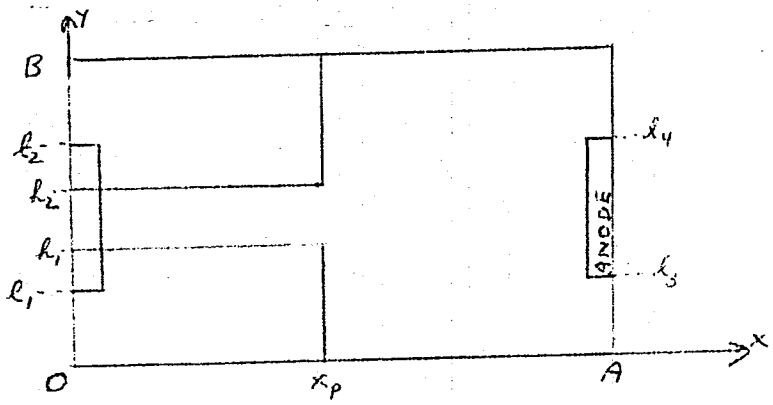
Moscow, Elektrokhimiya, Vol 8, Vyp 2, 1972, pp 208-211

Abstract: A general solution is developed for the distribution of potential in a slotted compartment relative to the size and polarization of the electrodes and the size and arrangement of the slot. The general geometry is shown below

1/2

USSR

IVANOV, V. T., and SHAFEYEV, A. I., Elektrokhimiya, Vol 8, Vyp 2, 1972, pp 208-211



Five discrete sets of the parameters shown above are considered. Curves of the current vs. x and y are then plotted.

2/2

Acc. Nr: AT0107996 — Abstracting Service: CHEMICAL ABST. 6-70 — Ref. Code: UR0020

124952t Effect of the magnetic treatment of water on the concentration of dissolved oxygen. Klassen, V. I.; Shafeev, R. Sh.; Khazhinskaya, G. N.; Koryukin, B. M.; Stetskaya, S. A. (Inst. Goryuch. Iskop., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(6), 1391-2 [Phys Chem] (Russ). The effect of passing H_2O through 10 magnetic fields on the effective concn. of O, C_o, in soln. was detd. After 5 min, C_o increased. This increase was most pronounced when the initial C_o was lowered by bubbling N through the H_2O. Increasing the period between the end of the magnetic treatment and the addn. of pyrogallol lowered C_o. GBJR

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18

K2

REEL/FRAME
19891576

USSR

UDC 576.858.43.097.5

RAVILOV, A. Z., SHAFIKOVA, R. A., and SHARAFUTDINOVA, K. N., Veterinary Institute imeni N. E. Bauman, Kazan

"The Accumulation of Specific Antibody Against the Foot-and-Mouth Disease Virus in Ascitic Fluid of White Rats"

Moscow, Voprosy Virusologii, No 4, 1973, pp 458-461

Abstract: Ascitic fluid formation was induced in white rats (mostly males), 180-200 g in weight, by intraperitoneal injection of ovary tumor cells. Nine days previously the animals had received a single injection of foot-and-mouth disease virus A22 or 0194, or had been hyperimmunized. The results showed that both sets of animals showed peak CF titers 8 days following the induction of ascitic fluid formation; CF and neutralizing activity (5-7 day old white mice) were parallel for the sera and corresponding ascitic fluids. The ascitic fluids showed no anticomplement activity and, as a rule, appeared 5-6 days after injection of the ovarian cells. Ascitic fluids retained their antibody activities for 8 months at -20°C and at 4°C in the presence of 1:100,000 methiolate.

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USSR

UDC 619:576.858.4-809.7

RAVILOV, A. Z., Candidate of Veterinary Sciences, SHAFIKOVA, R. A., Candidate of Biological Sciences and SHARAFUTDINOVA, K. N., Veterinarian, Kazan' Veterinary Institute

"IMMune Ascitic Fluids for Typing Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 1, 1972, pp 33-34

Abstract: Ascites production was stimulated in rats by injecting them with testicular tumor cells. Five days later about 70 to 100 ml of ascitic fluid containing specific antibodies to foot-and-mouth disease virus was obtained from each rat. These antibodies were highly specific and had pronounced complement-fixing and precipitating activity (equal to that of blood serum). Anitbodies remained active and specific for 8 months when stored at 4°C with a preservative or at -20° C without a preservative. Thus, immune ascitic fluid is a relatively inexpensive and convenient diagnosticum for typing foot-and-mouth disease virus.

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USSR

UDC 612.017.1.014.481.1

MARENNIKOVA, S. S., and SHAFIKOVA, R. A., Laboratory of Smallpox Prophylaxis, Institute of Virus Preparations, Ministry of Health USSR, Moscow

"Increase in the Sensitivity of White Mice to Smallpox Virus After General X-Ray Irradiation"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 8, Aug 70, pp 102-105

Abstract: White mice 28-45 days old (normally resistant to infection with smallpox virus) were irradiated with gamma-rays (400 r), following which the virus was inoculated intracerebrally. In mice 28-37 days old which were infected intracerebrally 24 hrs after irradiation, a disease developed which was similar in its manifestations to that observed in infected, nonirradiated mice 12-15 days old (normally susceptible to infection with smallpox virus). The sensitivity of irradiated mice to the virus decreased with increasing age; lg LD_{50} was 2.76 and 1.5 for mice 28-31 and 34-37 days old, respectively, while mice 40-45 days old remained nonsusceptible to infection with the virus after irradiation. The resistance of mice 28-31 days old to intranasal and intravenous infection with smallpox virus remained unaltered after irradiation.

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SHAFIRKIN, A.V.

radiation medicine

So: JPRS 53448
34 June 71

UDC 612.014.481.001.57:629.78

SIMULATION OF EXPOSURE TO RADIATION APPLICABLE TO PROLONGED SPACE FLIGHTS

[Article by V. I. Popov, A. V. Shafirkin and V. V. Yumatov, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 2, 1971, pp 46-50, submitted for publication 9 March 1970]

Radiation exposure is characterized by the following parameters: magnitude of the absorbed dose, temporal dose distribution, dose depth distribution, and spectrum of linear energy losses (LEL) in the irradiated object. In a prolonged experiment with the participation of a large number of laboratory animals the direct modeling of radiation exposure from galactic cosmic rays (which is impossible when using charged-particle accelerators). However, the dose leads and temporal dose distribution can be simulated in a broad range by using γ-radiation sources. It is most convenient to use the γ-radiation of a Co^{60} source having a LEL spectrum for which the general biological effect (OBE) is close to 1. In addition, the dose depth distribution in the animal body from Co^{60} γ-radiation is close to the ECH dose depth distribution and the depth distribution from radiations of hard solar flares (such as the flare of 23 February 1956).

The conditions for animal irradiation in a chronic experiment (Yu. G. Grigor'yev, et al.) were determined taking into account the following requirements. The simultaneous chronic irradiation of a large group of animals must permit without interruption for several years under conditions ensuring their normal vital functions. Servicing of the animals should be simple and convenient. It is to this line when irradiation is suspended is reduced to a minimum. Complete and acute irradiation of the animals must conform to the current standards of radiation safety for servicing personnel and the surrounding population. Uniformity in the dose field in the apparatus for chronic and acute irradiation of the animals must not be greater than ±10 percent.

Satisfaction of these requirements required creation of a special cage unit the "Lyustra" apparatus for chronic and "Kobal't" apparatus for acute irradiation of the animals. The principal components of the "Lyustra" apparatus are a lead container-collimator containing a Co^{60} γ-radiation source, a field beam 4.5 m high, and a mechanism for changing the suspension height

USSR UDC 661.183.3:546.655

SHAFIYEV, A. I., and YEFREMOV, YU. V.

"Behavior of Berkelium When Separating It From Cerium in an Anion-Exchange Resin"

Leningrad, Radiokhimiya, Vol XIV, No 5, 1972, pp 735-738

Abstract: On the premise that the experimental facts of extraction of berkelium D2EGFK from nitric acid solutions with a high content of oxidizing agent after their contact with an anion-exchange resin or tricaprylmethylammonium nitrate observed by Moore (F. L. Moores, et al., Anal. Chem., Vol 37, No 6, 687, 1965; Vol 38, No 13, 1872, 1966; Vol 39, No 14, 1874, 1967; Vol 41, No 12, 1658, 1969; US Patent 3409414, Nov 5, 1968; US Patent No 3402027, Sept 17, 1968) cannot indicate that on separation of berkelium from cerium in the presented systems the berkelium is in the tetravalent state, a study was made to discover the causes of the different behavior of berkelium and cesium in the systems.

Indicator amounts of radio chemically pure ^{144}Ce-^{144}Pr, ^{244}Cm and freshly isolated ^{249}Bk isotopes were used in the experiment. The behavior of Cm^{III}, Pr^{III}, berkelium^{IV} on sorption from 8 normal HNO_3 in a columnwith

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USSR

SHAFIYEV, A. I., and YEFREMOV, YU. V., Radiokhimiya, Vol XIV, No 5, 1972, pp 735-738

a mixture of Dowex-I resin and lead dioxide is plotted graphically. The difference in behavior of berkelium and cerium on separation of them using the strongly basic anion exchange resins such as Dowex-I or extractant of the trialkylamine type consists not in the "special" capacity of the Bk^{4+} ion for hydration but the very rapid transition $Bk^{4+} \rightleftarrows Bk^{3+}$ on contact with the resin or the extractant in the presence of an oxidizing agent.

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USSR

UDC 613.163-001.11:624.153.3(479.24.20)

SHAFIYEVA, S. YU.

"On the Problem of Optimal Meteorological Conditions Associated with Caisson Operations in the City of Baku"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 10, 1971, pp 77-78

Translation: In order to establish the most optimal meteorological conditions in the subway tunnels beinf built by the caisson method in the city of Baku, we set up observations of the variations in air and humidity occurring in the tunnels and also carried out thermal monitoring of the caisson workers.

Eighty-six persons were under observation. Research was carried out at a pressure of 2.0 atmospheres.

The thermal monitoring consisted of four-fold measurements of the temperature of the skin on the forehead and chest. The results of this research showed that the average temperatures of the skin, measured on the premises of the shower room, where the temperature of the surrounding air was 19°-20° C, were as follows: forehead -- 33.4° C; chest (under the clothing) -- 35.4° C. In the caisson, where the air temperature was 15° C, the temperature of the skin on the forehead was 31.1° C by the end of the shift, while the temperature of the skin on the chest was 32.8° C.

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SHAFIYEVA, S. YU., Azerbaydzhanskiy Meditsinskiy Zhurnal, No 10, 1971, pp 77-78

Under the cooling effect of air at the time of decompression (lowering of pressure,), a further decrease in temperature occurred. In the majority of workers, restoration of thermal equilibrium did not take place prior to their taking a shower. After a hot shower with a water temperature of 38°-39° C, their temperature began to increase noticeably.

When the air temperature in the caisson was increased to 18° C, the skin temperature of the forehead decreased by 1.2° C and of the chest by 1.1°-1.2° C. Decompression led to a further drop in the skin temperature (approximately 0.3°-0.4° C). However, by the time they were ready to take a shower, the temperature of half of the caisson workers had practically achieved its initial values.

On the basis of the research we conducted, we recommended that the temperature of the air in the caisson be within the limits of 18°-19° C; this immediately led to a reduction in the number of cases of caisson disease.

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USSR

UDC 542.91

SHAFOROSTOVA, L. D., IVANOVA, I. I., and RABOTNOVA, I. L., Institute of Microbiology, Academy of Science USSR

"Change in Chemical Composition of Cells Because of Uneven Growth in the Exponential Phase of a Periodic Bac. megatherium Culture"

Moscow, Doklady Akademii Nauk SSSR, No 6, 1971, pp 1,449-1,451

Abstract: Fluctuations in the growth rate of Bac. megatherium cultured on a synthetic medium were accompanied by changes in the content of the main cell polymers. DNA was the most stable polymer. The RNA content increased parallel to the growth rate and was described by a two-peak curve. The dynamics of the protein content differed from that of the RNA. At the time of an acceleration of the growth rate, the amount of protein decreased before the first peak and increased before the second. Before the end of the exponential phase, the dynamics of the polysaccharide content was the same as that of protein synthesis. The polysaccharides decreased significantly in the periods of accelerated growth (between the first and second peaks). When the culture entered the stationary phase, the polysaccharides again began to increase. The synthesis of lipids and polu- β-hydroxybutyric acid also proceeded unevenly. The lipid content was highest after the first 1/2

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SHAFOROSTOVA, et al., Doklady Akademii Nauk SSSR, No 6, 1971, pp 1,449-1,451

peak and before the second. At the start of growth, citric acid was consumed most intensively, resulting in the release of acetic, pyruvic, and α-keto-glutaric acids. The amount of acids in the medium per unit of biomass was highest at this time. Thus, the exponential phase of Bac. megatherium growth is a multistage process characterized by a definite sequence of synthesis and consumption of the main cell polymers.

USSR

UDC 576.851.5.095

IVANOVA, I. I., SHAEGOSTOVA, I. D., RABOTNOVA, I. L., and SOTNIKOV, G. G., Institute of Microbiology, Academy of Sciences USSR, Moscow

"The Role of Catabolic and Anabolic Processes Associated With the Uneven Growth of Bacillus megatherium in the Exponential Phase of Growth"

Moscow, Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 64-67

Abstract: Bacillus megatherium was grown in a synthetic medium containing 0.3% sodium citrate as the only source of carbon. The activity of four enzymes was tested in the supernatant fluid after breaking the cells by ultrasound: pyruvate decarboxylase (PD), L-isocitric-NADP+ dehydrogenase (ID), D-glucose-6-phosphate-NADP+ dehydrogenase (G6D), and decarboxylase of oxalodiacetic acid (DOA). The production of CO_2 and the consumption of oxygen were tested in washed cell cultures and the level of adenosine 5-triphosphate (ATP) was tested in the extract from bacterial cells. During the first half of exponential growth, the anaerobic decomposition of citrate prevailed, whereas oxidative processes were characteristic for the second half. Each increase of growth was preceded by an increase in ATP concentration. DOA activity was maximal in the first part of growth, when no activity of ID could be detected. ID activity appeared and increased after 3 hours of growth,
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IVANOVA, I. I., et al., Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 64-67

when DOA activity decreased. The activity of both PD and G6D increased during growth with their maximum before the second growth peak was reached. The decrease of activity at the time of the second peak was typical for all four enzymes tested. The uneven growth rate during the exponential phase was due to the intracellular regulation of catabolic and anabolic processes. The monophosphate and glycolytic pathways were apparently involved in the anabolic processes in Bac. megatherium.

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USSR

UDC 612.017.1-06:551.581(213)

SHAFRAN, L. M., and NIZHNIY, I. K., Basin Sanitary Epidemiological Station of the Black-Azov Sea Maritime Health Department

"Changes in Nonspecific Immunological Reactivity in Sailors During Tropical Cruises"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, p 132

Abstract: During cruises in tropical zones with an ambient temperature of 47-52°C and a relative humidity of 40%, Black Sea sailors suffer from a depression in nonspecific immune reactivity. The concentration of neutrophils, eosinophils, and lymphocytes in peripheral blood decreases, while the number of monocytes increases. Phagocytic activity of neutrophils is reduced, and alkaline phosphatase activity in these cells is lowered from 30 to 16 units. Furthermore, there is a statistically significant reduction in complement titers (from 0.043 to 0.036), properdin (from 153 to 101), and lysozyme (from 487 to 291). After about 1 month, partial acclimatization takes place, which is followed by a second wave of deteriorating condition in the 5th month in the tropics. The fluctuation in nonspecific immune reactivity during prolonged cruises in tropical zones are reflected in the sailors' morbidity which is high in the 1st month, decreases during the next 3 months, and rises again in the 5th month.

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USSR

UDC: 678.01:677.52+539.4

ZHIGACH, A. F., TSIRLIN, A. M., SHCHETILINA, YE. A., SVETLOV, I. L., GRIGOR'YEV, V. I., SHAFRANOVICH, E. G., BULYGINA, T. I., and YARTSEV, V. A., State Scientific-Research Institute of Chemistry and the Technology of Elementoorganic Compounds, Moscow

"Mechanical Properties of Boron Fibers"

Riga, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 641-647

Abstract: The authors study the strength distribution of boron fibers. The study is based on a large amount of experimental material. The results show that the strength of boron fibers can be sufficiently accurately described by the Weibull or by normal rules of distribution. The parameters of these distributions are determined. The typical defects in boron fiber macrostructure are isolated and described. Mean strength as a function of tested fiber length is studied experimentally.

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Acc. Nr: AP0052448

Abstracting Service: GEOPHYSICAL ABST. 5/70

Ref. Code: UR 0455

91735u Liquid-phase mass transfer during fractional distillation in a film column with a smooth cylindrical rotor at low rotation speeds. Shafranovskii, A. V.; Ruchinskii, V. R. (Gos. Nauch.-Issled. Proekt. Inst. Asotn. Prom. Prod. Org. Sin., Moscow, USSR). *Teor. Osn. Khim. Tekhnol.* 1970, 4(1), 106–10 (Russ). The dependence of the overall height of a transfer unit on the liq.-phase flow rate at const. gaseous-phase flow rate was detd. for the system *n*-hexane–benzene. The measurements were made at rotor speeds of 275–1520 rpm (which correspond to linear peripheral velocities (U) 0.31–1.8 m/sec), with total or partial reflux, or with addnl. feed. The liq.-phase mass transfer in the region $0.31 < U < 0.78$ m/sec is of similar character to the transfer in liq. film gravitationally flowing down the vertical surface. The equations for the height of the liq. phase transfer unit h_l and for the liq.-phase mass-transfer coeff. β_l were detd. in the same region of U: $h_l = 2.8Re_l^{0.33}(H/\vartheta)^{0.35}Sc_l^{0.5}$, and $\beta_l\vartheta/D_l = 0.087Re_l^{0.67}(\vartheta/H)^{0.35}Sc_l^{0.5}$, where H is the wetted length of the column, ϑ the reduced film thickness, D_l the liq.-phase diffusion coeff. of the distributed compd., Re_l and Sc_l are the liq. phase Reynold and Schmidt nos., resp. A similar equation for β_l was found also for the absorption of CO_2 by a laminar-flow water film. Equations for h_l and β_l can be used also for the mass-transfer calcns. for countercurrent absorption or rectification in film columns without rotor at $Re_l < 300$.

L. Kuca

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REEL/FRAME
19821082

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USSR

SHAFRANSKIY, L. L., Kazakh Scientific Research Institute of Oncology and Radiology, and Laboratory of Molecular Spectroscopy, Institute of Chemical Sciences, Academy of Sciences Kazakh SSR

"Search for Grafts to Fill Bone Cavities"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 8, 1971, pp 47-48

Abstract: Infrared spectroscopy has shown that human hydroxyapatite and that taken from cattle bones are alike in chemical structure. Ten patients with bone cavities due to osteoblastoclastomas, cysts, chondromas, or bone degeneration received a mixture of sterile cattle hydroxyapatite with their own muscle (3:1) at operation to fill the cavities. Follow-up examinations 8 to 10 months later showed that the grafts took well. One case is described in detail.

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UDC: 681.325.3

USSR

IVANDIKOV, V. V., KRYLOV, S. N., SHAFRANSKIY, L. V.

"Analog Voltage-to-Digital Converter"

USSR Author's Certificate No 251263, Filed 20 Dec 67, Published 4 Feb 70 (from RZh-Avtomatika, Telemekhanika i vychislitelnaya tekhnika, No 9, Sep 70, Abstract No 9B556P)

Translation: An analog voltage-to-digital converter contains null mechanisms the inputs of which are connected to a converted signal source and to a standard voltage divider. It also contains a code converter. The analog-to-digital converter differs from the known ones by the fact that in order to increase speed and accuracy of conversion, in each bit except the high-order bit the outputs of the null mechanisms are connected via a logical "negation of equivalence" circuit to the corresponding inputs of the code converter. The output of the null mechanism of the high-order bit is connected to the input of the code converter directly, and the outputs of the code converter, except the outputs of the low-order bits, are connected to the standard voltage divider. There is one illustration.

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USSR

UDC 612.58:612.13:612.821.61

ARYNCHYN, M. I., NIKITSIN, U. M., MATSKEVICH, B. I., ZIMAKINA, V. A., KAZLOVA, L. M., ZIMAKIN, I. K., SHAFRANSKI, L. V.

"Differential (Complex) Hypothermia and Its Experimental and Theoretical Basis"

Minsk, Vesti Akademiyi Nauk BSSR, Seryya biyalagichaykh Navuk, No 1, 1970, pp 60-66

Abstract: A broad review of the applications of hypothermia is presented and the various biological functions involved, including EKG, biochemistry, hemodynamics, central and peripheral affects, etc. are discussed. An original construction of a cooling chamber is shown, consisting of two chambers, one for the head, and one for the body, in which the temperatures differ. The effect of two-chamber hypothermia, occurring under different degrees of temperature on various reflexes in dogs, hemodynamics, hormones, minerals, and blood proteins is discussed. Various clinical possibilities are discussed and the use of this apparatus in cardiac surgery is suggested.

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USSR UDC: 51

SHAFRANSKIY V. B.

"An Algorithm for Calculating Networks in Accordance With Predetermined Rules of Priority"

V sb. Programmn. metod upr. Vyp. 1 (Program Method of Control, No 1--collection of works), Moscow, Computing Center of the Academy of Sciences of the USSR, 1971, pp 59-94 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V468)

[No abstract]

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF OPTIMUM CONDITIONS FOR SEPARATION OF UNSAPONIFIABLE COMPOUNDS IN SYNTHETIC FATTY ACID PRODUCTION -U-

AUTHOR-(03)-SHAFRANSKIY, YE.L., KONOVALOV, B.S., NAUMOVA, R.I.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (5), 39-40

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDUSTRIAL PRODUCTION, FATTY ACID, CHEMICAL SYNTHESIS, CHEMICAL SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1945 STEP NO--UR/0318/70/000/005/0039/0040

CIRC ACCESSION NO--AP0133789

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV7C

CIRC ACCESSION NO--AP0133789

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEPN. DEPENDED ON THE OIL CONTENT AND FRACTIONAL COMPN. OF THE PARAFFIN USED FOR SYNTHESIS OF THE FATTY ACIDS AND ON THE TIME FOR SETTLING THE PRODUCT IN TANKS. THE OPTIMUM SEPN. CONDITIONS WERE 95DEGREES AND 4 HR SETTLING.

FACILITY: NPK, NOVOKUIBYSHEVSK, USSR.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ON REALIZATION OF THE TEMPERATURE SOUNDING METHOD OF THE TROPOSPHERE FROM EARTH'S SATELLITES, A NUMERICAL EXPERIMENT -U-

AUTHOR-(02)-PAKHOMOV, L.A., SHAFRIN, YU.A.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 5, PP 24-35

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--TROPOSPHERE, ATMOSPHERIC TEMPERATURE, SPACECRAFT CARRIED EQUIPMENT, ATMOSPHERIC OZONE, ATMOSPHERIC WATER VAPOR, SPACEBORNE ATMOSPHERIC OBSERVATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0080 STEP NO--UR/0050/70/000/005/0024/0035

CIRC ACCESSION NO--AP0132373

UNCLASSIFIED

2/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132373
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITIES OF THE TROPOSPHERE TEMPERATURE SOUNDING BY MEANS OF INSTRUMENTS MOUNTED ON EARTH'S SATELLITES ARE ESTIMATED ON THE BASIS OF ONE OF THE AVAILABLE METHODS OF STABILIZING THE UNSTABLE SOLUTION OF FREDHOLM'S INTEGRAL EQUATION OF THE FIRST KIND. IT IS SHOWN THAT THE INFORMATION CONTENT OF THIS METHOD DECREASES CONSIDERABLY DUE TO LARGE ATMOSPHERIC THICKNESS OVER THE LAYERS SUBJECT TO STUDY AS WELL AS UNCERTAINTY OF THE UNDERLYING SURFACE EMISSIVITY AND OZONE AND WATER VAPOUR CONTENT. WAYS OF FURTHER DEVELOPMENTS ARE OUTLINED. FACILITY: TSENTRAL'NAYA AEROLOGICHESKAYA OBSERVATORIYA.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--2,ALPHA,PHENYL,ALPHA,P,FLUOROPHENYL,ACETYL,1,3,INDANDIONE -U-

AUTHOR-(05)-AR'EN, A.K., ZELMEN, V.N., OZOLIN, R.R., SHAFRO, E.A., FALKENSHTEYN, B.YU.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,586

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE DERIVATIVE, AROMATIC KETONE, CHEMICAL PATENT, CHEMICAL SEPARATION, FLUORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1587 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135228

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0135228
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PRODUCT IS SEPD. BY SUCCESSIVE TREATMENT WITH H SUB2 O, A MINERAL ACID, AND ISOPROPYL ALC.
FACILITY: INSTITUT ORGANICHESKOGO SINTEZA AN LATVIYSKOY SSR.

UNCLASSIFIED

USSR UDC: 621.396.967:551.501.81

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

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

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

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

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USSR

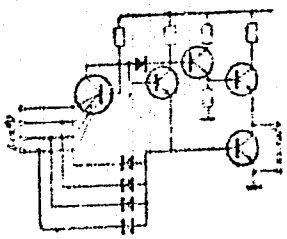
UDC: 681.325.65

SHAGALIN, V. V.

"A High-Speed Integrated Transistor-Transistor Logic Circuit"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 6, Feb 71, Author's Certificate No 294253, Division H, filed 20 Oct 69, published 26 Jan 71, p 176

Translation: This Author's Certificate introduces a high-speed integrated transistor-transistor logic circuit of the OR-NOT (AND-NOT) type. The circuit contains an input multiple-emitter transistor and an inverter based on four transistors. As a distinguishing feature of the patent, speed is increased by adding Schottky diodes. The cathode of each of the diodes is connected to one of the inputs of the circuit, and the anodes are tied together and connected to the base of the output transistor.



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UDC 615.281.221.1:547.757

USSR

AVRAMENKO, V. G., PERSHIN, G. N., MUSHULOV, P. I., MAKEYEVA, O. O., YERYSHEV, B. YA., SHAGALOV, L. B., SUVOROV, N. N., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR; All-Union Scientific Research Chemical and Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow, Ministry of Health USSR

"Indole Derivatives. Part V. Synthesis and Tuberculostatic Activity of Omega-Indolyl-3-Alkannic Acids"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp 15-18

Abstract: Indolylalkannic acids have been the subject of numerous studies for quite some time. Most of this research, however, has been devoted to lower members of the series of indolylalkannic acids, namely indolyl-3-acetic, β-indolyl-3-propionic and γ-indolyl-3-butyric acids. It is expected that some of these compounds may possess physiological activity. Of particular interest is ω-indolyl-3-undecanoic acid, which is the indole analog of hydnocarpic acid. Indole alkylation with haloalkannic acids shows considerable promise. Earlier research describes the synthesis of heteroauxin from indole

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USSR

AVRAMENKO, V. G., et al, Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp 15-18

and chloracetic acid. In recent years ω-chloroalkannic acids with an odd number of carbon atoms have become readily available. Indole was alkylated with ω-haloalkannic acids in a strongly alkaline medium by heating in an autoclave; 240 -- 250°C, 18 -- 20 atm pressure and a 1:2 indole-to-haloalkannic acid ratio appear to be the optimum reaction conditions. The yield of ω-indoly-3-alkannic acids was 42 -- 90%. The tuberculostatic activity was determined in vitro in a Soton medium with and without blood serum of a horse. Use was made of human microbacteria Academia and H37Rv. The compounds were found to have tuberculostatic activity.

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USSR

UDC 632.95

SHAGALOV, L. B., SUVOROV, N. N.

"Procedure for Obtaining 3-indolylacetic Acid"

USSR Author's Certificate No 160186, filed 26 Mar 63, published 14 Jun 72 (from RZh-Khimiya, No 6 (II), 1973, Abstract No 6N728P)

Translation: The plant growth stimulator 3-indolylacetic acid (heteroauxine) (I) is obtained in one stage by the interaction of indol (II) and chloracetic acid (III) in the presence of 17% alkali. Example: 5.85 grams of II, 14 grams of III and 150 ml of 17% aqueous solution of KOH are placed in a 0.5 liter autoclave, the autoclave is filled with N_2 to a pressure of 5 gage atmospheres, the reaction mixture is heated for 15 hours at 285-290° (the pressure reached 85-90 gage atmospheres), it is cooled and filtered. On cooling, the filtrate is acidified with concentrated HCl (acid) to an acid reaction to Congo, it is held for 2-3 hours at 8-10°, and 4.52 grams of I are isolated with a melting point of 159-162° and a yield of 51%.

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USSR

UDC 669.715.004.82

SHAGALOVA, B. Yu.

"Improving the Production of Secondary Aluminum"

Tsvetnye Metally, No 8, 1971, pp 49-50.

Abstract: Problems of formation and reprocessing of aluminum alloy wastes at large rolling and casting shops, as well as small and medium plants, are discussed. Measures are suggested for the preparation of scrap and waste at bases and charge shops in Soyuzvtortsvetmet Plants, for the technology of melting scrap and waste, and for improvement of the assortment and quality of alloys.

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USSR UDC 669.71.48(088.8)

BELETSKIY, G. V., GRAFAS, N. I., KHORYAK, A. K., SHAGALOVA, B. Yu., SHAFARENKO, A.I., and ZVEREV, S. N.

"Device for Extraction of Non-Oxidized Metal From Hot Furnace Skim"

USSR Author's Certificate No 266213, Filed 17/06/68, Published 24/07/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G172 P)

Translation: A device for the extraction of non-oxidized metals from hot furnace skim formed during melting of secondary aluminum alloys is presented. It consists of a cylindrical container with a perforated floor equipped with a mixer located inside the container and rigidly fastened to a vertical shaft. To allow rotation of the floor, it is freely supported on a horizontal, eccentric axis fastened to the walls of the cylindrical container and connected to a vertical member passing through the vertical shaft, which is made hollow, so that it can move.

1/1

Analysis and Testing

USSR

UDC:620.179.14

SHAGAYEV, Yu. P.

"Study of Regularities of Fatigue Rupture of Steel Specimens by Electromagnetic Test Methods"

Moscow, Defektoskopiya, No. 5, 1970, pp. 115-119

Abstract: Certain regularities in the fatigue rupture of materials (specimens of 36G2S, 45, and 38KhNM steel) are determined on the basis of the change in magnetic permeability and magnetic viscosity. A method is described for studying the fatigue state of type 45 and 36G2S steel used to manufacture drilling tubes, and recommendations are given for determination of the early stages of fatigue damage. Curves are produced making it possible to trace the kinetic cyclical damage level, determine the period of fatigue, and construct the principal lines in a diagram of fatigue rupture.

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USSR

UDC: 51

AVRAMENKO, V. P., KUTSENKO, N. T., SHAGAYEV, Yu. V.

"Solution of One Problem Concerning the Distribution of Orders"

Pribory i Sistemy Avtomatiki. Resp. Mezhved. Temat. Nauch.-tekhn. Sb. (Automation Systems and Devices], 1972, No 24, pp 51-54 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V399)

Translation: The problem is reduced to the transport problem with one additional limitation $\Sigma\Sigma x_{kj} \geq N$.
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USSR

UDC 541.64:547.379

FAYZULLIN, I. N., MAKSUDOVA, T. M., SHAGIAKHMETOV, E. M., and NABIYEVA, D. I.

"Polysulfones of Phosphoric Acid Allyl Esters"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15, No 11, Nov 73, pp 2424-2428

Abstract: Reacting sulfur dioxide with allyl alkyl methylphosphonates and allyl aryl ß-chloroethylphosphonates yields phosphorus containing polysulfones. Specific reaction temperatures were determined. The effect of the structure of phosphonate esters on the reaction temperature of the formation of polysulfones has been investigated, showing that branching in the chains of the starting monomers leads to lower specific temperature. The only exception noted was that of allyl aryl esters of chloroalkylphosphonic acid. Changing the position of a substituent in the aromatic ring showed no substantive effect on the value of specific temperature.

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USSR UDC: 681.332.65

SHAGIAKHMETOV, F. M., TAMARKIN, M. B., KAZAKOV, I. F., SUBBOTIN, V. A.

"A Variable-Priority Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 4, Feb 71, Author's Certificate No 292155, Division G, filed 14 Aug 69, published 6 Jan 71, p 130

Translation: This Author's Certificate introduces a variable-priority device which contains registers, decoders, coincidence circuits, merging circuits, comparison circuits and flip-flops. As a distinguishing feature of the patent, the device is simplified by incorporating a gated cycle counter and a gated cycle decoder with auxiliary merging circuits and coincidence circuits in each priority position. The inputs of the auxiliary merging circuit are connected to the inverse outputs of the coincidence circuits and to the inverse outputs of the decoder which correspond to the highest priority. The output of the auxiliary coincidence circuit is connected to the controlling input of the gated cycle counter, the output of this counter being connected through a decoder to the line for the change in the index of priority for the given position.

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UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 013

TITLE--SOLUBILITY OF CARBON DIOXIDE IN ORGANIC SOLVENTS -U-

AUTHOR-(05)-PODVIGAILOVA, I.G., ZEYNALOV, B.K., KRUGLIKOV, A.A., RADZHABOV, O.T., SHAGIDANOV, E.N.

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CIRC ACCESSION NO--AP0137444

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. USED TO DET. THE SOLY. (IN VOLS.-VOL.) OF CO SUB2 IN LIQS. OR SOLNS. IS DESCRIBED. THE SOLY. IN 58 LIQS. TESTED RANGED FROM 126 FOR ET SUB2 NH TO 0.4 TRIXYLYLENE PHOSPHATE. THE FOLLOWING SUBSTANCES MAY FIND USE IN THE REMOVAL OF ACIDIC GASES FROM AIR OR INDUSTRIAL GASES: ET SUB2 NH, POLYETHYLENE POLYAMINE (2PERCENT SOLN. ABSORBS 7.6 VOLS. CO SUB2-VOL), AND PLASTIZAN 30A (ETHYLENE GLYCOL C SUB7-9 FATTY ACID ESTERS) (1 VOL. ABSORBS 2.7 VOLS. CO SUB2), WHICH IS PRODUCED FROM INEXPENSIVE AND AVAILABLE PETROLEUM CRACKING RESIDUES.

UNCLASSIFIED

USSR

UDC 543.422.4+541.571.9+577.26.118

SHAGIDULLIN, R. R., LIPATOVA, I. P., NURETDINOV, I. A., and SAMARTSEVA, S. A., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR, Kazan', and Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Hydrogen Bonding with the Participation of P=Se and P=Te Groups"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 6, Aug 73, pp 1363-1365

Abstract: The electron donating ability of the group P=X (X=Se, Te) was studied in the compounds of the type $R_1R_2R_3P{=}X$ where R_1, R_2, R_3 = Me, Et, Bu, Ph, EtO, EtS, PhO, Me_2N, Et_2N, and Cl (for X = Se), and Me, Me_2N, Et_2N (for X = Te), by determining IR spectral changes due to the formation of hydrogen bonds with the phenolic OH group. It has been established that both the seleno- and tellurophosphoryl groups participate in hydrogen bonding as proton acceptors, the strength of the H-bond depending on the electronic effects of the substituents on the phosphorus atom. The electron donating ability of the P=X groups (X = O, S, Se, Te) in identical

USSR

SHAGIDULLIN, R. R., et al., Doklady Akademii Nauk SSSR, Vol 211, No 6, Aug 73, pp 1363-1365

media changes considerably when oxygen is replaced by sulfur, but such a change is very small when sulfur is replaced by Se or Te.

2/2

UDC 543.422.4:547.79'546.183

USSR

SHAGDULLIN, R. R., SHALIROV, I. KH., PUDOVIK, M. A., and TERENT'YEVA, S. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"Vibrational Spectra and Structure of Some Oxaazaphospholanes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1612-1615

Abstract: A series of 2-chloro-2-oxo-1,3,2-oxaazaphospholanes was synthesized and their spectra were studied. To 15.3 g phosphorus oxychloride in 150 ml benzene kept at 15-20°, a mixture of 20.2 g triethylamine and 8.9 g 1-methylaminopropanol-2 was added dropwise with stirring. The reaction mixture was stirred for 2 hrs, the triethylamine hydrochloride was separated, benzene was evaporated, and the residue was vacuum-distilled, yielding 2-chloro-2-oxo-3,5-dimethyl-1,3,2-oxaazaphospholane, b.p. 90°/0.1 mm, d_4^{20} 1.2853, n_D^{20} 1.4602. Analogously the 2-chloro-2-oxo-3-phenyl-1,3,2-oxaazaphospholane, m.p. 96-97° and 2-chloro-2-oxo-5-methyl-3-phenyl-1,3,2-oxaazaphospholane, m.p. 114-115° were obtained. IR spectra for model compounds have been reproduced, and band assignments have been made. On the basis of the changes observed in characteristic frequencies, going from trivalent phosphorus compounds to tetracoordinated ones,

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