

USSR

UDC 669.296:620.18.669.017.11

IVANOV, O. S., ADAMOVA, A. S., TARARAYEVA, YE. M., and TRIGUBOV, I. A.,  
Struktura Splavov Tsirkoniya (The Structure of Zirconium Alloys), Akademiya  
Nauk SSSR, Izd-vo "Nauka," Moscow, 1973, 199 pp

Translation of Annotation: A critical generalization is presented of investigations published until 1970. The structure of zirconium alloys in states of equilibrium and inequilibrium is examined. The structure in the state of equilibrium, discussed in the first part of the book, is analyzed from structural diagrams of binary and ternary systems on a zirconium base. In the second part general rules are given for the formation of metastable phases in zirconium alloys and also the structure of alloys in inequilibrium state in concrete diagrams of binary and ternary alloys. A list of the investigated systems is presented. The publication is intended for investigators, including scientists, metallurgists, and mechanical engineers working in the fields of investigation, development, and production and application of zirconium alloys; it is also intended for teachers and students at metallurgical and mechanical higher institutes of learning. Eight tables, 222 figures, 594 bibliographic references.

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IVANOV, O. S., et al., Izd-vo "Nauka," Moscow, 1973 199 pp

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IVANOV, O. S., et al., Izd-vo, "Nauka," Moscow, 199 pp

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IVANOV, O. S., et al., Izd-vo, "Nauka," Moscow, 199 pp

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USSR

TREGUBOV, K. G.

UDC 577.4

"Mathematical Methods for Analyzing Production Interrelationships  
in Agriculture"

Moscow, "Kolos," 1972, 128 pp, illustrated (from RZh--Matematika,  
No 7, 1972, Abstract No 7V548K)

Translation: Chapter 1, Production functions--a means of economic  
analysis and planning. Chapter 2, Production functions in agri-  
culture and the economic characteristics obtained by investigating  
them. Chapter 3, Correlation modeling of production functions.  
Chapter 4, Using production functions in economic analysis and  
planning of agricultural production.

1/1

USSR

TREGUBOV, K. G.

UDC 557.4

"Mathematical Methods of Analyzing Production Interrelations in Agriculture"

Matematicheskiye metody analiza proizvodstvennykh vzaimosvyezey v sel'skom khoz-  
yaystve (Mathematical Methods of Analyzing Production Interrelations in Agri-  
culture), Moscow, Kolos Press, 1972, 128 pp, ill., 41 k (from RZh-Kibernetika,  
No 7, Jul 72, Abstract No: 7V548K)

Translation: The book comprises the following chapters: Chapter I. Produc-  
tion Functions -- Means of Economic Analysis and Planning. Chapter II. Pro-  
duction Functions in Agriculture and Economic Characteristics obtained as a  
Result of Studying Them. Chapter III. Correlation Simulation of Production  
Functions. Chapter IV. Application of Production Functions in Economic  
Analysis and Planning of Farm Production.

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USSR

UDC 681.327.66

BORISOV, P. V., TREGUBOV, K. YA., KRUPSKIY, A. A.

"A Device for Readout of a Multivalued Response in an Associative Memory"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraxtsy, Tovarnyye Maki, No 3, 1970, pp 48-49, patent No 259962, filed 18 Dec 68

Abstract: This Author's Certificate introduces a device for readout of a multivalued response in an associative memory. The device contains a control unit, detector matrix, boundary registers connected to the coordinate windings of the matrix, and address encoders connected to the outputs of the boundary registers. As a distinguishing feature, the device incorporates an answer display unit which increases speed. This display unit is made in the form of a coincidence circuit which indicates "negative response", "positive single-valued response" and "multivalued response". The input is connected to the encoder, and the output is connected to the control unit.

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1/2 007

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--TRIETHYLCHOLINE AND PARAMION ACTION ON THE STRIATED MUSCLE STAIN UNDER THE EFFECT OF GUANIDINE -U-

AUTHOR--TREGUBOV, S.M., FEDOROVA, A.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN EKSPERIMENTAL NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 3, PP 74-76

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIDIABETIC, FROG, METHYLENE BLUE, CHOLINOLYTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0840

STEP NO--UR/0219/70/069/003/0074/0076

CIRC ACCESSION NO--AP0052274

UNCLASSIFIED



2/2 007  
CIRC ACCESSION NO--AP0052274  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT. TESTS CONDUCTED AFTER NASONOV MADE IT CERTAIN THAT GUANIDINE INCREASED THE ABILITY OF AN ISOLATED SARTORIUS MUSCLE OF THE LAKE FROG TO SORB THE VITAL STAIN METHYLENE BLUE. THIS ACTION IS ASSOCIATED WITH THE STIMULATION OF CHOLINERGIC (MUSCLE RELAXANT) PARAMION. CAN BE FORSTALLED BY THE ANTICHOLINERGIC (MUSCLE RELAXANT) PARAMION. TRIETHYLCHOLINE IS ALSO CAPABLE OF INCREASING THE SORPTION OF THE VITAL STAIN BY THE MUSCLES; ITS ACTION, HOWEVER, BEING INDEPENDENT FROM THE EFFECT OF TRIETHYLCHOLINE ON THE CHOLINERGIC PROCESSES IN THE STRIATED MUSCLE. TRIETHYLCHOLINE DOES NOT PREVENT THE GUANIDINE INDUCED INCREASE OF THE STAIN SORPTION BY THE STRIATED MUSCLE.

UNCLASSIFIED

UNCLASSIFIED

TITLE--TRIETHYLCHOLINE AND PARAMION ACTION ON THE STRIATED MUSCLE STAIN/UNDER THE EFFECT OF GUANTIDINE -U-  
AUTHOR--TREGUBOV, S.M., FEDOROVA, A.V. PROCESSING DATE--11SEP70

COUNTRY OF INFO--USSR

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DATE PUBLISHED-----70

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CONTROL MARKING--NO RESTRICTIONS

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PROXY PEEL/FRAME--1982/0840

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CIRC ACCESSION NO--AP0052274

UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AP0052274  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11SEP70

IT CERTAIN THAT GUANIDINE INCREASED THE ABILITY OF AN ISOLATED SARTORIUS MUSCLE OF THE LAKE FROG TO SORB THE VITAL STAIN METHYLENE BLUE. THIS ACTION IS ASSOCIATED WITH THE STIMULATION OF CHOLINERGIC (MUSCLE RELAXANT) PARAMION. CAN BE FORSTALLED BY THE ANTICHOLINERGIC (MUSCLE RELAXANT) PARAMION. TRIETHYLCHOLINE IS ALSO CAPABLE OF INCREASING THE SORPTION OF THE VITAL STAIN BY THE MUSCLES, ITS ACTION, HOWEVER, BEING INDEPENDENT FROM THE EFFECT OF TRIETHYLCHOLINE ON THE CHOLINERGIC PROCESSES IN THE STRIATED MUSCLE. TRIETHYLCHOLINE DOES NOT PREVENT THE GUANIDINE INDUCED INCREASE OF THE STAIN SORPTION BY THE STRIATED MUSCLE.

UNCLASSIFIED

USSR

TREGUBOV, V.P. and FILIPPOV, B.V.

"Equalizing Currents on the Surface of Metal Body in Highly-Rarefied Plasma"

Leningrad, Aerodinamika Razrezhennykh Gasov, 1970, pp 148-160

Abstract: In the case of a metal body moving through highly-rarefied plasma the total negative charge of the electrons deposited on the surface is equal to the total positive charge of the ions. However, the distributions of the positive and negative charges are not the same, resulting in equalizing surface currents. These currents interacting with the magnetic field of the earth result in forces acting on the body.

Formula (37) is the relation between the surface current and the net charges deposited per unit of surface of a body of revolution moving in the direction of its axis. By means of this formula the distribution of the surface currents and the electromagnetic force are determined for the following three bodies of revolution:

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USSR

TREGUBOV, V. P., and FILIPPOV, B. V., Aerodinamika Razrezhennykh Gasov, 1970,  
PP 148-160

1. Sphere
2. Cone
3. Cylinder with a hemisphere on the leading end.

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USSR

UDC 621.357.1:621.794.48

TREGUBOVA, M. A., AKSENOV, B. I., and SHUBIN, A. S.

"Study and Comparison of Different Systems of Electroion-Exchange Regeneration Process of Spent Hydrochloric Iron-Containing Etching Solutions"

Sverdlovsk, Sb. Okhrana prirod. vod Urala (Collection of Works: Protection of Natural Ural Waters), No 5, 1972, pp 83-86 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 231204 by G. I. Volkov)

Translation: The regeneration process of etching solutions was studied in cells divided by (a) two cation-exchanging diaphragms, (b) two cation-exchanging diaphragms with flowing  $H_2SO_4$  in the anode and central chambers, (c) two cation-exchanging diaphragms with flowing  $H_2SO_4$  in the anode chamber, with feeding the initial solution into the central chamber. The latter variant produced the best results with respect to the iron extraction from the solution.

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USSR

UDC 547.26'118 + 546.185.131

GAZIZOV, M. B., SULTANOVA, D. B., RAZUMOV, A. I., and TREGUBOVA, T. V.,  
Kazan' Chemical Technological Institute imeni S. M. Kirov

"Reaction of Neutral Esters of  $\alpha$ -Alkoxyethylphosphonic Acids With  
Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, p 2087

Abstract: The reaction of neutral esters of  $\alpha$ -alkoxyethylphosphonic acid with  $PCl_5$ , taking the reagents at the ratio of 1:3, at  $40^\circ$  for 15 hrs, yields  $\alpha$ -alkoxyvinylphosphonic acid chlorides (I) and alkyldichlorophosphates (II), in addition to phosphorus oxychloride, hydrogen chloride and alkyl halides: R' or R, the yield in %, b.p. $^\circ$ /mm Hg,  $d_4^{20}$ ,  $n_D^{20}$  for (I) for (I) are being reported:  $C_2H_5$ , 74.0, 63/0.03, 1.3269, 1.4910;  $C_4H_9$ , 66.7, 85/0.07, 1.2334, 1.4870; and for (II):  $C_2H_5$ , 17.0, 81/43, 1.3823, 1.4340;  $C_3H_7$ , 32.8, 67/10, 1.3082, 1.4380.

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USSR

UDC: 621.317.328

TREKHOV, Ye. S., FOMENKO, A. F.

"Measurement of High-Frequency Electromagnetic Fields in a Stationary Induction Discharge at Atmospheric Pressure"

V sb. Vopr. fiz. nizkoterperaturn. plazmy (Problems of Low-Temperature Plasma Physics--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 195-198 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A328)

Translation: A magnetic probe is used for experimentally measuring the spatial distribution of the high-frequency electromagnetic field in a stabilized vortex discharge plasma at atmospheric pressure. The resultant experimental data are used with Maxwell's equations to determine the strength of the high-frequency field, phase angles, rf current density, conductivity, the power released in the plasma, and the resistance which is introduced, all in terms of a unit of length of the discharge. Experimental and theoretical results are compared. Two illustrations, one table, bibliography of seven titles. Resumé.

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TREKHOV, Ye. S.



DEPARTMENT OF THE NAVY  
NAVAL INTELLIGENCE SUPPORT CENTER  
4301 SUTLAND ROAD  
WASHINGTON, D.C. 20390

NAVINTS  
FRAN-3447-73  
a 22/4  
L-OST/PSB  
e6

CLASSIFICATION: UNCLASSIFIED

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TITLE:

Measuring the Oscillation Relaxation Time of the  
00<sup>1</sup> Level of CO<sub>2</sub> Molecules in the Temperature  
Interval of 300° - 600° K

AUTHOR(S):

Izmereniye vremeni kolebat'noy relaxatsii urovnya  
00<sup>1</sup> I molekuly CO<sub>2</sub> v intervale temperatur 300-600°K  
Blizhnyak, A.S., Komukhin, V.F., Lukomnikov, A.L.,  
Mysin, V.A., Serikov, N.I., and Trekhov, Ye. S.

PAGES:

5

SOURCE:

Zhurnal Prikladnoy Spektroskopii, No. 2, 1972  
Pages 249-252

ORIGINAL LANGUAGE: Russian

TRANSLATOR:

CRH

NISC TRANSLATION NO. 3447

APPROVED P.T.K.

DATE 20 June 1972

USSR

UDC: 537.53

VARGIN, A. N., PASYNKOVA, L. M., TREKHOV, Ye. S., Moscow Engineering  
Physics Institute

"Emittance of Carbon Dioxide Plasma at Temperatures of 7000-9000°K in  
the Spectral Interval of 2100-10,000 Å"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 4, Jul/Aug 72, pp  
732-737

Abstract: The emittance distribution of a carbon dioxide plasma is determined at atmospheric pressure over a broad spectral interval of 2100-10,000 Å at temperatures of 7000, 8000, and 9000°K. The results are given in the form of graphs. The distributions found for intensities at wavelengths longer than 6000 Å show characteristic differences from the distributions at shorter wavelengths -- at 7000°K the line emission is very weak and the principal contribution is from molecular systems, one of the strongest being the Swan C<sub>2</sub> system. At 9000°K there is a sharp increase in the emission contribution from the line spectrum. At wavelengths shorter than 5650 Å there are breaks in the curve for intensity as a function of wavelength on the strongest lines in the visible

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USSR

VARGIN, A. N. et al., *Teplofizika Vysokikh Temperatur*, Vol 10, No 4,  
Jul/Aug 72, pp 732-737

and ultraviolet regions of the spectrum. The experimental results are compared with calculations for pure carbon dioxide. Satisfactory agreement is observed in the region below 3500 Å (i. e., at this wavelength and shorter). In the long-wave region where the Swan C<sub>2</sub> molecular system begins to make itself felt, the theoretical curve lies much lower than the experimental data, which fact is attributed to the composition of the gas assumed for the initial data of the calculations.

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USSR

UDC 534.222.2

VINOKUROV, A. YA., KUDRYAVTSEV, YE. M., MIRONOV, V. D., ~~TRUKHIN, YE. S.~~ TREKHIOV, YE. S.

"Study of Oscillatory Relaxation of Carbon Monoxide"

V sb. 3-y Vses. simpozium po goreniyu i vzyryvu, 1971 (Third All-Union Symposium on Combustion and Explosion, 1971--collection of works), Chernogolovka, 1971, pp 282-284 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B123)

Translation: The distribution of the density  $\rho$  in the relaxation zone of a shock wave and the time  $\tau$  of oscillatory relaxation of CO in the 2,200-3,500°K temperature range are found by measuring the radiation intensity of the valence band of the CO molecule (wavelength 4.76 microns). The dependence of  $\tau$  on T is described by the formula

$$\rho\tau = \exp(194T^{-1/3} - 10.7)\{1 - \exp(1 - 3080/T)\}^{-1} \text{microseconds} \cdot \text{at} \quad (1)$$

The existing divergence of the values of  $\tau$  found from the data of other authors is possibly connected with the fact that, in contrast to (1), the other authors represent the result of averaging  $\tau$  over the relaxation zone.

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USSR

UDC: 538.4

SOSHNIKOV, V. N., TREKHOV, Ye. S, and KHOSHEV, Yu. M.

"Theory of a High-Pressure Eddy Discharge"

V sb. Vopr. fiz. nizkoterperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas--collection of works) Minsk, "Nauka i tekhn." 1970, pp 169-175 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B4)

Translation: As a result of the machine solution of the differential equations of the electromagnetic field and heat conductivity for a large number of variants, the integral parameters of the discharge in air and in argon, as well as the radial temperature and field distributions (the unidimensional problem) are obtained. The presence of stable and unstable discharge modes is discovered, and the essential role played by radiation energy loss is noted. The available experimental data does not contradict the theory. Numerical solutions of the two-dimensional discharge problem with a blowing gas is obtained. Bibliography of 29. Author's abstract.

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USSR

UDC 681.333

GOROKHOV, YU. S., MEDYAKOV, I. N., and TREL', G. V.

"Differential Gear Modeling Device"

USSR Authors' Certificate No 341051, Cl. G 06g 7/64, filed 26 Nov 70, published 5 Jun 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 5 Jun 72, p 185)

Abstract: The device contains diodes, resistors, and operational amplifiers. To increase modeling accuracy and enlarge the class of problems that can be solved, it contains kinematic chain models whose outputs are connected to the input of the summing amplifier and to the outputs of the device. One of the summing amplifier outputs is connected to a series-connected integrating amplifier and inverting amplifier; the other summing amplifier output is connected to one of the inputs of the computing amplifier; the other input, to the output of the inverting amplifier, to whose feedback is connected a four-diode bridge; and the computing amplifier output is connected to the kinematic chain models, the first inputs of which are connected to the inputs of the device.

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USSR

GOROKHOV, Yu. S., and TREL', G. V.

UDC 681.33

"A Device for Modeling the Efficiency of Mechanical Transmissions"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, Aug 72, Author's Certificate No 345495, Division G, filed 23 Jul 70, published 14 Jul 72, p 180

Translation: This Author's Certificate introduces a device for modeling the efficiency of mechanical transmissions. The device contains a four-diode bridge, resistors, inverting adder amplifiers, and diodes. As a distinguishing feature of the patent, the device is simplified and the class of problems which can be solved is extended by making the following modifications: The first and second inputs of the device are connected through the first and second resistors to the input of the first adder amplifier. Connected to this same input through the four-diode bridge are the power supply, the second input of the device, the outputs of the second adder amplifier with a diode in the feedback circuit, and the third adder amplifier. The second and third adder amplifiers are connected in series. The inputs of the four-diode bridge and the inputs of the second and third adder amplifiers are connected through the third, fourth, and fifth

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USSR

GOROKHOV, Yu. S., and TREL', G. V., Otkrytiya, Izobreteniya, Promyshlennyye  
Obraztsy, Tovarnyye Znaki, No 22, Aug 72, Author's Certificate No 345495,  
Division G, filed 23 Jul 70, published 14 Jul 72, p 180.

resistors to the first input of the device and through the fifth, sixth,  
and seventh resistors to the input of the inverting amplifier, which is  
connected to the output of the device.

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USSR

UDC 681.33

TREL', G. V.

"A Device for Simulating the Coefficient of Friction"

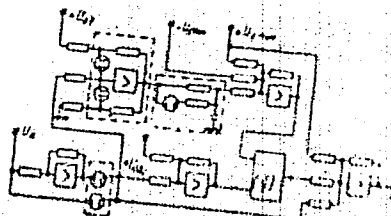
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 3, 1970, p 130, patent No 260292, filed 2 Sep 68

Abstract: This Author's Certificate introduces a device for simulating the coefficient of friction and is based on patent No 221397. As a distinguishing feature of the patent, the unit is designed for improved accuracy in simulation of systems with friction couples by taking account of the relationship between the coefficient of static friction and duration of the period of rest and motion. The device contains an additional series-connected relay element, integrating network with series-connected diode and resistor tied in parallel with the main resistor of the integrating network, and a summing circuit. The input of the relay element is connected to the output of the rectifier, and its reference voltages are respectively the zero voltage and a voltage which is proportional to the maximum change in the coefficient of static friction. The second input of the auxiliary summing circuit is connected to the third input of the second main summing circuit and serves as the input for information on the value of the maximum coefficient of static friction. 1/2

USSR

TREL', G. V.

Moscow, Otkrytiya, Izobreteniya, Promushlennyye Obratzsy, Tovarnyye  
Znaki, No 3, 1970, p 130, patent No 260292, filed 2 Sep 68



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USSR

UDC 536.422

VASIL'YEV, I. N., TRELIN, Yu. S., and ROMANOV, A. A.

"Experimental Data on the Speed of Sound in Saturated and Superheated Cesium Vapor Up to 1280°K"

Moscow, Teplofizika Vysokikh Temperatur, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 1971, pp 59-66

Abstract: The following method of measuring the speed of sound in cesium vapor was used. 20 gram of distilled liquid cesium was introduced into the vapor generator of the measuring chamber. Absence of gas in this chamber was checked ultrasonically. The vapor temperature was measured by thermocouples. The vapor pressure was determined by measuring the vapor temperature close to the liquid surface. The speed of sound was measured acoustically by the method described in an article by the same authors in the same journal, No 6, 1969, p 7.

The experimental data were correlated by the least squares method.

An analytical expression of the speed of sound as a function of temperature and pressure has been worked out.

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USSR

VASIL'YEV, I. N., et al., *Teplofizika Vysokikh Temperatur*, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 1971, pp 59-66

The experimental and correlated data for different pressures and temperatures are presented in tables and graphs in the range of temperatures from 825 to 1280°K, pressures from 0.25 to 10.2 atmospheres.

The speeds of sound were also calculated from the equation of state for a mixture of mono-atomic and biatomic vapor. The agreement with the experimental data is within 2%.

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UNCLASSIFIED

PROCESSING DATE--27NOV70  
SOLUTIONS -U-

TITLE--DIMETHYLVINYLCARBINOL FROM DILUTE AQUEOUS  
AUTHOR--(04)-OGORODNIKOV, S.K., NEMTSOV, M.S., TRENKE, K.M., MORZOVA, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,593

REFERENCE--OTKRYTIYA, IZOBRET., PROM, OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, CHEMICAL SEPARATION, AZEOTROPE,  
DISTILLATION, VINYL COMPOUND, METHANOL, ALKYL RADICAL, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1594

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135235

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AA0135235

UNCLASSIFIED

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

HETEROAZETROPIC RECTIFICATION. ABSTRACT. THE TITLE

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PROCESSING DATE--27NOV70

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UNCLASSIFIED

USSR

UDC 517.93+513.881

LOGINOV, B. V., Tashkent, and ~~TRENOGIN, V. A.~~, Moscow

"The Use of Group Properties for Determining Multiparametric Families of Solutions to Nonlinear Equations"

Moscow, Matematicheskii Sbornik, Vol 85, No 3, Jul 71, pp 440-454

Abstract: The authors examine a nonlinear equation in Banach space that is invariant relative to the continuous group. They give the conditions that permit reducing the equations of the Lyapunov-Schmidt branching both by number of equations and by number of unknowns, thus making it possible to greatly simplify finding the multiparametric families of solutions to this problem. Instances are often encountered in which the solution to a nonlinear problem depends on one or more free numerical parameters. Included here are problems concerning long and isolated waves having a finite number of solutions. Such a situation exists in the problem of secondary stationary flows of a viscous fluid between cylinders rotating on one side and the problem, which is similar, concerning free convection, especially convection in the horizontal layer of a fluid heated from below.

If the problem is invariant relative to a certain group of transformations, then either all or part of the free parameters have a group connotation

1/2

USSR

LOGINOV, B. V. and TRENIGIN, V. A., Matematicheskiy Sbornik, Vol 85, No 3, Jul 71, pp 440-454

thus permitting the problem to be simplified in a number of instances by seeking a solution which belongs to a certain subspace. The authors carry out a detailed analysis of the possibilities available for the general equation in a Banach space.

Theorems are stated, and detailed mathematical proof is offered to support the authors' position. The article contains a bibliography of 15 titles.

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USSR

UDC 669.295:539.2:539.214

TRENOGINA, T. L., MURZAYEVA, G. V., LERINMAN, R. M., POTAPENKO, YU. I., and KAGANOVICH, I. N., Institute of Physics of Metals, Academy of Sciences USSR

"Electron-Microscope Study of Structural Changes Occurring Upon High Temperature Thermomechanical Treatment of Titanium Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 6, Dec 73, pp 1242-1252.

Abstract: The microstructural changes occurring in VT15 (beta alloy) and VT9 (alpha plus beta alloy) upon high temperature thermomechanical treatment were studied using the method of transmission electron microscopy. Particular attention was given to the influence of the duration of the pause between the end of deformation and hardening on the microstructure of the alloys. It was established that it is the creation of a polygonized structure which is responsible for the favorable combination of strength and plastic characteristics of these alloys. It is shown that as the duration of the pause between the end of deformation and hardening is increased, the increase in plasticity and decrease in strength observed results primarily from a change in the phase ratio and the dispersion of the phases.

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UDC 615.917

NIKOLOV, S. KH., LYUBIMTSKIY, KH. Z., BARSEL'YANTS, G. B., ZABELIN, A. A., NEFELOV, P. V., GNOPCHENKO, N. V., CHURSINA, M. A., YEREMIN, V. M., TRENSUK, R. A.

"Toxicologic Estimate of the New Organophosphorus Pesticide Bitex"

V sb. Vliyaniye ul'trazvuka, yadokhinik. i drugikh faktorov sredy na organizm cheloveka i zhivotnykh (Effect of Ultrasound, Poisons and other Factors of the Environment on the Organism of Man and Food Products -- collection of works), Krasnodar, 1971, pp 85-91 (from REh-Farmakologiya. Khimioterapevticheskiye sredstva. Toksikologiya, No 2, Feb 72, Abstract no 2.54.773)

Translation: Rats were injected intraventricularly with bitex (an organophosphorus pesticide; I: contains 50% active principle) dissolved in water (1 ml) in doses of 100, 200, 300, 400, 500, 600, 700 and 800 mg/kg, and they were observed for 3 weeks. With a dose of 100-200 mg/kg, the activity of the cholinesterase dropped by 2-3 times during the first 1-2 days, and it began to recover after 7-11 days. The dose of 100 mg/kg was taken as the minimum toxic dose. For doses of 300 mg/kg and higher, sluggishness, increased frequency of urination, diarrhea, contraction of the pupils, tears, paresis of the extremities, a drop in body temperature of 1-5°, an increase in the sedimentation rate, leucocytosis, neutrophilosis and a reduction in the cholinesterase activity by 3-15 times were noted. The  $LD_{100}$  of I is 800 mg/kg, the  $DL_{50}$  is 384.6

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ROLOV, S. KH., et al., Vliyaniye ul'trazvuka, yadokhnik. i drugikh faktorov  
rody na organizm cheloveka i nishca. produkty, Krasnodar, 1971, PP 85-91

(491.8-277.4 mg/kg). For rabbits (1 was injected in doses of 25-200 mg/kg) the  
DL<sub>50</sub> was calculated on the level of 62 (11.67-47.3) mg/kg. The pathomorphologi-  
cal changes in rabbits were characterized by circulatory disorders and dystrophy.  
BSSR. Krasnodar, Medical Institute.

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55

1/2 032 UNCLASSIFIED  
TITLE--BINDERS BASED ON MODIFIED DIENOL S -U-

PROCESSING DATE--23OCT70

AUTHOR--(02)-TREPelKOVA, L.I., KOVAL, V.G.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 15-17

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYMER BINDER, EPOXY RESIN, MALEIC ANHYDRIDE, LAMINATED  
PLASTIC, COPOLYMERIZATION, STYRENE, ORGANIC PEROXIDE, INSULATING  
MATERIAL/(U)ED5 EPOXY RESIN, (U)DIENOL S RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAme--1997/0666

STEP NO--UR/0191/70/000/003/0015/0017

CIRC ACCESSION NO--AP0119574

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS WERE STUDIED OF  
MODIFYING A DIENOL-S (I) WITH AN ED-5 EPOXY RESIN AND MALEIC ANHYDRIDE  
ON THE PROPERTIES OF HARDENED CASTING RESINS AND LAMINATED INSULATING  
PLASTICS. THE HARDENING TIME AND TEMP. WERE MARKEDLY REDUCED BY  
INITIATING THE COPOLYMER OF I WITH STYRENE IN THE PRESENCE OF BZ SUB2 O  
SUB2 AND DICUMYL PEROXIDE.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ANOMALOUS INCREASE IN THE STRENGTH OF PLASTICIZED POLY,VINYL  
CHLORIDE -U-  
AUTHOR--(02)-PEREPECHKO, I.I., TREPELKOVA, L.I.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (2), 40-1  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--PLASTICIZER, MECHANICAL STRENGTH, POLYVINYL CHLORIDE,  
SYNTHETIC RUBBER, MOLECULAR STRUCTURE, THERMAL EFFECT/(U)SKN40 SYNTHETIC  
RUBBER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1705 STEP NO--UR/0191/70/000/002/0040/0041  
CIRC ACCESSION NO--AP0112699  
UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AP0112699

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(VINYL CHLORIDE) (I)  
PLASTICIZED WITH SKN-40 RUBBER TEMPS. NEAR THE GLASS TRANSITION TEMP. (T  
SUBG) EXHIBITED INCREASED TENSILE STRENGTH (SIGMA). AT T LARGER THAN T  
SUBG THE PLASTICIZED I HAD A LOWER SIGMA THAN THE PURE I. THE ANOMALOUS  
INCREASE IN SIGMA MAY BE OBSO. IN NUMEROUS RIGID AND POLAR POLYMERS AT T  
SIMILAR TO T SUBG, PRESUMABLY DUE TO A MORE EFFECTIVE MOL. INTERACTION  
OF POLYMER CHAINS IN THE GLASS TRANSITION STATE.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ELECTRICAL CHARACTERISTICS OF THE SYSTEM ROCK ICE -U-  
AUTHOR--(04)-BOGORODSKIY, V.V., KHOKHLOV, G.P., FEDOROV, B.A., TREPOV, G.V.  
COUNTRY OF INFO--USSR  
SOURCE--AKAD. NAUK SSSR DOKLADY, V. 190, NO. 1, PP. 88-90 ILLUS., TABLE,  
1970  
DATE PUBLISHED-----70  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--ROCK, ICE, PERMAFROST, RADIO WAVE ABSORPTION, RADIO SIGNAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/1998 STEP NO--UR/0020/70/190/001/0038/0090  
CIRC ACCESSION NO--AT0133833  
UNCLASSIFIED



2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133833

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF INVESTIGATIONS OF THE  
ABSORPTION OF A RADIO SIGNAL BY A SYSTEM CONSISTING OF ROCK AND ICE  
SUGGEST THAT IT MIGHT BE POSSIBLE TO DEVELOP METHODS OF INVESTIGATING  
PERMAFROST BY MEANS OF RADIO WAVES.

UNCLASSIFIED

172 012

TITLE--AUTOMATION OF CHARGE FEEDING FOR CUPOLA MELTING -U- UNCLASSIFIED PROCESSING DATE--09OCT70

AUTHOR--(04)--TRESHCHALIN, V.V., SUKHARCHUK, YU.S., BLAGONRAVOV, B.P., NIKITIU, P.A.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, 2, 8-10

DATE PUBLISHED--70

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

TOPIC TAGS--CAST IRON, TECHNICAL STANDARD, METAL MELTING, AUTOMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1379

STEP NO--UR/0128/70/002/000/0005/0010

CIRC ACCESSION NO--AP0116828

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0116828  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT. THE VARIATIONS IN THE CHEM. COMPN. OF THE CHARGE COMPONENTS (AS ALLOWED BY GOVERNMENT STDS.) HAS A MUCH LARGER EFFECT ON VARIATIONS IN THE CHEM. COMPN. OF THE CAST IRON MELTED, THAN THE VARIATIONS IN WEIGHING OF THE COMPONENTS WITH ERRORS SMALLER THAN OR EQUAL TO 10-15PERCENT. THE AUTOMATED WEIGHING OF CHARGES TO THE CUPOLA SHOULD NOT BE TOO ELABORATE AND A SIMPLE ARRANGEMENT WITH THE ACCURACY OF 10-15PERCENT IS QUITE SATISFACTORY, PROVIDED A LARGE INTERMEDIARY STORAGE IS PROVIDED IN WHICH THE VARIATIONS IN CHEM. COMPN. ARE EQUALIZED.

UNCLASSIFIED

USSR

UDC 547.26'118

PETROV, K. A., TRESHCHALINA, L. V., and SULAYMANOV, A.

"Synthesis of the Derivatives of  $\beta$ -Alkoxyvinylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 753-758

Abstract: Reaction of the anhydride of  $\beta$ -ethoxyvinylphosphonic acid with hexylamine and p-toluidine yields amide salts of  $\beta$ -ethoxyvinylphosphonic acids; in case of aromatic amines the phosphorylation occurs through the stage of the formation of amide salt of  $\beta$ -ethoxyvinylpyrophosphonic acid. A synthetic method has been developed for the synthesis of acid phenyl esters of  $\beta$ -alkoxyvinylphosphonic acid by reacting phenol with the anhydrides of these acids. It has been established that during the reaction of anhydrides with substituted phenols occasionally monoesters of  $\beta$ -alkoxyvinylpyrophosphonic acid are formed instead of monoarylphosphonates. Phenolysis of  $\beta$ -ethoxyvinylphosphonic acid dichlorides with the reagent ratio 1:1 leads to the formation of aryl ether chloroanhydrides which upon reacting with amines yield ether amides.

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1/2 012

TITLE--EFFECT OF MAGNESIUM ON CARBOHYDRATE METABOLISM IN BARLEY PLANTS -U-  
UNCLASSIFIED PROCESSING DATE--30OCT70

AUTHOR--(02)-TRESHCHOV, A.G., CHERNOKLINOVA, V.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(2), 105-6

DATE PUBLISHED--70

SUBJECT AREAS--AGRICULTURE

TCPIC TAGS--MAGNESIUM, CARBOHYDRATE, SOIL TYPE, FERTILIZER APPLICATION,  
MINERAL FERTILIZER, CEREAL CROP

CONTRL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1376

STEP NO--UR/0394/70/008/002/0105/0106

CIRC ACCESSION NO--AP0125024

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125024

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

ABSTRACT. BARLEY PLANTS WERE GROWN IN LIGHT  
 PODZOLIC SOILS WITH PH 4.9, AVAILABLE, AND HYDROLYTIC ACIDITY 1.23 AND  
 4.20 MEQUIV.-100 G SOIL RESP., TOTAL ABSORBED ALKALI 1.5 MEQUIV.-100 G,  
 AND DEGREE OF SOIL SATN. WITH ALKALI 31PERCENT. THE EFFECT OF MG  
 FERTILIZERS ON BARLEY GROWTH AND DEVELOPMENT WERE STUDIED ON THE  
 FOLLOWING VARIANTS OF SOIL BACKGROUNDS: ACID, BY THE ADDN. OF N-P-K((NH  
 SUB4) SUB2 SO SUB4 PLUS NANO SUB3 30, SUPERPHOSPHATE 45 AND KCL 60  
 KG-HA), WITH OR WITHOUT MGSO SUB4; LIGHT ACID, BY THE ADDN. OF NPK  
 FERTILIZERS WITH CHALK, OR DOLOMITE, OR CHALK AND DUNITE; LIMED, BY THE  
 ADDN. OF N-P-K FERTILIZERS WITH CHALK AND MGSO SUB4; AND NITRATED, BY  
 THE ADDN. OF NPK FERTILIZERS WITH OR WITHOUT MGSO SUB4. MGSO SUB4 ADDN.  
 TO THE SOIL CONTRIBUTED TO THE INCREASE OF STARCH IN THE MATURE BARLEY  
 GRAINS. THE MOST EFFECTIVE TREATMENT WAS ADDN. OF MGSO SUB4 TO THE ACID  
 AND NITRATED BACKGROUND, WHEN THE STARCH CONTENT INCREASED BY 6PERCENT.  
 DURING LEAF AND EAR DEVELOPMENT, MGSO SUB4 ADDN. INCREASED THE EFFLUX OF  
 SOL. SUGARS FROM VEGETATIVE INTO REPRODUCTIVE ORGANS. FACILITY:  
 UNIV. DRUZHBY NAR. IM. LUMMUMBY, MOSCOW, USSR.

UNCLASSIFIED

1/2 027

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--ALKYLATION OF TOLUENE BY PROPYLENE ON FLUORINE CONTAINING CATALYSTS

AUTHOR--(03)-KHABIBULLAYEVA, E., TRESHCHOVA, YE.G., ANTIPIINA, T.V.

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(11), 34-6

T

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, TOLUENE, PROPYLENE, FLUORINE, ALUMINUM OXIDE, CATALYST, ISOMER, GAS CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1372

STEP NO--UR/0204/70/010/001/0034/0036

CIRC ACCESSION NO--AP0112852

UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0112852

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TOLUENE AND PROPYLENE AT 3:1 MOLAR RATIO WERE PASSED 1 HR AT ATM. PRESSURE AND A TOLUENE SPACE VELOCITY OF 0.3 HR PRIME NEGATIVE1 OVER AL OXYFLUORIDE CONTG. 56.5PERCENT F (I), FLUORINATED AL SUB2 O SUB3 (6.4PERCENT F) (II), AND COM. HOUNDRY CATALYST (III). MAX. YIELDS OF MIXED CYMENES, BASED ON TOLUENE, WERE: I, 20 WT. PERCENT AT 240DEGREES; II, 21PERCENT AT 280DEGREES; III, 15PERCENT AT 260DEGREES. MAX. WT. YIELDS OF THE O, M, AND P ISOMERS, DETD. BY GAS LIQ. CHROMATOG. WERE AS FOLLOWS AT THE TEMP. GIVEN: (I), 30, 220; 60, 330; 50, 240; (II) 25, 220, 60, 300, 50, 240; (III), 30, 240; 40, 280; 60, 240.

UNCLASSIFIED



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 UNCLASSIFIED  
 PROCESSING DATE--3006170  
 TITLE--CATALYTIC AND THERMAL REACTIONS OF 2,3-DIMETHYLBUTADIENE AND  
 ISOPRENE AND CHLORAL -U-  
 AUTHOR--(03)-TKESHCHOVA, YE.G., KLIMOVA, YE.I., ARBUZOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3), 419-22

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOMER, SPECTROSCOPIC ANALYSIS, CATALYTIC HYDROGENATION,  
 CONDENSATION REACTION, BUTADIENE, ISOPRENE, CHLORINATED ORGANIC  
 COMPOUND, TIN CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1678

STEP NO--UR/0366/70/006/003/0419/0422

CIRC ACCESSION NO--AP0112672

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF H SUB2 C:CMECME:CH  
 SUB2 (I) WITH OHCCCL SUB3 (II) IN THE PRESENCE OF SNCL SUB4 AT ROOM  
 TEMP. GAVE AN ISOMERIC MIXT. CONTG. SIMILAR TO 20PERCENT DIENE ADDUCT  
 3,4, DIMETHYL, 6, (TRICHLOROMETHYL), 5, 6, DIHYDRO, 2H, PYRAN (III) AND SIMILAR  
 TO 80PERCENT H SUB2 C:CMEC(:CH SUB2)CH SUB2 CH(CCL SUB3)OH (IV). THE  
 STRUCTURES OF THESE PRODUCTS WERE CONFIRMED BY CATALYTIC HYDROGENATION  
 AND SPECTROSCOPY. THE THERMAL CONDENSATION OF I WITH II GAVE  
 PREDOMINANTLY III AND ONLY A SMALL AMT. OF IV. ISOPRENE REACTED WITH II  
 ANALOGOUSLY TO GIVE AT 0DEGREES IN THE PRESENCE OF SNCL SUB4  
 PREDOMINANTLY H SUB2 C:CHC(:CH SUB2)CH SUB2 CH(CCL SUB3)OH AND AT  
 145-50DEGREES TO GIVE PREDOMINANTLY  
 4, METHYL, 6, (TRICHLOROMETHYL), 5, 6, DIHYDRO, 2H, PYRAN.  
 MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

FACILITY:

UNCLASSIFIED

1/2 008  
UNCLASSIFIED  
TITLE--CATALYTIC AND THERMAL REACTIONS OF 2,3-DIMETHYLBUTADIENE AND  
ISOPRENE WITH GLYOXYLIC ACID ESTERS -U-  
AUTHOR--(03)-KLIMOVA, YE.I., TRESHCHOVA, YE.G., ARBUZOV, YU.A.  
PROCESSING DATE--30OCT70  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(3), 413-18  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ISOPRENE, PRIMARY ALCOHOL, TIN CHLORIDE, BUTADIENE, ESTER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1677  
STEP NO--UR/0366/70/005/003/0413/0418  
CIRC ACCESSION NO--AP0112671  
UNCLASSIFIED

2/2 008

CIRC ACCESSION NO--AP0112671

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF H SUB2 C:CMECME:CH  
 SUB2 (I) WITH OHCCO SUB2 BU (II) IN THE PRESENCE OF SNCL SUB4 AT ROOM  
 TEMP. GAVE AN ISOMERIC MEXT. CONTG. 30PERCENT DIENE ADDUCT BU  
 3,4, DIMETHYL, 5,6, DIHYDRO, 2H, PYRAN, 6, CARBOXYLATE AND 70PERCENT H SUB2  
 C:CMEC(:CH SUB2)CH SUB2 CH(OH)CO SUB2 BU. THE NONCATALYTIC I-II  
 REACTION AT 130DEGREES GAVE PREDOMINANTLY THE DIENE ADDUCT. ISOPRENE  
 REACTED ANALOGOUSLY. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA,  
 MOSCOW, USSR.

UNCLASSIFIED

172 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--IMPLEMENTATION OF LENIN'S OUTLINES IN THE ARCTIC RESEARCH -U-

AUTHOR--(02)-TRESHNIKOV, A.F., SHPAYKER, A.O.

COUNTRY OF INFO--USSR, ARCTIC OCEAN

SOURCE--OKEANOLOGIYA, 1970, VOL 10, NR 2, PP 198-212

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--GEOPHYSIC EXPEDITION, ARCTIC CLIMATE, ARCTIC GEOLOGY,  
OCEANOGRAPHIC DATA, METEOROLOGIC DATA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1392

STEP NO--UR/0213/70/010/002/0198/0212

CIRC ACCESSION NO--AP0109458

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0109458

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. V. I. LENIN GAVE MUCH ATTENTION TO THE ARCTIC STUDIES FROM THE FIRST DAYS OF THE SOVIET POWER. ON THE 2ND OF JULY, 1918, AT THE MEETING OF THE COUNCIL OF PEOPLE'S COMMISSARS HE SUPPORTED A PROPOSAL TO ORGANIZE THE HYDROGRAPHIC EXPEDITION TO THE ARCTIC OCEAN. BUT THE INTERVENTION INTERFERED. ON THE 4TH OF MARCH, 1920, BY LENIN'S PERSONAL ORDER THE PRESIDUM OF THE SUPREME COUNCIL OF NATIONAL ECONOMY DECIDED TO ORGANIZE THE NORTHERN SCIENTIFIC COMMERCIAL EXPEDITION WHICH WAS LATER REORGANIZED INTO THE INSTITUTE OF NORTHERN STUDIES, THE ARCTIC AND ANTARCTIC RESEARCH INSTITUTE, THIS EXPEDITION ALSO GAVE BIRTH TO THE INSTITUTE OF ARCTIC GEOLOGY. ON THE 10TH OF MARCH, 1921, V. I. LENIN SIGNED A DECREE ON THE ORGANIZATION OF THE FLOATING MARINE RESEARCH INSTITUTE WHICH TOGETHER WITH THE CENTRAL INSTITUTE OF FISHERIES RESEARCH GAVE BIRTH TO THE ALL UNION INSTITUTE FOR FISHERIES RESEARCH AND OCEANOGRAPHY. AS AN IMPLEMENTATION OF LENIN'S OUTLINES A WIDE PROGRAM OF INTEGRAL OCEANOGRAPHIC AND HYDROMETEOROLOGICAL OBSERVATIONS IN THE ARCTIC BASIN AND IN THE MARGINAL ARCTIC SEAS WAS COMPLETED. THE STUDY AND ANALYSIS OF THE OBTAINED DATA YIELDED INFORMATION OF GREAT THEORETICAL VALUE. NAVIGATIONAL AIDS AND REFERENCE MANUALS ARE THE PRACTICAL OUTCOME COVERING THE OPERATIONAL REQUIREMENTS OF THE SHIPBUILDERS, PORT SPECIALISTS AND OTHERS CONCERNED. FACILITY: ARKTICHESKIY I ANTARKTICHESKIY N-I INSTITUT.

UNCLASSIFIED

TRESHNIKOV A.F.

acc. Nr.: AP0042630

Ref. Code: UR9067

JPRS 50162

Conference on Oceanology, Atmospheric Physics, Geography

(Summary: "Session of the Department of Oceanology, Atmospheric Physics and Geography Academy of Sciences USSR in Leningrad," by M. V. Zavarina; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya, No 1, 1970, p 147)

A scientific session of the Department of Oceanology, Atmospheric Physics and Geography of the Academy of Sciences USSR was held in Leningrad during the period 1-2 July 1969. It was devoted to the most important meteorological problems associated with the study of other natural processes and the use of natural resources in the national economy. D. V. Nalivkin discussed the overall aspects of the study of strong winds in relation to processes in the lithosphere and hydrosphere, emphasizing that their interaction with the atmosphere is most important at the time of catastrophic phenomena. M. I. Yudin gave a review of exceptionally severe dust storms over the European part of the USSR during the last 100 years and devoted much attention to the dust storms of 1969 affecting the Ukraine. The speaker felt that his theory of turbulent diffusion of heavy particles can be applied for studying the mechanics of dust storms. Yudin feels that shelterbelts are the most effective means for protecting soils

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against wind erosion. M. I. Budyko, in a report entitled "Study of Solar Radiation and its Transformations at the Earth's Surface," generalized the research work already done in this field and told of the existing sources of information and the many spheres of its use. He devoted particular attention to the energy processes in the vegetation cover (photosynthesis process). A. F. Treshnikov reported on studies of the Arctic and hydro-meteorological servicing of the national economy in the north. The studies made during the last 15-20 years from drifting stations and by air expeditions have yielded much information on bottom relief, formation and circulation of air and water masses and the ice regime of the Arctic Ocean. The physicommechanical properties of ice of different ages have been studied and practical recommendations given on the design and power of engines for ice-breakers and other vessels. This report also examined the prospects for further Arctic research. K. Ya. Kondrat'yev told of surveys of natural resources made using artificial earth satellites. He discussed the many aspects of this problem, emphasizing the importance of global surveys, commented on advances in satellite meteorology, advanced the idea of a lunar meteorological station and the desirability and feasibility of using spacecrafts in geophysical research. He described the work of the Aerospace Methods Laboratory at Leningrad State University. K. S. Shifrin gave a report on "Light Scattering as a Method for Studying the Structure of

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Natural Media"; it dealt with some problems in atmospheric optics of applied importance. The speaker described two methods for determining the size of scattering particles from measurements of the intensity of a scattered parallel beam in the medium: the small angles method and the spectral transparency method. It was emphasized that the theoretical data obtained by solving an integral equation correlate well with experimental data.

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19760679

Materials

USSR

UDC 621.317.8

TRESKIN, S. A.

"Technology of Making Low-Resistance Noninductive Microresistors"

Tr. NII introskopii (Works of the Scientific Research Institute of Internal Inspection), 1970, vyp. 4, pp 108-113 (from RZh-Radiotekhnika, No 8, Aug 71, Abstract No 8V355)

Translation: The author notes the difficulties involved in developing low-resistance noninductive microresistors. The results of development of a technique for making microresistors are presented, and the individual operations of the technological process are described in detail. Data are given on the finished microresistors. Two illustrations, one table, bibliography of four titles. N. S.

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USSR

TRESKOV, S. A.

UDC: 8.74

"On the Kinetics of Populations"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works),  
vyp. 25, Moscow, "Nauka", 1972, pp 41-54 (from RZh-Kibernetike, No 6, Jun  
72, Abstract No 6V591)

Translation: The paper discusses mathematical models of two types of popu-  
lations: hermaphrodites and bisexual. It is shown that in both instances  
with very general natural-science restrictions on the conditional law of  
distribution of pair population for a given population of generations, the  
populations are unstable with probability 1. Author's abstract.

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USSR

UDC: 53.08+389.1: 613

TRESKUNOV, A.A. POZHAROV, A.V., DRUYAN, V.I. and  
PROSKURNINA, N.N.

"Problems of Metrological Provision of Instruments for Biological  
Aerosol Analysis"

Sb. Fiz. metody i vopr. metrol. biomed. izmereniy (Symposium on  
Physics Methods and Biomedical Metrology Problems) Moscow, 1972,  
pp 275-276 (from Referativnyy Zhurnal-Metrologiya i Izmeritel'naya  
Tekhnika, No 8, 1972, Abstract No 8.32.1010 by V.S.K.)

Translation: Problems are considered of metrological provision of a  
class of analytical instruments for detection and concentration measure-  
ment of biological matters in air. Possibility of creating a dustmeter  
for estimating the protein concentration in air is analysed. The study of  
these problems showed the absence of methods and means for calibration,  
inspection and certification of this class dustmeter. In order to graduate

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USSR

TRESKUNOV, A. A., et al., Sb. Fiz. metody i vopr. metrol. biomed. izmereniy, 1972, pp 275-276

the dustmeter dial it is necessary to develop methods of concentration measurement for pure protein aerosol mixtures and also of obtaining certification mixtures. At LF VNIMP an aerosol biological indicator has been developed, whose operation is based on photometering specimens with precipitated solid phase of aerosol in two adjoining intervals of IK-spectrum region, one of which is selected by the wave length common to most proteins. The investigations having been conducted showed that to facilitate solution of metrological problems it is expedient to conduct itemized error estimation of IK-spectrophotometer (air sampler, optical and electronic systems).

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Instruments and Equipment

USSR

UDC: 615.471:614.718-07

TRESKUNOV, A. A., All-Union Scientific Research Institute of Medical Instrumentation, Leningrad Branch

"Basic Principles in Designing Apparatus for Evaluating Bacterial Pollution of the Air"

Moscow, Meditsinskaya Tekhnika, No 1, 1971, pp 37-38

Translation: All apparatus used to study bacterial aerosols are based on two operating principles: (1) The possibility of determining the number of bacteria and their distribution by size in 1 cm<sup>3</sup> of air sampled, and (2) direct counting and identification of the species to which the microorganisms belong.

The sampling techniques vary with the object and purpose of the study because no single technique is suitable in all cases. In designing apparatus to monitor rapid changes in the concentrations of pathogenic bacteria in the air, it is desirable to use inertial precipitation by means of slit impactor on a moving layer of culture medium. The stream of air in the impactors strikes against a hard obstacle and the particles settled on it.

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USSR

TRESKUNOV. A. A., Meditsinskaya Tekhnika, No 1, 1974, pp 37-38

In designing apparatus for determining the total number of bacteria in the air, it is desirable to use impingers which permit the bacteria to settle directly on a liquid medium. It should be noted that when an impinger is used to collect samples, some of the microorganisms are lost as a result of physical factors. By knowing the main design parameters of an impinger and the distribution by size of the microorganisms and their condition, it is possible to calculate the loss that results directly from collecting a sample. The effectiveness of these liquid precipitators has been thoroughly studied by May and Harper. The All-Union Scientific Research Institute of Medical Instrumentation in Leningrad designed a sampler, the POV-1, which is based on the principle of the scrubber combined with bubbling. The POV-1 can be used to investigate the overall bacterial pollution of the air and detect rickettsias, viruses, and toxins that cannot be cultured on nutrient media. When it is necessary to study the size of particles of a biological aerosol, it is best to use multistage impactors. There is no doubt that the determining factor in designing instruments to evaluate bacterial pollution of the air is the need to preserve the viability of the microorganisms after the sample is collected. In the case of spore-forming bacteria, extensive use is made of filtration, e.g., through membrane filters, but

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USSR

TRESKUNOV. A. A., Meditsinskaya Tekhnika, No 1, 1971, pp 37-38

in most apparatus designed by foreign (e.g., Andersen's sampler) and Soviet (e.g., Yu. A. Krotov's instrument) engineers the settling is done on a nutrient medium. This approach greatly simplifies the task of the microbiologists in identifying the microflora, especially when a nutrient medium is used in the sampling. It should be noted, however, that with this method it is very difficult to use a variety of physical methods to facilitate the primary identification and counting of the microorganisms.

Photoelectric counting of microorganisms is one such method. Research in this field has been carried out both here and abroad. However, photoelectric counting alone is probably not sufficient because it does not tell anything about the ratio of living to dead microorganisms, a matter of considerable importance in evaluating an epidemiological situation. At the stage of counting the microorganisms on the photographic plate we think it is desirable to use several types of Soviet dyes to determine the percentage of killed and living microorganisms at the same time. Thus, to ascertain the total number of microorganisms as well as the number or correlation of the living and dead microorganisms is extremely important, we believe, for it determines the usefulness of instru-

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USSR

TRESKUNOV, A. A., Meditsinskaya Tekhnika, No 1, 1971, PP 37-38

ments for investigating the biological conditions prevailing in an air basin.

We should like to mention in conclusion that our institute's experience in this field of research points up the need for the development of a much larger number of instruments for evaluating bacterial pollution of the air.

4/4

USSR

UDC 621.357.7

AVERCHENKO, P. A., PLESKACH, V. M. and ~~TRESKUNOV, B. A.~~, Zaporozh'ye  
Institute of Machine Construction

"Mechanical Properties of Metallic Coatings on Aluminum Alloys"

Moscow, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 99-102

Abstract: The study concerns determinations of microhardness, elastic modulus and residual stresses of chromium (galvanic) and nickel (chemical) coatings on VD-17 alloys as a function of application technology and heat treatment. The microhardness was determined under 50-g loads. The decrease in the hardness of chromium coatings on heating up to 170°C is not due to recrystallization (which occurs at 900°C) but rather to a complex of phenomena related to hydrogen liberation, stress relaxation, etc. The determination of the elastic modulus was based on changes in the value of loads required to cause relative deformation of the specimens before and after application of coatings. The elastic modulus is practically independent of heat treatment and depends only on coating application conditions. Use was made of the flexible cathode method to determine residual

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USSR

AVERCHENKO, P. A., et al, Zashchita metallov, Vol 8, No 1, Jan-Feb 72, pp 99-102

stresses. The results are shown in curves reflecting deformation and distribution of residual stresses over the thickness of chromium and nickel coatings on VD17 and AMg6 alloys following application as well as after heat treatment. (1 illustration, 1 table, 9 bibliographic references).

2/2

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USSR

UDC 681.325.65:525

TRESKUNOV, S. L., ANDREYEV, A. P.

"A Fluidic Logic Element"

USSR Author's Certificate No 295909, Filed 2/04/69, Published 9/04/71,  
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychis-  
litel'naya Tekhnika, No 11, 1971, Abstract No 11 A75 P).

Translation: There are well-known fluidics elements whose operation is based on the Coanda effect. The shortcomings of these elements include their low speed and efficiency at low supply pressures. In the element suggested, there is a protuberance on at least one of the walls of the operating chamber. This amplifies the internal feedback in the element, increasing its operating stability and providing reliable switching of the element at lower supply pressures. At the same time, it is possible to reduce the length of the walls of the operating chamber and thereby to increase the speed of the element. Air is fed to the supply nozzle under pressure, so that a stream of air flows from the nozzle. When the stream reaches the divider, a portion of the flow is split off by the bent deflector and sent to the area between the stream and the wall, flows along it, is reflected by the surface of the protuberance, and collides with the stream, causing it to be deflected to the other wall. Deflection of  
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USSR

TRESKUNOV, S. L., ANDREYEV, A. P., USSR Author's Certificate No 295909,  
Filed 2/04/69, Published 9/04/71.

the stream is caused both by collision with the reflected stream and by the increase in pressure in the area between the stream and the wall due to the arrival of the reflected flow in this area. This creates a high output pressure in one output channel and a lower pressure in the other channel. When a control signal is applied, the element switches and the opposite levels are established in the output channels. The shape of the flow in the new stable state of the element is symmetrical with respect to the initial flow. 1 Figure.

2/2

- 40 -

Acc. Nr.: AP0041097

USSR

Ref. Code: UR 0084

UDC: None

SKRIPNIK, F., Senior Flight Safety Engineer-Inspector, NAZARENKO, P., Graduate of Technical Sciences, TRESELINOV, I., Engineer of "October" Plant.

"The An-2 Should Fly Longer"

Moscow, Grazhdanskaya Aviatsiya, No. 1, 70, p. 23

Abstract: A description of the work done on the An-2 to protect it from the ravages of organic poisons and fertilizers which are soluble in water and thus generate an electrolytic aggressive substance attacking the structural elements in aircraft. Thus, the An-2 aircraft, used in agricultural work, must be written off after about 6000 hours when it should fly for some 12,000 hours. The authors analyzed the An-2 planes which came into their plant (No. 420) for repairs and diagnosed more than 100 cases of faults requiring careful repair, such as corrosion of the upper and lower skins of the fuselage. In the plant, experimental work was done to find a protective coating that would defeat these chemical effects. The authors report that their investigations showed that

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polyetherurethan coatings can be used successfully at those points of aircraft construction most susceptible to the attacks of poisons in agricultural work from the air.

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USSR

UDC 621.357.8.669.3-416

KUZMETSOVA, O. M., KLYUYEVA, K. M., and TRESNYAKOV, I. I.

"The Etching of Copper Coil in Ammonium Persulfate Solutions"

Obmer opytom b radioprom-ste (Exchange of information in the Radio Industry), Vyp 11, Moscow(?), 1972, pp 47-48 (from Referativnyy Zhurnal -- Khimiya, No8 (II), 1973, Abstract No 81276 by V. V. Grinina)

Translation: Using a constant potential, the mechanism of the process of etching the copper coil was studied in the following solutions: 300 g/l  $(NH_4)_2S_2O_8$ , 1 ml/l of 0.68% solution of  $Hg(NO_3)_2$ , and 30 ml/l of  $H_2SO_4$ . It was shown that the etching of the copper occurs through the stage of formation of  $Cu^+$ , the process being controlled by diffusion. A large amount of etching may be accomplished with a corresponding decrease in the reliability of the process by increasing the temperature of the solution and adding an oxidizing agent to it.

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USSR

UDC: 621.762:669.018.95

NAZARENKO, N. D., YUGA, A. I., VLASKO, N. I., TRESVYATSKIY, S. G.,  
KOLESNICHENKO, L. P., Institute of Problems of Material Sciences, Academy of  
Sciences UkrSSR

"Influence of Metal Fillers on Friction Properties of Sital 3"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 73, pp 51-54.

Abstract: An earlier work showed that the material called Sital 3, consisting of the oxides  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{TiO}_2$ ,  $\text{B}_2\text{O}_3$ ,  $\text{MgO}$  and fluorides, can be used for the manufacture of parts for friction couples. The authors believe that introduction of metal fillers, causing intensive heat transfer from the contact zone into the depth of the material and formation of separating films on the surface of the material, could significantly improve the efficiency of Sital 3. Studies were performed in which from 10 to 90 wt. % metal powder was introduced to the material. The curve of coefficient of friction as a function of percent content of copper filler shows a minimum at 30-40%. The introduction of about 30% copper powder allows the material to be used for vacuum operation, which is impossible with pure Sital.

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1/2 033

UNCLASSIFIED

PROCESSING DATE--16OCT70  
ALUMINOSILICATE REFRACTORIES

TITLE--INVESTIGATION OF THE DESTRUCTION OF ALUMINOSILICATE REFRACTORIES  
WHICH CONTAIN BORON NITRIDE -U-  
AUTHOR-(04)-GDGOTSI, G.A., KURIAT, R.I., TEREKHOVSKIY, B.I., TRESVYATSKIY,  
S.G.

COUNTRY OF INFO--USSR

SOURCE--KIEV, PROBLEMY PROCHNOSTI, NO 3, MAR 70, PP 47-50

DATE PUBLISHED---MAR 70

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

TOPIC TAGS--CRACK PROPAGATION, STRESS LOAD, THERMAL STRESS, REFRACTORY  
MATERIAL, ALUMINUM SILICATE, BORON NITRIDE, CORUNDUM, CLAY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1995/0854

STEP NO--UR/3663/70/000/003/0047/0050

CIRC ACCESSION NO--AP0116366

UNCLASSIFIED

2/2 033

CIRC ACCESSION NO--AP0116366  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT. SPECIMENS OF COMPLEX ALUMINOSILICATES CONTAINING BORON NITRIDE WERE STUDIED UNDER THERMAL LOADING CONDITIONS UP TO 2,500DEGREESC TO DETERMINE THE CHARACTERISTICS OF CRACK FORMATION AND DESTRUCTION OF THESE REFRACTORY MATERIALS. TO REGISTER THE TEMPERATURE DURING TESTING, SPECIAL THERMOMETRIC SPECIMENS WITH BUILT IN THERMOCOUPLES WERE MADE. THE TIMES OF FRACTURE WERE DETERMINED BY CURRENT CONDUCTING PICKUPS. IT WAS FOUND THAT COMPOSITIONS CONTAINING 40-50PERCENT BORON NITRIDE ARE MOST RESISTANT TO THERMAL LOADING. WHEN THE BORON NITRIDE CONCENTRATION WAS HIGH (60PERCENT OR MORE) THE FRACTURE OF THE CYLINDRICAL SPECIMENS WAS CHARACTERIZED BY BOTH RADIAL AND ANNULAR CRACKS. ANALYSIS OF THE FRACTURED SURFACES REVEALED THAT THE ABILITY OF THESE MATERIALS TO WITHSTAND THERMAL LOADING DEPENDS TO A CONSIDERABLE EXTENT ON THE DISTANCE BETWEEN CORUNDUM GRAINS AND THE UNIFORMITY OF THEIR DISTRIBUTION. IT WAS FOUND THAT A REFRACTORY MATERIAL WHICH WITHSTANDS EXTREME TEMPERATURE DIFFERENTIALS MAY BE PRODUCED BY PROPER SELECTION OF THE RATIO OF COMPONENTS REFRACTORY CLAY, CORUNDUM AND A CERTAIN AMOUNT OF BORON NITRIDE.

FACILITY: INSTITUTE OF PROBLEMS OF STRENGTH, ACADEMY OF SCIENCES OF THE UKRSSR: INSTITUTE OF PROBLEMS IN THE SCIENCE OF MATERIALS, ACADEMY OF SCIENCES OF THE UKRSSR, KIEV.

UNCLASSIFIED

USSR

NOVOTOROV, A. S., KRUGLITSKIY, N. N., TRETINNIK, V. Yu., PARKHOMENKO, V. V.,  
BELIK, F. A.

"Determination of the Specific Surface of Humates by the Gas-Chromatographic  
Method"

Khim. Tekhnologiya. Nauch.-proyizv. sb. [Chemical Technology. Scientific  
and Production Collection], No 2(56), 1971, pp 44-46 (Translated from  
Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 B1495).

Translation: A gas chromatic installation for determination of the surfaces  
of solids, mounted on a type LKhM-8M chromatograph, is used to study the  
adsorption of humic acids and humates of nitrogen and argon. The adsorption  
measurements are used to calculate the specific surfaces of the humic acids  
and humates.

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USSR

UDC: 162-226.2

TRET'YACHENKO, G. N., Kiev

"Influence of Unstable Modes on Total Operating Life of Turbine Blades"  
Kiev, Problemy Prochnosti, No 3, Mar 73, pp 3-6.

Abstract: An analysis is presented of the influence of unstable operating modes on the total operating life of turbine blades. A simple example is used to show that it is transient modes which determine durability. It is suggested that the results of testing of blades on gas dynamic test stands be combined in developing accelerated test methods, with establishment of the equivalence of various modes and results of studies of long-term strength of cylindrical specimens at constant temperatures.

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- 70 -

USSR

UDC 620.1

TRET'YACHENKO, G. N., VOLOSHCHENKO, A. P., KONEV, V. A., KRAVCHUK, L. V.,  
KURIYAT, R. I., (Kiev)

"Influence of Salts of Sea Water in a Gas Stream on Thermal Stability of  
Turbine Blades"

Kiev, Problemy Prochnosti, No 12, Dec. 1972, pp 40-43.

Abstract: Methodological problems are studied, related to the study of the influence of sea salt in a gas stream on the load-bearing ability of the nozzle blades of marine gas turbine engines with thermal cycling of loading. Certain quantitative data are produced on the influence of sea salts on the nature of development of thermal fatigue cracks. The stress-strain state of the blade and its changes during a thermal loading cycle are studied.

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Turbine and Engine Design

USSR

UDC: 539.4

TRET'YACHENKO, G. N., Kiev

"Some Methodological Problems of Modeling of the Operating Conditions of Turbine Blades on Gas-Dynamic Test Stands"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 47-51.

Abstract: A method is suggested for testing, according to which, while expending less energy at the edges of the blades, equivalent stress and thermally unstable states are created. Methods of considering the mismatch of extreme levels of the thermal and stress states are analyzed. A difference is indicated in the test conditions in comparison to the operation of blades under actual working conditions.

TRET'YACHENKO, G. N.

RND / 12.1160 / 5.24.73 40  
Dua 72

Tret'yachenko, G. N. and V. K. Fedchuk.  
Device for investigating destruction of  
elemental elements in supersonic high  
temperature gas flow containing a controlled  
amount of abrasive particles. Problemy  
Prochnosti, no. 5, 1972, 112-113.

On the basis of the gas-dynamic test stand of Pisarenko, et al (IN: Termoprochnost' materialov i konstruktivnykh elementov, Kiev, 1965), a device was developed for studying the destruction processes of aircraft thermal-protection materials and elements, and flow-through parts of high-temperature machines, simulating operational conditions. By means of this device, it is possible to investigate: (1) destruction and crack formation in nozzle-inject materials and heat insulation from an unstable thermal stress state, (2) heat-insulation structures, and (3) the effect of gas flow corrosion-erosion action on the process of nozzle-inject breakdown. The device is capable of producing a stream with a temperature  $T = 1950^{\circ}K$ , a velocity of 1160 m/sec, and a flow rate of up to 1 kg/sec.

The apparatus consists of a sectional supersonic nozzle, a high-temperature combustion chamber, two cooling units, a controlled injector of abrasive particles into the gas stream, and measuring and recording instrumentation. The nozzle consists of three sections: subsonic, critical, and supersonic, fitted together into a single unit. Heat-insulation materials can therefore be tested in a supersonic gas stream, and, by replacement of the critical section with a special chamber, nozzle-inject mode specimens can also be tested. The specimen insert is placed in a test chamber, in the form of a metal sheath filled with soot for heat insulation. In addition, high-temperature insulation is provided by a MgO layer. The high-temperature oxygen combustion chamber raises the stream temperature to about  $2700^{\circ}K$ . Compressed air is supplied at 2-3 atm to a



USSR

UDC 531.776.088:621.375.826

GUTMAN, G. B., ROLICH, V. I., TIMOFEYEV, V. M., TRET'YAKOV, V. E., and  
FILATOV, Yu. V.

"On Exactness Characteristics of a Measuring Annular Laser Transducer of  
Angular Speed"

Tr. Metrol. In-tov SSSR [Works of Metrological Institutes USSR], 1972, No  
139(199), pp 3-9 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya  
i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.484)

Translation: The errors of a measuring transducer of angular speed, based  
on an annular gas laser, were experimentally investigated. Measurements  
were made for different time intervals when stabilizing the emission fre-  
quency of the annular laser and without stabilizing. It is demonstrated  
that the stabilization of emission frequency significantly increases the  
measuring accuracy of angular speed. The exactness characteristics of the  
apparatus were determined for different angular speeds when measuring mean  
and current values of angular speed. Six illustrations, four bibliographical  
references.

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USSR

UDC 620.172.25

TRIT'YACHENKO, G.N., VOLOSHCHENKO, A.P. (Kiev), Institute of Strength Problems,  
Academy of Sciences, Ukrainian SSR

"Evaluation of the Influence of a Static Load Upon the Thermal Stability of  
Gas-Turbine Blades Operating Under Conditions of Thermal Cycling"

Kiev, Problemy Prochnosti, No 2, 1972, pp 86-90

Abstract: In this article there is set forth the procedure for qualitative  
evaluation of the influence of a static load upon the thermal stability of  
gas turbines that operate under pulse conditions. Experimental data are pro-  
vided as well. 4 figures, 1 bibliographic entry.

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USSR

UDC 621.1

VOLOSICHENKO, A. P., TRET'YACHENKO, G. N., MAKOVETSKIY, I. V.

"Concerning the Heat Resistance of Gas Turbine Blades in a Flow of Fuel Combustion Products"

Kiev, Problemy Prochnosti, No 6, June 1970, pp 3-9

Abstract: In the article are presented the results of research on change of the chemical composition, the microhardness, and the metal structure of the surface layer of models of the working vanes of gas turbines under conditions of the simultaneous action of thermal cycling (four cycles per minute), and static tension which simulates the action of centrifugal forces upon the working vanes under pulse conditions of turbine operation.

The alloyed steels tested were EI826, EI765 and EI827. The greatest change in chemical composition of the surface of the alloy occurred in the case of the EI827 (12 kg/mm<sup>2</sup>; 24,970 cycles). All three were found to be structurally stable under the conditions of the test regime for 100 hours at 800°C with and without static tension. Photomicrographs show that in EI765 incipient changes involve a coagulation of particles in the intermetallic phase.

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UR9013

TITLE-- THE PRIDE OF UKRAINIAN SCIENCE

NEWSPAPER-- PRAVDA UKRAINY, FEBRUARY 21, 1970, P 1, COLS 6-7

ABSTRACT-- G. S. PISARENKO, DIRECTOR, THE INSTITUTE OF PROBLEMS  
IN STRENGTH OF THE UKRAINIAN ACADEMY /SMCLN/ G. S. PISARENKO,  
UKRAINIAN ACADEMICIAN /SMCLN/ V. I. TROSHCHENKO, DEPUTY DIRECTOR  
OF THE INSTITUTE, CORRESPONDING MEMBER OF THE UKRAINIAN ACADEMY  
/SMCLN/ G. N. IREI YACHENKO, DOCTOR OF TECHNICAL SCIENCES, BOTH  
DEPARTMENT CHIEFS OF THE INSTITUTE /SMCLN/ UKRAINIAN ACADEMICIAN  
A. S. DAVYDOV, DEPARTMENT CHIEF AT THE INSTITUTE OF THEORETICAL  
PHYSICS OF THE UKRAINIAN ACADEMY /SMCLN/ UKRAINIAN ACADEMICIAN  
F. D. OVCHARENKO /SMCLN/ N. N. KRUGLITSKIY, DEPUTY DIRECTOR, THE  
INSTITUTE OF COLLOIDAL CHEMISTRY AND CHEMISTRY OF WATER OF THE

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UKRAINIAN ACADEMY, DOCTOR OF CHEMICAL SCIENCES /SMCLN/  
S. P. NECHIPORENKO, DOCTOR OF TECHNICAL SCIENCES, DEPARTMENT CHIEF  
OF THE INSTITUTE /SMCLN/ E. G. AGABAL, YANTS, CANDIDATE OF CHEMICAL  
SCIENCES, SCIENCE ASSOCIATE OF THE INSTITUTE /SMCLN/ I. A. SERIKOV,  
DIRECTOR, KHAR, KOV ENGINE CONSTRUCTION PLANT "SERPI MOLOT" /SMCLN/  
A. D. POLEYKO, CHIEF ENGINEER OF THE PLANT /SMCLN/ L. M. KARAS,  
ACTING DEPUTY CHIEF ENGINEER OF THE PLANT /SMCLN/ B. S. YEREMENKO,  
DEPUTY CHIEF OF THE STATE SPECIAL DESIGN BUREAU, ET AL, HAVE BEEN  
AWARDED THE UKRAINIAN STATE PRIZES FOR 1969.

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19661724

Acc. Nr: **AT0043978**

Ref. Code: **UR0000**

PRIMARY SOURCE: **Geofizicheskiy Sbornik, Kiev, 1970, Nr 33, pp 55-60**

**DETERMINATION OF THE AGE OF ROCKS IN ZMEINY ISLAND  
IN THE NORTH-WESTERN PART OF THE BLACK SEA  
(ACCORDING TO THE DATA OF THE PALEOMAGNETIC INVESTIGATIONS)**

I. A. Garkalenko, L. G. Gladchenko, K. I. Anferova, A. N. Triluyak

(Ministry of Geology, Ukrainian SSR, Trust «Dnieprogeophysics»  
Institute of Geophysics, Academy of Sciences, Ukrainian SSR)

**Summary**

The article deals with the result of determining the age of the sedimentary rocks of Zmeiny island by the paleomagnetic method; an attempt is made to solve the problem concerning the southern continuation of the Russian platform within the limits of the Black Sea water area.

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AT0043978

On the basis of the literary data and using the results of the paleomagnetic determinations, a conclusion is made that the rocks of Zmefny island deposited within the limits of the Russian platform (its marginal part) and, consequently, the north-western part of the Black Sea water area up to the Odessa abyssal fracture is arranged within its limits and contains the platform deposits, beginning from the Lower Palozoic period.

The supposed southern border of the Russian platform is in the Sfintul George cape latitude.

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Pesticides

USSR

UDC 632.951:542.432

REZUNENKO, O. A., TRET'YAK, M. G., SHOKOL, V. A., Institute of Organic Chemistry, Academy of Sciences of the UkrSSR

"Identification and Quantitative Determination of Demuphos in Water"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 5, 1973, pp 44-45

Abstract: A method is given for determining Demuphos (dimethyl-N-methylisopropyl urethane phosphate) in the water of reservoirs and effluents. The Demuphos was extracted with carbon tetrachloride. A 3:1 hexane-acetone mixture ( $R_f=0.53$ ) was used to identify the chemical in water. The sensitivity of the chromatographic method is  $7.5 \cdot 10^{-2} \mu\text{g}$ . Quantitative determination of Demuphos in water is done by the method of wet combustion analysis with potassium persulfate followed by colorimetric determination of the phosphorus-molybdenum complex.

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USSR

UDC 632.95

KOSMATYY, Ye. S., and TRET'YAK, M. G., Editorial Staff of "Elektrokimiya,"  
Academy of Sciences of the USSR

"Polarographic Activity of Some Insecticides -- Dithiophosphoric Acid Esters"

Polyarograficheskaya aktivnost' nekotorykh insektitsidov -- efirov ditio-  
fosfornoy kisloty (cf. English above); Moscow, 1970, 9 pp, bibliography of  
17 titles (No 2044-70 Dep.) (from RZh-Khimiya, No 2, 25 Jan 1971, Abstract  
No 2N549 Dep)

Translation: Some insecticidal esters of dithiophosphoric acid (sayfos, tsindial, fozalon, fenkapton, etc.) give one clear reduction wave each in the region of extreme negative potentials in a base electrolyte of tetraalkylammonium salts in dimethylformamide. The waves have a diffusion nature. The cathode process takes place irreversibly with the participation of two electrons. Polarography can be used for quantitative determination of the radicals of organophosphorus insecticides in biological media, soil and water.

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1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ON MECHANISM OF FORMATION OF A HIGH FIELD REGION NEXT TO THE  
CATHODE IN SEMIINSULATING GAAS -U-  
AUTHOR--(02)-VOROB'YOV, YU.V., TRETYAK, O.V.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 5, P. 827-32 (MAY 1970)  
DATE PUBLISHED----MAY70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--SPACE CHARGE, RESISTIVITY, CATHODE, GALLIUM ARSENIDE, FERMI  
LEVEL, COULOMB FIELD, CURRENT DENSITY, CURRENT STABILIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/1803 STEP NO--UR/0185/70/015/005/0827/0832  
CIRC ACCESSION NO--AP0133708  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133708

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MECHANISM WAS INVESTIGATED OF FORMATION OF A HIGH RESISTANCE SPACE CHARGE REGION NEXT TO THE CRYSTAL CATHODE BECAUSE OF A RESTRICTED EMISSION ABILITY OF THE CONTACT. A CORRELATION WAS FOUND BETWEEN THE VALUE OF SATURATION CURRENT AND THE AREA OF THE CONTACT AS WELL AS THE POSITION OF THE FERMI LEVEL IN A NEAR CONTACT LAYER. AN EXPRESSION WAS OBTAINED FOR THE INITIAL RATE OF CURRENT DECREASE AGREEABLE TO THE EXPERIMENT. FORMATION OF THE HIGH FIELD REGION CAN CAUSE INSTABILITY OF ELECTRIC CURRENT UNDER CONDITIONS WHEN AN AVERAGE FIELD IN THE SAMPLE IS NOT SUFFICIENT FOR OBSERVATION OF THE BULK NEGATIVE DIFFERENTIAL RESISTANCE.

UNCLASSIFIED

USSR

UDC: 621.372.412

VOROB'YEV, Yu. V., ZAKHARCHENKO, V. N., TRETYAK, O. V.

"Investigation of Birefringence at Piezoresonance in GaAs Crystals"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 11, Nov 72, pp 2349-2353

Abstract: An alternating electric field was used to excite piezoresonance in gallium arsenide crystals placed between two polaroids. The light flux passing through the crystal and polaroids was found to be modulated by a frequency equal to that of the mechanical oscillations, or else double or quadruple this vibration frequency, depending on the amplitude of the oscillations and the mutual orientation of the polaroids. The results are analyzed on the basis of present concepts concerning the linear electro-optical effect and photoelasticity. The distribution of elastic stresses in the crystal is found for various excitation frequencies. The ratio between primary and secondary electro-optical effects in gallium arsenide is determined. The Q of the piezoelectric resonator is measured with respect to the percentage modulation of the oscillations excited by the resonance frequency field modulated by a low frequency signal. It is shown that modulation of the light beam passing through the crystal is due to nonhomogeneity of the specimen.

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1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--INSTABILITY OF AN ELECTRIC CURRENT IN SAMPLES OF CHROMIUM  
COMPENSATED HIGH RESISTIVITY GALLIUM ARSENIDE -U-  
AUTHOR--TRETYAK, O.V. T  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 616-17  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, GALLIUM ARSENIDE SEMICONDUCTOR,  
RESISTIVITY, PHOTOCONDUCTIVITY, CHROMIUM, IMPURITY LEVEL, ELECTRON  
OSCILLATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0101 STEP NO--UR/0449/70/004/003/0616/0617  
CIRC ACCESSION NO--AP0105187  
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105187

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CR DOPED N TYPE GAAS WITH A RESISTIVITY OF SIMILAR TO 10 PRIME8 OHM CM AT ROOM TEMP. WAS CUT IN 0.5 TIMES 0.25 TIMES 0.06 CM SPECIMENS, WITH IN CONTACTS. THE V-A CHARACTERISTICS SHOW, AT LESS THAN NEGATIVE 80 DEGREES, UNDER ILLUMINATION WITH LIGHT CORRESPONDING TO SELF ABSORPTION OR TO IMPURITY ABSORPTION, CURRENT OSCILLATIONS WITHIN A FREQUENCY RANGE OF 0.1-100 HZ. THE SPECTRAL DEPENDENCE OF THE PHOTOCOND. SHOWS A PEAK AT 1.45 MU (CORRESPONDING TO E SUBC-0.8 EV, WHERE E SUBC IS THE BOTTOM OF THE CONDUCTION BAND), DUE TO THE CR ACCEPTOR LEVEL. OPTICAL QUENCHING OF THE BACKGROUND PHOTOCURRENT IS OBSD. AT 1.36-0.94 MU (CORRESPONDING TO E SUBV PLUS 0.94 EV, WHERE E SUBV IS THE TOP OF THE VALANCE BAND). THE OSCILLATORY EFFECT IS DUE TO A DECREASING PART OF THE V-A CHARACTERISTIC; CAUSED BY CHARGE REDISTRIBUTION AMONG THE DEEP LEVELS. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 669.721.472(088.8)

BURDAKOV, YU. M., KOLOMIYTSEV, A. V., TRET'YAK, S. D., and CHALABAYEV, I. A.

"Method for Protecting Anodes of a Magnesium Electrolytic Reduction Cell With Overhead Anode Lead"

USSR Author's Certificate No 259397, filed 15 Apr 68, published 28 Apr 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G136 P)

Translation: A method is proposed for protecting anodes of a magnesium electrolytic reduction cell with top introduction of anodes by teeming with a refractory material. In order to increase the anode's life, the teeming of the anode block is carried out over the entire perimeter with refractory low-pore concrete, and open grooves are made between individual bricks of the block. The grooves are also filled with refractory concrete.

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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CUTTING OUT SILICON POWER RECTIFIERS AT A HIGHER FREQUENCY -U-

AUTHOR--(03)--KUSHCHEYEV, L.G., NOVIKOV, G.I., TRETAK, T.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ELEKTROTEKHNIKA, 1970, NR 2, PP 50-52

DATE PUBLISHED--70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SILICON RECTIFIER, HIGH FREQUENCY, PN JUNCTION, RC CIRCUIT,  
PROTECTIVE EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY KEEL/FRAME--1999/1239

STEP NO--UR/0292/70/000/002/0050/0052

CIRC ACCESSION NO--AP0123200

UNCLASSIFIED



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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123200

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN FROM AN EXPERIMENTAL STUDY OF THE EFFECT OF P,N, JUNCTION TEMPERATURE, RATE OF CURRENT VARIATION, AND PROTECTIVE RC,CIRCUIT PARAMETERS ON THE CUTTING OFF PROCESS OF SILICON POWER RECTIFIERS. RESULTS ARE GIVEN FROM TIME MEASUREMENTS FOR CUTTING OFF SILICON RECTIFIERS. EXPERIMENTAL RELATIONSHIPS ARE PRESENTED SHOWING THE EFFECT OF THE ABOVE FACTORS ON CUTTING OFF TIME. ORIGINAL ARTICLE: SIX ILLUSTRATIONS AND NINE BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR

UDC: [537.226+537.311.33]: [537+535]

TRETYAK, V. D.

"Some Electrical and Dielectrical Characteristics of TiO<sub>2</sub> With CeO<sub>2</sub> Contamination"

Fiz. elektronika, Resp. mizhvid. nauk.-tekhn. zb. (Physical Electronics, Interdepartmental Scientific-Technical Collection, Ukrainian Republic--collection of works) No. 2, 1970, pp 91-94 (from RZh-Fizika, No. 11, 1971, Abstract No. 11E877)

Translation: A study was made of the temperature dependence of the electrical conductivity of TiO<sub>2</sub> ceramic specimens with CeO<sub>2</sub> impurities in the 290-800° K interval. The dielectric constant and the dielectric permeability of TiO<sub>2</sub> with a 1% CeO<sub>2</sub> admixture are measured. Author's abstract

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BIRBRAYER, V. M. and TRETYAK, V. I.

"Selective Information Service for Supervisory Personnel"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1 - Organizatsiya i Metodika Informatsionnoy Raboty, January 1973, pp 19-23

Abstract: The authors analyze the operation, during 1970-1971, of a subject information service for supervisory personnel developed by the Ukrainian Institute for Scientific and Technical Information of the Ukrainian State Planning Commission.

The system is designed to provide bibliographic, documentary, analytical, and synthetic information, as well as key foreign information. The form and complexity of an information service for supervisory personnel of directory and planning agencies are discussed. The need is shown for setting up a special information service for supervisory personnel within the framework of the existing information agency. Further means for improving the information system for supervisory personnel are suggested.

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BIRBRAYER, V. M. and TRETYAK, V. I., Nauchno-Tekhnicheskaya Informatsiya, Seriya 1 - Organizatsiya i Metodika Informatsionnoy Raboty, January 1973. pp 19-23

The article includes two flow charts: one showing the provision of bibliographic and documentary information and the other showing the subject information service for supervisory personnel.

There are four bibliographic references.

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