2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120767

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UPON INTRODUCTION INTO THE PANCREATIC DUCT OF ALBINO RATS OF 1 ML OF A 0.001 N SOLUTION OF HYDROCHLORIC ACID, IRRESPECTIVE OF THE ADDITION OF CRYSTALLIC TRYPSIN INTO THE SOLUTION, A MORPHOLOGICAL PICTURE OF EDEMATOUS HEMORRHAGIC PANCREATITIS DEVELOPS. ADMINISTRATION INTO THE PANCREATIC DUCT OF CRYSTALLIC TRYPSIN, DISOLVED DIRECTLY PRIOR TO INTRODUCTION OF A 0.85PERCENT SOLUTION OF SODIUM CHLORIDE, DOES NOT LEAD TO THE DEVELOPMENT OF ACUTE PANCREATITIS. NOTWITHSTANDING THE VERY MARKED MORPHOLOGICAL PICTURE OF EDEMATOUS HEMORRHAGIC PANCREATITIS IN THE RAT PANCREATIC HOMOGENATE THERE IS REVEALED NO MEASURABLE ACTIVITY OF TRYPSIN AND TOTAL PROTEOLYTIC ACTIVITY. REDUCTION IN THE TRYPSINOGEN CONTENT IN THE PANCREATIC HOMOGENATE WAS NOT NOTED. THIS GIVES GROUNDS TO STATE THAT IN THE ABOVE MENTIONED MODEL TRYPSIN IS NOT THE PRIMARY CAUSE OF ACUTE EDEMATOUS HEMORRHAGIC PANCREATITIS. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF GASTROENTEROLOGY AND THE FIRST MOSCOW SECHENOV MEDICAL INSTITUTE.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810015-9"

USSR

(3)

BRIKMAN, L. I., TSETLIN, V. M., ROGINSKAYA, YE. YA., ZHUK, YE. B., KLIMENCHUK, V. I., POZHARSKAYA, YE. B., and VOLKOVA, A. P.

"Composition for the Control of Household Insects Specifically for Cockroaches and Bugs"

USSR Author's Certificate No 251515, filed 1 Dec 70, published 10 Oct 72 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N495 P)

Translation: To lower the toxicity of the preparation towards warm-blooded animals without lowering its effectiveness against household insects, pyrethrins are added to the aerosol preparation containing [illegible]-GKhTsG [hexachlorocyclohexane -- HCCH]. The composition of such a preparation, [illegible]-HCCH 0.21%, DDT 1.89%, pyrethrin extract containing 25% of the active material 0.42%, xylene 5.0%, a mixture of freon-12 and freon-11 55%, kerosene up to 100%.

1/1

USSR

UDC 632.95

BRIKMAN, L. I., TSETLIN, V. M., ROGINSKAYA, Ye. Ya., ZHUK, Ye. B., VOLKOVA, A. P., VORONKINA, T. M., KLIMENCHUK, V. I., POZHARSKAYA, Ye. B.

"Compound for Controlling Household Insects"

USSR Author's Certificate No 340384, filed 15 Feb 71, published 23 Jun 72 (from RZH-Khimiya, No 2 (II), Feb 73, Abstract No 2N486)

Translation: The compound for controlling cockroaches, clones and moths contains the following (in % by weight): γ-hexachlorocyclohexane 0.19%; DDT 1.71%; DDVF 0.6%; xylol 5%; a mixture of CF_2Cl_2 (freon-12) and $CFCl_3$ (freon-11) 55% and kerosene to 100%.

1/1

(4)

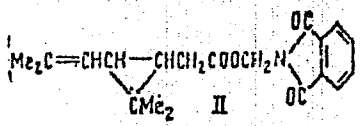
USSR UDC 632.95

BESSONOVA, I. V., VASHKOV, V. I., VOLKOV, Yu. P., VOLKOVA, A. P., ZHUK, Ye. B., TSETLIN, V. M., KLIMENCHUK, V. I., POZHARSKAYA, Ye. B.

"An Insecticide Composition"

USSR Author's Certificate No 288800, filed 13/05/69, published 17/03/72 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N593 P, by T. A. Balyayeva)

Translation: An insecticide is suggested, containing as its active ingredient a synergistic mixture of O, O-dimethyl O-(2,2,-dichlorovinyl) phosphate (I) and an analog of the pyrethrins of the formula



II

(II). Results are presented from determination of the degree of synergism and the insecticidal activity on houseflies. The composition of an aerosol can include I, II, xylene, kerosene and a mixture of freons. The preparate is nontoxic for warm blooded animals.

1/1

USSR

UDC: 632.95

BESSONOVA, I. V., VASHKOV, V. I., VOLKOV, YU. P., VOLKOVA, A. P., ZHUK, YE. B., ZUBOVA, G. M., TSETLIN, V. M., and SHCHUGAL, N. F.

"Neopinamine -- A New and Promising Preparation for Insect Control"

Tr. Tsentr. n.-i. dezinfekts. in-ta (Transactions of the Central Scientific Research Disingestation Institute), 1969, vyp. 20, pp 269-278 (from RZh-Khimiya, No 12, 25 Jun 70, Abstract No 12 N973)

Translation: Neopinamine (I) (esters of dl-cis, trans-chrysanthemic acid and N-oxymethyl-3,4,5,6-tetrahydrophthalimide containing 98% chrysanthemic acid was synthesized. In insecticidal properties (I) is close to a sample of Japanese neopinamine containing 85% active substance. The LD_{50} of both (I) samples for houseflies, bedbugs, golden cockroaches, and black cockroaches is, respectively, 8-10.7, 5.6-10, 15-17.3, and 24-27 mcg/g of insect weight. In aerosol form, (I) is 1.4-1.7 times more toxic for houseflies than natural pyrethrins. A mixture of (I) with piperonylbutoxide (1:10) exhibits some synergism. A mixture of (I) with DDVF [expansion unknown] (1:9) is promising for practical use as aerosols. Acute oral LD50 of (I) samples for white mice is 2500 and 3500 mg/g of insect

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USSR

BESSONOVA, I. V., et al, RZh-Khimiya, No 12, 25 Jun 70, Abstract No 12N973

weight. (I) has no local-irritative action when 10-15% oil solutions are applied on the skin and do not produce toxic effects when aerosols are inhaled.

P. V. Popov

2/2

USSR

UDC 577.37

ZHUK, Ye. G., Tomsk

"The Effect of Pulsed Electrical Discharges on the Microbial Cell"

Kishinev, Electronnaya Obrabotka Materialov, No 1, 1971, pp 57-59

Abstract: Suspensions of E. coli (strain 147, which withstands heating to 59°C for 2 to 2-1/2 hours and survives in a 1:90 phenol solution for 20 to 25 minutes) in sterile tap water were exposed to pulsed electrical charges with a pulse energy of $0.6 \cdot 10^2$ to $0.8 \cdot 10^2$ j. These charges were found to have a bactericidal effect. There was a logarithmic relationship between the initial concentration of microbial cells and the number of pulses. For example, at an initial cell concentration of $1.1 \cdot 10^3$ in 1 ml, 88.2% of the cells died after 5 pulses, 99.4% after 10 pulses, and 99.67% after 15 pulses.

1/1

USSR

UDC 612.014.3:612.014.45

ZHUK, YE. I., and FAYTEL'BERG-BLANK, V. R., Chair of Pathophysiology and Biophysics, Odessa Agricultural Institute

"The Effects of Ultrasonic Vibrations on Cells and Subcellular Structures"

Moscow, Voprosy Kurortologii Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 3, 1972, pp 198-201

Abstract: Ultrasonic radiation of 20 khz and 3 watts/cm^2 kills young yeast cells within 60 mins but stimulates growth of older cells. Radiation of 880 khz increases the electrokinetic potential of yeast cell membranes, and this increase is proportional to the intensity and duration of irradiation. A maximum increase in the polarographic activity of yeast cells occurs after irradiation intensity of 1 watt/cm^2. The respiratory rate of cerebral cortex mitochondria increases by a factor of 2,5 after irradiation with 0.3 watt/cm^2 for 5 mins but decreases below the control level after irradiation of greater intensity and duration. On the whole, the findings agree with the concept that physiological processes are stimulated by small doses of ultrasonic irradiation but are inhibited by larger doses.

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USSR UDC 612.015.348.547.965.014.426.014.45

FAYTEL'BERG-BLANK, V. P., and ZHUK, Ye. I., Odessa State Agricultural Institute

"Respiration of Cerebrocortical Mitochondria in Rabbits Exposed to Ultrasound"

Kiev, Doklady Akademii Nauk Ukrainskiy SSSR, No 7, 1971, pp 651-654

Abstract: Ultrasound altered the respiration of rabbit cerebrocortical mitochondria in relation to the dose and duration of exposure. Ultrasound at an intensity of 0.3 w/cm^2 directed toward the parietal cortex for 5 min increased mitochondrial respiration appreciably. Respiration also increased after exposure to 0.6 w/cm^2, but to a lesser degree. At intensities of 1.0 and 1.6 w/cm^2, on the other hand, mitochondrial respiration was depressed. Ultrasound directed toward the animals' epigastrium at an intensity of 1.0 w/m^2 for 5 min decreased the respiratory activity of the cortical mitochondria and prolongation of the exposure to 10 min depressed oxygen consumption even more.

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USSR UDC 621.842.2-585.862-183.2:620.178.311.4

RODZEVICH, N. V., Candidate of Technical Sciences, AFONSKIY, V. P., Engineer, KARDOVSKIY, V. S., Engineer, ZHUK, Ye. I., Candidate of Technical Sciences, KONONENKO, P. D., Engineer and CHAPALA, N. P., Engineer

"Strength of Heavy Drive Shafts"

Moscow, Vestnik Mashinostroyeniya, No 1, Jan 71, pages 28-30

Abstract: This article presents the results of a study of the strength of the drive shafts used in the power trains of heavy trucks and other transport equipment. The two types studied were designed for transmission of torques of 300 and 600 kgm. The weakest links in the heavy drive shafts when tested without rocking in bearings were the forks and X-members of the universal joints. Cracks arose in the drive shafts in areas where tensile stresses were concentrated (apertures, notches, welded joints, spline ends, separation of induction-annealed layers, etc.). In order to achieve equal strength of elements and increase the load-bearing capacity of heavy drive shafts, it is recommended that continuous splined forks of type 38KhMYuA steel with

USSR

RODZEVICH, N. V., et al, Vestnik Mashinostroyeniya, No 1, Jan 71, pgs 28-30

nitrided surfaces be used. The notches designed to retain the end caps of tubular splined forks should be eliminated. The X-members should be strengthened by moving the oil aperture to the end of the member and increasing the radius of the fillet in the area of transition between the cylindrical portion of the pin and the central portion of the X-member.

2/2

1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--USE OF THE PROT AND LOCATI METHODS, FOR RAPID FATIGUE TESTS -U-

AUTHOR--ZHUK, YE.I.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (1), 87-89

DATE PUBLISHED-------70

SUBJECT AREAS--PROPULSION AND FUELS, METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--FATIGUE TEST, NONDESTRUCTIVE TEST, ENGINE CRANKSHAFT, DIESEL ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0241 STEP NO--UR/0032/70/036/001/0087/0089

CIRC ACCESSION NO--AP0124003

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124003

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF CARRYING OUT RAPID FATIGUE TESTS ON LARGE METAL PARTS SUCH AS THE CRANKSHAFTS OF DIESEL ENGINES BY THE PROT AND LOCATI METHODS IS DISCUSSED. SUBJECT TO PROPER CHOICE OF THE PRACTICL CONDITIONS FOR THESE TESTS, GOOD RESULTS MAY BE ACHIEVED BY EITHER METHOD, EACH HAVING SOME MERITS AND SOME DEMERITS. BY USING THE RAPID FATIGUE-TEST TECHNIQUE THE TIME REQUIRED FOR TESTING LARGE CRANKSHAFTS MAY BE REDUCED BY A FACOTR OF 70-80 TIMES.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--HEAT TRANSFER IN A FLAT CHANNEL WITH LAMINAR FLOW -U-

AUTHOR-(02)-LIUTIKAS, N., ZUKAUSKAS, A.

COUNTRY OF INFO--USSR

SOURCE--MOKSLAS TECH. 1970, (2), 61

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TRANSFER, MATHEMATIC EXPRESSION, LAMINAR FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1396 STEP NO--UR/0253/70/000/002/0061/0061

CIRC ACCESSION NO--AP0133348

UNCLASSIFIED

2/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0133348
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, A DIMENSIONLESS EQUATION IS GIVEN FOR STEADY STATE HEAT TRANSFER.

UNCLASSIFIED

USSR

KATINAS, V. I., ZHOGZHDA, I. I., ZHUKAUSKAS, A. A.,

"Study of Local Heat Emission of a Plate in a Transient Flow Mode"

Tr. AN Lit SSR [Works of Academy of Sciences] Lithuanian SSR, 1971, B, No 2(65), pp 161-171. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1, 1972, Abstract No 1B826 by L. M. Zysina-Molozhen).

Translation: Results are presented from an experimental study of the transient area of a thermal boundary layer over a plate in a stream of air (Prandtl number P_f=0.7), water (P_f =3.5, 6.5) or transformer oil (P_f=108.5, 262.3). The experimental plate was 725 mm long, electrically heated, and was covered with a network of copper-constantan thermocouples with a spacing of 15 mm. Heat flux q_w was held constant along the entire surface; the R_x number was varied between 10^3 and $1.4 \cdot 10^6$; the temperature drop Δt=6-27°. Development of a transition was determined by the changing nature of the dependence of the local heat emission coefficient $\alpha_x=\alpha(x)$.

The experiments indicated a significant influence of the P number on the value of the R number, corresponding to the beginning of the transition from laminar to turbulent flow in the boundary layer (R_{fk}). When P_f was changed from 0.7 to 262, the value of R_{fk} decreased by approximately 6 times. Based on a generalization of their experimental data, the authors suggest an empirical

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USSR

SHLANTSYASKAS, A. A., DRIZHYS, M.-R. M., ZHUKAUSKAS, A. A.

"Pulsations of Temperature in the Area of a Wall with Turbulent Flow Around a Plate by Viscous Fluids"

Tr. AN Lit SSR [Works of Academy of Sciences] Lithuanian SSR, 1971, B., No 2, (65), pp 143-152 by R. Sh Baynberg). (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1, 1972, Abstract No 1B827 by P. Sh. Baynberg).

Translation: Microthermocouples are used to study the pulsations of temperature in a turbulent boundary layer over a flat plate, around which water and transformer oil flow, with constant heat flux at the wall. The mean statistical characteristics of temperature pulsations are used to produce information on the behavior of the pulsation temperature field as a function of P and the distance to the wall. It is established that where P>1 and Re $\geq 2 \cdot 10^6$, the viscous sublayer relates to the area of unstable flow with prevailing influence of viscous flow. Near the wall, a plane is detected with normal distribution of pulsation amplitude, relative to which perturbations are directed differently: in the viscous sublayer -- toward the wall, beyond this plane -- away from the wall.

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USSR

UDC: 536.24:532.54

AMBRAZYAVICHYUS, A. B., ZHUKAUSKAS, A. A., VALATKYAVICHYUS, P. Yu.

"Investigation of the Influence of the Temperature Factor on Heat Exchange During Turbulent Flow of a Gas in a Tube"

V sb. Teplo- i massoperenos (Heat- and Mass-Transfer--collection of works), T. 1, Minsk, 1972, pp 121-127 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B783)

Translation: An investigation is made experimentally into turbulent heat exchange in a tube 21.3 mm in diameter over a broad range of temperatures and flow velocities: $18 \leqslant l/d \leqslant 44$, $500 < T_f < 4700$ K, $1.5 \leqslant T_f/T_w \leqslant 12$, $5 \cdot 10^3 \leqslant R_f \leqslant 10^5$. The experiments were done in flows of air or nitrogen on a specially developed experimental installation with 300 kW electric arc heating.

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USSR

KAROSAS, I. B. and ZHUKAUSKAS, K. P.

"Asymptotic Distribution of Lifetime of a System"

Ob Asimptoticheskom Raspredelenii Vremeni Zhizni Sistemy [English version above], Institute of Physics and Mathematics, Acad. Sci. LitSSR, Vil'nyus, 1973, 15 pp (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V208Dep)

Translation: This work is dedicated to further development of the method of determination of asymptotic expressions for the characteristics of reliability of complex systems, based on the use of the limiting distribution of lifetime of the system as the number of elements $N \to \infty$, belonging to the class of limiting distributions of extreme values. In this work, an asymptotic expansion is produced for the distribution functions of lifetime of the system with an estimation of the residual term in the case when the elements have nonidentical distribution of lifetime, as well as the asymptotic distribution and limiting expression of the reliability function of the system. As an example of the use of the results produced, a study is made of the estimation of the mean time between failures of an arbitrary system. Author's view

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USSR

UDC: 681.335.7

ZHUKAUSKAS, K. P., KILNA, A. A., Institute of Physics and Mathematics, Academy of Sciences of the Lithuanian SSR

"A Device for Computing the Average Value of a Random Process"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, Mar 72, Author's Certificate No 330466, Division G, filed 11 Sep 70, published 24 Feb 72, p 158

Translation: This Author's Certificate introduces a device for computing the average value of a random process. The device contains an integrator. As a distinguishing feature of the patent, the device is simplified and accuracy is improved by including a subtractor, a bilateral clipper, and a second integrator in the device. The input of the first integrator is connected to the output of the subtractor, and the output of this integrator is connected through the clipper to the input of the second integrator. The output of the second integrator is connected to one of the inputs of the subtractor.

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USSR

UDC: 621.376.54

KILNA, A. A., ZHUKAUSKAS, K. P., MASYULIS, I. I., VEYVERIS, G. P., Institute of Physics and Mathematics, Academy of Sciences of the Lithuanian SSR

"A Device for Discrete Demodulation of Duration-Modulated Pulses"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 3, Jan 71, Author's Certificate No 291334, Division H, filed 27 Mar 68, published 6 Jan 71, p 151

Translation: This Author's Certificate introduces a device for discrete demodulation of duration-modulated pulses. The unit contains a scaling circuit, decoder, pulse shaper, diodes and coincidence circuit. As a distinguishing feature of the patent, in order to improve precision and resistance to interference in the demodulation process, the device is equipped with a cadence pulse time discriminator for the pulses from the output of the scaling circuit. The output of this discriminator is connected to the input of the scaling circuit through an oscillator made in the form of a feedback-covered series circuit comprised of a controllable delay line and a diode. The emission frequency of this oscillator is 2n times the frequency of the cadence signal, where n is the ratio of the cadence pulse period to the duration quantizing step for the pulses. The cadence signal line is connected to the set terminal of a flip-flop whose one-output terminal is connected to the controlling input of the above-mentioned delay line through the pulse shaper.

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USSR

UDC 681.327

ZHUKAUSKAS, K. P., AILNA, A. A., et al.

"Device for Reading Discrete Information from a Magnetic Carrier"

USSR Author's Certificate No. 275138, Filed 23/09/68, Published 6/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B403P).

Translation: The invention relates to the area of computer technology and is designed to be used in storage devices requiring readouts at low carrier rates. In known devices for reading of discrete information from magnetic media containing a flux-sensitive head with an interrogation winding placed in the aperture of a magnetic conductor and connected to the output of an excitation generator, narrow-band HF amplifier, synchronous amplitude detector, differentiating unit, and dual half-wave rectifier the phase of the output signal carrying the information depends on the residual magnitization of the head, which decreases the reliability of the device. In the device suggested, the narrow-band HF amplifier, synchronous amplitude detector, differentiating unit, and dual half-wave rectifier are connected in series, and a frequency doubler is connected to the second input of the synchronous amplitude detector, while the input of the doubler is connected to the output of the excitation generator. 1 fig.

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USSR

UDC 669.184.244.66

TRAVIN, O. V., ZIN'KO, B. F., SHUMOV, M. M., ISAYEV, V. A., ZHUKAYEV, G. M., and SOBKIN, S. I.

"Kinetic Specifics of the Process of Deoxidation During Production of Low-Carbon Rimming Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 93-100

Translation: The mass transfer conditions between slag and metal in the process of deoxidation of low-carbon rimming steel in the ladle are studied. It is established that during the process of deoxidation the loss of manganese is determined by both the thermodynamic and the kinetic conditions. The influence of the pouring time, slag viscosity, moment of addition of deoxidizers, and other kinetic parameters on manganese loss is determined. An equation is presented, allowing the manganese loss to be determined in advance on the basis of known parameters of the converter process, notch condition and other factors. 4 figures.

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USSR UDC 669.184.244.66

TRAVIN, O. V., ZIN'KO, B. F., SHUMOV, M. M., ISAYEV, V. A., ZHUKAYEV, G. M., and SOBKIN, S. I.

"Kinetic Specifics of the Process of Deoxidation During Production of Low-Carbon Rimming Steel"

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USSR

UDC 669.184.244.66

ZIN'KO, B. F., TRAVIN, O. V., SHUMOV, M. M., ISAYEV, V. A., and ZHUKAYEV, G. M.

"State of the Oxidation of Low-Carbon Converter Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 100-104

Translation: In connection with the requirements for performance of more precise deoxidation, the thermodynamic and kinetic factors determining the level of oxidation of metal in a converter are analyzed. On the basis of diffusion concepts, an equation is derived allowing the actual content of oxygen in the bath to be determined on the basis of known parameters: content of carbon in the metal, concentration of ferrous oxide in the slag, and metal temperature. 3 figures; 3 biblio. refs.

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USSR UDC 669.184.244.66

ZIN'KO, B. F., TRAVIN, O. V., SHUMOV, M. M., ISAYEV, V. A., and ZHUKAYEV, G. M.

"State of the Oxidation of Low-Carbon Converter Steel"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 100-104

Translation: In connection with the requirements for performance of more precise deoxidation, the thermodynamic and kinetic factors determining the level of oxidation of metal in a converter are analyzed. On the basis of diffusion concepts, an equation is derived allowing the actual content of oxygen in the bath to be determined on the basis of known parameters: content of carbon in the metal, concentration of ferrous oxide in the slag, and metal temperature. 3 figures; 3 biblio. refs.

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USSR

UDC: 621.652:669.018.95(088.8)

(5)

ARABEY, B. G., BAULIN, Yu. N., ZVEREV, I. I., ZUKHER, M. S., KOKONIN, S. S., MARKOV, Yu. M., PORTNOY, K. I., SKLYAROV, N. M., TYURIN, V. A.

"Metal Ceramic Friction Material"

USSR Author's Certificate Number 346373, Filed 15/12/69, Published 18/08/72 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G422P, by S. Krivonosova).

Translation: A metal ceramic friction material, for example for braking devices, is suggested, containing ZrC and B carbide. In order to increase the stability of the coefficient of friction, B nitride and metals of the Fe group are introduced to the composition, taken in any combination with the following ratio of components (in wt. %): B carbide -- 10-50, Fe-group metals, taken in any combination, 3-35, B nitride 1-5, ZrC -- remainder. The material suggested has the following properties: s. g. 5.52 g/cm^3; coefficient of friction at braking temperature 600° 0.50-0.55, at 800° 0.45-0.50; stability of coefficient of friction with specific braking energies 450 kgm/cm^2 0.75-0.88; at 923 kgm/cm^2 0.80-0.95; wear with specific braking energies of 450 and 923 kgm/cm^2, in μ/tori 2-6 and 6-11 respectively; permissible volumetric

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USSR

(5)

Arabey, B. G., Baulin, Yu. N., Zverev, I. I., Zukher, M. S., Kokonin, S. S., Markov, Yu. M., Portnoy, K. I., Sklyarov, N. M., Tyurin, V. A., USSR Author's Certificate Number 346373, Filed 15/12/69, Published 18/08/72.

temperature 800°, heat conductivity factor in t/m.° at 100° 48.1, 200° 44.0, 400° 35.9, 600° 29.5, 800° 27.3, 1000° 26.4; specific heat capacity (in cal/g·°) at 100° 0.134, 200° 0.136, 400° 0.150, 600° 0.161, 800° 0.169, 1000° 0.184; tensile strength at 20° 36 kg/mm^2; bending strength at 20° 62 kg/mm^2; shear strength at 20° 13.8 kg/mm^2; a_H 0.15 kgm/cm^2.

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USSR

UDC: 669.1:541/1

ZHUKHOVITSKIY, A. A., BELASHCHENKO, D. K., BOKSHTEYN, B. S., GRIGORYAN, V. A., GRIGOR'YEV, G. A., and GUGLYA, V. G.,

Fiziko-Khimicheskiye Osnovy Metallurgicheskikh Protsessov (Physico-Chemical Bases of Metallurgical Processes), Moscow, Metallurgiya, 1973, 392 pp

Translation: Annotation. This book contains the material of special courses used by the students of the Physics-Chemistry Department of the Moscow Institute of Steel and Alloys. This work makes it possible for a broad range of young specialists to acquaint themselves with many branches of modern physics and physical chemistry. The book contains: 104 illustrations, 17 tables, and 292 bibliographic entries.

Contents.

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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USSR

UDC 669.046.5

ZHUKHOVITSKIY, A. A., GRIGORYAN, V. A.

"Concerning the Thermodynamics of Deoxidizer Solutions in Liquid Metals"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 35-41

Translation of Abstract: Problems of the activity of carbon dissolved in liquid metal are considered. It is shown that the study of metal oxides and the deoxidizer in the slag provides a good agreement between the experimental and theoretical values of oxygen content. 3 figures, 8 references.

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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--USE OF FINELY DIVIDED METAL POWDERS AS SUPPORTS IN GAS CHROMATOGRAPHY -U-

AUTHOR-(05)-YANOVSKIY, S.M., ALKSNIS, O., LIBERMAN, I.I., SAZONOV, M.L., ZHUKHOVITSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 136-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS CHROMATOGRAPHY, STAINLESS STEEL, PARTICLE SIZE, CHEMICAL LABORATORY APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0135 STEP NO--UR/0032/70/036/002/0136/0138

CIRC ACCESSION NO--AP0125951

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
IRC ACCESSION NO--AP0125951
SSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STAINLESS STEEL POWDER OF PARTICLE SIZE 40-45 MU WAS USED AS A SUPPORT FOR GAS-LIQ. CHROMATOG. THE COLUMNS WERE PACKED WITH DRY POWDER, AND A LIQ. PHASE (HEXADECANE) WAS APPLIED BY PASSING ITS SOLN. IN CCL SUB4 (1:5) THROUGH THE COLUMN UNDER VACUUM (WATER PUMP). THE PERMEABILITY OF THE POWDER FOR CARRIER GAS WAS PROPORTIONAL TO SQUARE OF THE DIAM. OF THE PARTICLE. APPLICATION OF SMALL SIZE PARTICLES WITH GOOD GAS FLOW ALLOWED A DECREASE OF THE HETP (HEIGHT EV. TO A THEORETICAL PLATE) DOWN TO 1 MM. AN INCREASE OF COLUMN DIAM. DID NOT DECREASE ITS EFFECTIVENESS, I.E. SUCH COLUMNS WERE PARTICULARLY USEFUL FOR PREPARATIVE WORK. USE OF H AS CARRIER GAS GAVE BETTER SEPN. THAN N. THE RELATIONS BETWEEN HETP AND GAS FLOW ACCORDING TO PARTICLE SIZE AND COLUMN DIAM. ARE GIVEN. FACILITY: VSES. NAUCH.-ISSLED. GEOLOGORAZVED. NEFT. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--NEW CHROMATOGRAPHIC TECHNIQUES -U-

AUTHOR-(02)-ZHUKHOVITSKIY, A.A., SAZONOV, M.L.

COUNTRY OF INFO--USSR

SOURCE--J. CHROMATOGR. 1970, 49(1), 153-60

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--CHROMATOGRAPHY, GAS ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1027 STEP NO--NE/0000/70/049/001/0153/0160

CIRC ACCESSION NO--AP0136454

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0136454
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TECHNIQUES FOR CHROMATOG. WITHOUT A CARRIER GAS WERE DISCUSSED BRIEFLY AND DEMONSTRATED BY ANAL. OF MIXTS. OF PERMANENT GASES, ENRICHMENT OF VERY DIL. SAMPLES, AND PREPN. OF HIGH PURITY GASES. ALSO, A HIGH EFFICIENCY WAS OBSD. WITH GAS CHROMATOGRAPHIC ADSORBENTS, CONSISTING OF VERY SMALL, ABS. SMOOTH METAL BALLS AS A SUPPORT FOR A COMMON GRANULAR BED OR OF SINTERED, PRESSED METALLIC BALLS SUPPORTING A FILTER TYPE STRUCTURE. THE ADSORBENTS HAD SMALL, UNIFORM CHANNELS AND EXHIBITED ONLY A SLIGHT DEPENDENCE OF HETP (HEIGHT EQUIV. TO A THEORETICAL PLATE) ON FLOW RATE AND COLUMN DIAM., SUGGESTING POSSIBLE USE IN HIGH SPEED AND PREPARATIVE CHROMATOG.
FACILITY: ALL UNION INST. SCI. RES. PETROGR. GEOL. PROSPECT., MOSCOW, USSR.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THE ROLE OF ANABOLIC STEROIDS IN THE COMPLEX TREATMENT OF PATIENTS WITH SEQUELAE OF POLIOMYELITIS -U-

AUTHOR-(02)-ZHUKHOVITSKIY, M.S., BOLOTINA, A.YE.

COUNTRY OF INFO--USSR

SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 5, PP 44-49

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POLIOMYELITIS, DRUG TREATMENT, STEROL/(U)NEROBOL STEROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0731 STEP NO--UR/9115/70/000/005/0044/0049

CIRC ACCESSION NO--AP0131326

UNCLASSIFIED

2/2 006 UNCLASSIFIED

CIRC ACCESSION NO--AP0131326 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANABOLIC STEROID, NEROBOL WAS INCLUDED INOT THE COMPLEX TREATMENT OF 58 PATIENTS WITH SEQUELAE OF POLIOMYELITIS. THE COURSE OF TREATMENT WITH NEROBOL RESULTED IN IMPROVEMENT OF THE MOTOR SPHERE IN 53 PATIENTS. THE GENERAL EFFECT OF NEROBOL WAS MANIFESTED BY IMPROVEMENT OF APPETITE, NORMALIZATION OF SLEEP, INCREASE OF GENERAL TONUS, WORKING CAPACITY, ACCELERATION OF REGENERATIVE PROCESSES. NEROBOL IMPROVED THE METABOLIC PROCESSES IN THE MYOCARDIUM. NO MARKED COMPLICATIONS AFTER USE OF NEROBOL COULD BE OBSERVED. FACILITY: KLINIKI INSTITUA POLIOMIYELITA I VIRUSNYKH ENTSEFALITOV AMN SSSR NA BAZE 82-Y GORODSKOY KLINICHESKOY BOLNITSY, MOSCOW.

UNCLASSIFIED

USSR

UDC 669.13-15:620.178.3

DRAPKIN, B. M., ZHUKOV, A. A., and PIGUZOV, YU. V., Rybinsk Evening Technological Institute

"Laws Governing Change in the Elastic Properties of Pig Iron During Heat-Fatigue Fracture"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973, pp 135-137

Abstract: The authors have studied change in the elastic properties of pig irons with different structures in the process of heat-fatigue fracture. They showed that in all cases the moment of the appearance of the first cracks is represented by the value of the Young modulus which comprises 70-75% of the initial value.

The authors make the following conclusions with respect to their research. The initial period of heat-fatigue fracture of pic iron is characterized by the processes of defect pile-up of the crystal structure in the metal matrix

USSR

DRAPKIN, B. M., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973, pp 135-137

of the pig iron, the processes taking place more intensely in pig iron with a ferrite matrix. They established that during heat cycling of pig iron the appearance of cracks is accompanied by a sharp drop in the elastic properties, in which case the modulus of elasticity E comprises 0.7-0.75 of the initial value. They state that it is necessary to make future investigations on the behavior of various materials under conditions of heat-cycle loading in order to expand these laws to other metals and alloys.

As illustration the authors have compiled a table which shows the chemical composition and characteristics of the pig iron. A graph gives the change of the tested pig irons with respect to the Young modulus in the process of heat cycling.

The article contains 1 illustration, 1 table, and 7 bibliographic references.
2/2

RAW/ /R-760/5-AKP-72 82 (5)

Dec 72

Uglov, A. A., A. A. Zhukov, A. N. Kokora, M. A. Krishtal, and M. Kh. Shorshorov. "Shift" of critical points under laser heating of carbon-iron alloys. FIKhOM, no. 2, 1972, 3-8.

The "shift" of critical points in steel heated by a laser beam is analyzed. Allowance is made for nonuniform distribution of specific heat flux on the metal surface, and hence different volumetric heating rates. Under conditions of rapid heating and cooling rates, as in metal treatment by a laser beam, "shift" of critical points becomes important in micrographic determination of temperature within the metal after cutoff of the laser pulse. Using a theoretical formula, numerical data were obtained for heating rates dt/dτ in ShKh15 perlitic steel at various depths z and distances r from the center of a beam spot on the metal surface. Concentration coefficient $k = 80$ cm^{-2} was used in calculations of power density distribution on the surface. The calculated dt/dτ versus r plots (Fig. 1) show that, at $q_o = 0.92 \times 10^5$ w/cm^2, dt/dτ =

Fig. 1. Heating rate of ShKh15 steel by laser pulses of 0.5 millisec width versus r at z(cm) = 3.10^{-3} (1), 2.10^{-3} (2), 1.10^{-3} (3), 5.10^{-3} (4), 0 (5), 6.10^{-3} (6), and 7.10^{-3} (7).

ZHUKOV, A.A.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810015-9"

1/2 041 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THERMODYNAMIC PROBLEMS INVOLVED IN OPTIMIZING THE COMPOSITION OF SOME COMPLEX ALLOY STEELS FOR CAST AND WELDED PARTS -U-

AUTHOR--ZHUKOV, A.A., SOKOLOV, YU.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1) 119-24

DATE PUBLISHED-------70

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

TOPIC TAGS--THERMODYNAMIC ANALYSIS, ALLOY STEEL, LOW TEMPERATURE METAL, SILICON CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, NICKEL CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY, GRAPHITIZATION, ARCTIC CLIMATE, ARCTIC VEHICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0631 STEP NO--UR/0472/70/000/001/0119/0124

CIRC ACCESSION NO--AP0105610

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105610

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS WORK IS BASED ON THE SIMPLE THERMODYNAMIC ANAL. OF THE WELL KNOWN PRACTICE OF USING AN OPTIMAL COMBINATION OF ELEMENTS WHICH HAS A DIAMETRICALLY OPPOSITE EFFECT ON SOME CHARACTERISTIC OF THE METAL (E.G. THE EFFECT OF SI AND MN OR NI AND CR ON GRAPHITIZATION KINETICS OF CAST IRON) (ZH. ET AL., 1967). THE THERMODYNAMIC ANAL. OF STEEL ALLOYING WITH MN AND CR (WHICH LOWER THE ACTIVITY OF C AND FORM DENDRITIC MICROSEGREGATIONS) IN COMBINATION WITH THE ALLOYING WITH SI AND NI. (WHICH ALSO FORM THE DENDRITIC MICROSEGREGATIONS BUT INCREASE THE ACTIVITY OF C) IS CARRIED OUT. REF. IS MADE TO THE APPLICATION OF THIS ANAL. TO THE FORMULATION OF COLD RESISTANT STEELS FOR ARCTIC CONDITIONS. A NOMOGRAM IS PRESENTED WHICH ENABLES ONE TO CHOOSE HOMOLOGOUS CONCN. OF ELEMENTS IN EXCHANGING ONE ELEMENT OF THE SAME TYPE FOR ANOTHER.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810015-9"

AP9053408 METALS ABST. 11/69 4R0369

15 1187 Thermodynamics of Irreversible Processes of Graphitization in Iron–Carbon Alloys. A. A. Zhukov. Fiz.-Khim. Mekhan. Mat., May-June 1969, 5 (3), 382-384 [in Russian]. (x)

The general thermodynamical principles underlying the irreversible processes encountered in the graphitization of Fe–C alloys are discussed theoretically. The equations governing the flow of C atoms taking part in the graphitization process are derived and their practical meaning is indicated for the case of a typical Fe–1.5 wt.-% C alloy. The equations derived are compared with existing theories and the necessity of making a number of corrections to allow for practical conditions is pointed out.–G. A.

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AP9021983 MA 7/69 4R 0370

AP9053420 CHEMICAL ABST. 12/69 4R0076

105924y Density of isoactivity lines of components in phase diagrams. Zhukov, A. A.; Snezhnoi, R. L. (Vses. Nauch.-Issled. Inst. Tekh. Teor. Maslinostr., Moscow, USSR). *Zh. Fiz. Khim.* 1969, 43(8), 2122–4 (Russ). In plotting the isoactivity lines in phase diagrams (temp. vs. concn.), their d. is a important parameter, detd. as $\partial a_i/\partial c_i$. This parameter enters many equations of static and kinetic behavior of multicomponent systems. Therefore $\partial a_i/\partial c_i$ can be related to some characteristic properties of those systems (diffusion coeffs., regions of homogeneity). The conclusion is drawn on the basis of diffusion coeffs.; in the system Fe-Cr, the region of the σ phase is considerably wide and approx. equal to the width of 2 phase regions $\alpha + \sigma$. Similarly, diffusion coeffs. of the alloys Cu-Au indicate a very narrow region of homogeneity of the orderly phases CuAu and Cu_3Au.

M. Kyrs

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APO 022891 CHEMICAL ABST. 2-70 UR0128

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23783h Use of antimony cast iron for manufacturing chill molds. Chistyakov, V. V.; Zhukov, A. A. (USSR). *Liteinoe Proizvod.* 1969, (9), 29–30 (Russ). In order to increase the thermal stability of cast irons used for chill molds, these cast irons were inoculated with 0–1.5% crushed Sb in a 8-kg ladle, whereupon the samples were cast. After a 2-hr annealing at 920–50° with subsequent cooling in air and after 1-hr tempering at 620° to obtain a pearlite structure, the total no. of cracks present at the ribs of these samples was detd. The no. of such cracks is min. at 0.1–0.35% Sb. Thermal treatment increases the thermal stability of Sb cast irons. The dependences of tensile strength, flexure strength, hardness, and impact strength on 0–0.4% Sb addn. was detd. on standard samples. The stability of the matrix upon repeated heatings is 1 of the reasons for increased thermal stability; however, cementite and eutectic compds. of Sb with Fe with >0.4–0.5% Sb decrease thermal stability. The stability of chill molds made from Sb cast iron is twice that of conventional chill molds insofar as their resistance to cracking is concerned. For the manuf. of chill molds, cast iron contg. 0.1–0.35% Sb, which has been subjected to the stated thermal treatment, should be used. S. A. Mersol

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19631322

Acc. Nr AT0029877 Abstracting Service: CHEMICAL ABST. 3-70 Ref. Code UR 0060

46538w Relation between the effective diffusion coefficients of alloy components and the density of isoactivity lines on the corresponding phase diagrams. Zhukov, A. A.; Snezhnoi, R. S. (USSR). *Diffuz. Metal. Splavakh. Tr. Vses. Konf., 3rd* 1968, 168–75 (Russ). Edited by Krishtal, M. A. Tula. Politekh. Inst.: Tula, USSR. The relation between the system of geometric curves and the diffusion characteristics of alloy components was studied. The system of isoactivity lines of C in the austenitic area of Fe–C phase diagrams and that in isothermic section of Fe–C–Cr phase diagrams at 1000° is given. The boundary conditions are discussed when the d. of inoactive lines approaches 0 or infinity. The 1st case corresponds to the crit. area of soln. breakdown and was studied on binary alloys. The relation between the redn. of the area of homogeneity of chem. components, intermetallic compds., or ordered solid solns. and the increasing d. of isoactivity lines of the component was detd. The d. at the boundary approaches infinity when the homogeneity area is decreased to the infinitesimally small values.

Z. Klimova

REEL/FRAME

19681571

Acc. Nr: AP0047556 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R0148

92613q Thermodynamic aspects of the optimization of the volume of components in carbon and alloy tool steel. I. Zhukov, A. A. (Vses. Nauch.-Issled. Inst. Tekst. Legk. Mashinostr., USSR). *Izv. Vyssh. Ucheb. Zaved., Chern. Met.* 1969, 12(12), 124–8 (Russ). A theoretical discussion is given and the thermodynamical anal. described by A. A. Z., (1967) is applied to the anal. of the alloying of steel with ingredients exerting counteracting effects, such as Mn or Cr (which lower the activity of C) and Si, Ni, and Cu (which increase the activity of C). The concn. of counteracting ingredients Mn + Si are selected so as to "neutralize" themselves. In that case it is not important whether Mn and Si are distributed nonuniformly, but it is important that both ingredients undergo liquation in the same direction, so that in each given microvol. the ratio of their concns. will be const. GMJR

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REEL/FRAME
19791122

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Acc. Nr.: AR0051694 Ref. Code: UR0000

USSR UDC 621.745.55:669.13]:669.11

ZHUKOV, A. A., IVANOV, V. I., EPSHTEYN, L. Z.

"Problems of Thermodynamics of Alloying Steel and Cast Iron"

Moscow Povysh. proizvoditel'n truda v liteyn. proiz-ve. Ch. 1 (Increased Productivity of Labor in Casting Production.- Part I), 1969, pp 353-363 (from Referativnyy Zhurnal, Tekhnologiya Mashinostroyeniya, No 11, Nov 69, Abstract No 11G165)

Translation: The theory of alloying iron and carbon alloys has special significance for cast steel and cast iron since their chemical and structural microinhomogeneity does not change. When alloying cast carbon steel, structural microinhomogeneity occurs in it. This is eliminated only after prolonged homogenizing annealing. However, during complex alloying of steel, successful combinations of alloying elements, for example, chromium with nickel, manganese with silicon, and so on are observed. Recently, the method of diffusion couples has been developed in studying the effect of certain elements on the thermodynamic activity of others. Schemes of such diffusion couples are presented. The procedure and results of the

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Reel/Frame
19811998

Acc. Nr.: AR0051694

study are investigated. Calculations showed that efficient combination of silicon and manganese is observed in steel type 20GSL used in power machine-building (hydraulic turbine vanes) and other branches of industry; L27SG used in tractor and farm machinery construction also reflects such a combination. Certain more complex combinations are also successful. Thus, in steel 15 KhGSND which has recommended itself well in highly loaded light structural elements (including welded elements), silicon, nickel and copper completely neutralize chromium and manganese in practice. Among cast steels it is advantageous to isolate steel 15 DKhGSL. It has a high complex of physical-mechanical properties even in the normalized state (in hardened and tempered steels the structural microinhomogeneity is exhibited more weakly than in normalized or annealed steels). Vanadium white cast iron in which the carbide phase $V_{0.88}C$ with microhardness reaching 2,000 kilogram-force/mm^2 occurs in the form of comparatively isolated inclusions surrounded by a comparatively viscous pearlite matrix are of significant interest. The experimental work which has been done in thermodynamic analysis demonstrated that the critical concentration of V in white cast iron for which crystallization of brittle ledeburite takes place and the $V_{0.88}C$-austenite eutectic is formed can be lowered appreciably

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REEL/FRAME
19811999

Acc. Nr.: AR0051694

with additional alloying of metal by elements which increase the coefficient of activity of the carbon (Si, Cu, Ni). With comparatively low hardness (HB ~388), complexly alloyed vanadium cast iron has high-strength (σ_v up to 107 kilogram-force/mm^2), some plasticity (δ up to 2.5%) and exceptionally high wear resistance (in the case of dry friction with hardened steel their wear resistance is higher than that of ShKh15 steel with a hardness of HRC61 by 2-8 times, and it is not inferior to the wear resistance of R18s steel with a hardness of HRC66). There are four illustrations, two tables and a bibliography with 22 entries.

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ZHUKOV, A.B.

SCIENTIFIC ORGANIZATIONAL DECISIONS OF THE PRESIDIUM OF THE AS USSR

[Announcements: Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 42, No 8, August 1972, p 137]

The Scientific Council for Problems of the Forest

A scientific council has been organized, under the Department of General Biology, for the coordination and intensification of investigations of problems of the forest being conducted in scientific institutions of the country. Academician [redacted] has been approved as Chairman of the Scientific Council for Problems of the Forest.

The Oceanographic Commission

The Presidium of the Academy has decided to subordinate the Oceanographic Commission in a scientific organizational respect to the Section of Earth Sciences. In a statement about the Commission it is pointed out that its main task is all-possible help to the development of investigations of the world ocean in the USSR. The tasks of the Commission also include the coordination of investigations and the organization of scientific consultations on fundamental problems of oceanology.

Appointments and Transfers

Doctor of Geographic Sciences N. V. Butorin has been named Director of the Institute of Biology of Inland Waters of the AS USSR. Doctor of Geographic Sciences I. D. Papanin has been released from the duties of Director of the Institute at his personal request. Thanks are expressed to I. D. Papanin for many years of fruitful work in that post, the organization and development of complex scientific investigations of the biology of reservoirs and the creation of a material and technical base for the successful work of scientists of the Institute.

JPRS 57307
20 Oct 72

1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EFFECT OF THE ELECTRICAL FIELD ON THE PHOTOCONCUCTIVITY SPECTRUM OF GERMANIUM WITH HYDROGEN LIKE IMPURITIES -U-

AUTHOR-(02)-BERMAN, L.V., ZHUKOV, A.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2) 401-3

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--ELECTRIC FIELD, GERMANIUM, HYDROGEN, PHOTOCONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0552 STEP NO--UR/0449/70/004/002/0401/0403

CIRC ACCESSION NO--AP0105537

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105537

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS ATTEMPT TO EXPLAIN QUAL. HOW THE DEPENDENCE OF THE LIFETIME OF THE PHOTOCARRIERS AND THEIR MOBILITY ON THE ENERGY OF THESE CARRIERS IN THE BAND IN WHICH THEY ARE FOUND LEADS TO THE APPEARANCE OF A DISPLACEMENT OF THE RED BOUNDARY, AND WHY THIS CANNOT BE EXPLAINED IN TERMS OF THE FRENKEL SHOTTKY EFFECT. THE EXPLANATIONS OF THIS EFFECT GIVEN PREVIOUSLY (B. AND ZH., 1969) ARE RECAPITULATED.

UNCLASSIFIED

USSR

UDC: 539.292

ZHDANOV, V. A., KONUSOV, V. F., and ZHUKOV, A. V., Institute of Applied Mathematics and Mechanics, Tomsk State University

"Computing the Mechanical Stability of Iron, Molybdenum, and Tungsten Crystal Lattices"

Tomsk, Izvestiya VUZ -- Fizika, No 10, 1972, pp 74-78

Abstract: This paper is one of a series dealing with a method of investigating the behavior of crystal lattices under conditions of arbitrary system voltage, all of which have appeared in the journal named above. The preceding articles of the series are briefly reviewed, and their general purport is summed up in the statement that tangential stresses in which the orthorhombic symmetry of the lattice is preserved are most dangerous for the lattice stability. The tensor equations of state are derived for the class of body-centered cubic lattices, to which iron, molybdenum, and tungsten belong. A table is given of the lattice parameters, involved in these equations, for the three metals, and a second table provides critical stability values for these three metals for the case of shifts preserving the tetragonal symmetry of the crystal lattice. Results of the analysis are also given in the form of curves.

USSR

UDC 539.1.01

V. A. ZHDANOV, A. V. ZHUKOV, And A. V. POPOV (Scientific Research Institute of Applied Mathematics and Mechanics, Tomsk University)

"The Effect of the First Quantum Correction on the Characteristics of Metallic Sodium (Brief Communication)"

Tomsk, Izvestiya VUZ Fizika (News of the Higher Educational Institutions, Physics), No. 9(112), 1971, pp 126-128

Abstract: The principal characteristics of metallic sodium are determined on an M-20 digital computer, using the nonparametric function of the binding energy and taking the first quantum correction into account. The results of the calculations are compared with experimental data and the Thomas-Fermi-Dirac (TFD) model. Agreement with the experimental data is almost exact for the finding energy, the lattice constant is about 10% below the experimental value, and the modulus of elasticity is about 20% above. Agreement with the TFD model is not as good but improves when the correction is applied.

Further improvement of the statistical approximation can be obtained by higher-order quantum corrections or by refining the model of the metal.

Orig. art. has 1 table and 5 refs.

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USSR

UDC: 621.039.526

DOBROVOL'SKIY, V. F., ZHUKOV, A. V., SVIRIDENKO, YE. YA., SUHBOTIN, V. I. and USHAKOV, P. A.

"A Study of the Temperature Fields of Fuel Elements in Fast Reactors During Variable Energy Release with Respect to Zone Height"

Moscow, Atommaya energiya, Vol 28, No 6, Jun 70, p 490

Abstract: The authors experimentally determined the temperature fields of the central, lateral, and corner elements of a BOR [expansion unknown]-type reactor cassette model during cosinusoidal energy release along the height of the model. The results show that the heat flux varying with respect to length evokes deformation of the temperature profile in the channel because of the varying amount of heat supplied at each section of the channel. As a result of this, a change takes place in the numerical values of the heat-transfer coefficients along the channel. A reduction of the heat-transfer coefficients in the upper part of the active zone of a BOR-type reactor as the result of variable energy release does not present a danger to the operation of the fuel elements since the numerical values of the mean temperature difference for wall-fluid are small in the case of sodium heat-transfer agent. The maximum temperature nonuniformity of the fuel elements of a BOR-type reactor can be estimated with respect to the mean along the height of the heat flux zone starting with test data obtained for q = const.

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USSR

UDC: 621.039.526

SUBBOTIN, V. I., USHAKOV, P. A., ZHUKOV, A. V., and SVIRIDENKO, YE. YA.

"Temperature Fields of the Fuel Elements in the Active Zone of a BOR Reactor"

Moscow, Atomnaya Energiya, Vol 28, No 6, Jun 70, pp 489-490

Abstract: The authors studied the temperature fields and heat emission in a cassette model of an experimental BOR [expansion unknown]-type reactor using fast neutrons with smooth and ribbed models of fuel elements and with and without displacers in the peripheral elements. The model consists of a hexagonal shell with 37 elements (fuel element models) arranged in a checkerboard-type lattice with $\frac{S}{2R} = 1.1$ where S is the distance between the element centers and R is the outer radius of the elements. Energy release along the height of the model was constant. The results show that the greatest variation in temperature of lateral elements is observed in the model with smooth elements without displacers. The addition of displacers to the peripheral cells reduces temperature variation. Winding the elements with spacing wire further reduces temperature nonuniformity. Formulas are given for the following: maximum temperature variation as a function of the Peclet number, for cassettes without displacers with smooth and ribbed fuel elements correspondingly, and temperature variation along the perimeter of the smooth central elements (this nonuniformity varies according to a cosinusoidal rule). The numerical values for nonuniformities are in agreement with data obtained using M. Kh. Ibragimov's and A. V. Zhukov's methodology. A formula is given for stabilized heat emission factors.

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Acc. Nr: AP0046017 Abstracting Service: INTERNAT. AEROSPACE ABST. Ref. Code: 5-70 U R0057

A70-25116 # Excitation and ionization of atoms under Knudsen conditions of operation of a cesium diode (Vozbuzhdenie i ionizatsiia atomov v Knudsenovskikh rezhimakh raboty tsezievogo dioda). E. P. Busygin, V. G. Grigor'iants, B. G. Zhukov, and I. P. Iavor (Akademiia Nauk SSSR, Fiziko-Tekhnicheskii Institut, Leningrad, USSR). *Zhurnal Tekhnicheskoi Fiziki*, vol. 40, Jan. 1970. p. 211-217. 10 refs. In Russian.

Description of the measurement method employed and summary of the results obtained in an experimental study of the processes of excitation and ionization of cesium atoms in the interelectrode space under Knudsen conditions of operation of a narrow-gap cesium diode. The special features leading to luminescence in the gap under undercompensated conditions are noted. It is shown that under these conditions excitation is caused by an accelerated-electron beam. From the results of spectroscopic measurements the electron energy distribution in the region of the boundaries of line manifestation and in the anode region of the gap is determined for both small and large anode voltages. It is observed that the conditions of excitation of atoms change with the start of ionization in the interelectrode space.

A.B.K.

REEL/FRAME
19781078

USSR

UDC 632.4+581.13

DMITRIYEVA, K. O., and ZHUKOV, B. I., Scientific Research Agricultural Institute, Otar, Dzhambul Oblast'

"The Effect of Stem Rust of Wheat on the Rate of Synthesis of Nucleic Acids in Wheat Leaf Tissues"

Moscow, Fiziologiya Rasteniy, Vol 18, No 2, Mar/Apr 71, pp 424-426

Abstract: The rate of incorporation of P^{32} into the nucleic acids of leaf tissues of wheat of the variety Saratovskaya 29 infected with stem rust of strain 40 was studied. Wheat of this variety is susceptible to infection with sten rust, strain 40. The rate of incorporation was determined in the following stages of fungal development: 1) incubation period; 2) vegetative development of the fungus leading to formation of chlorotic spots (5th day after infection); 3) formation of uredopustules (7th day after infection). The rate at which P^{32} was incorporated into infected plants became greater than that in uninfected controls on the 2nd day after infection (stage 1) and reached a maximum in stage 2 during the period immediately preceding and coinciding with the formation of chlorotic spots. On the 4th day after infection, the rate of synthesis of nucleic acids was four times higher than that in uninfected control plants. In stage 2, the content of nucleic acids

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USSR"

DMITRIYEVA, K. O., and ZHUKOV, B. I., Fiziologiya Rasteniy, Vol 18, No 2, Mar/Apr 71, pp 424-426

was higher in infected than control plants. The period of maximum formation of nucleic acids corresponded to an increase in synthetic processes directed towards protection of the host against the parasite. In stage 4 of development of the fungus, the rate of synthesis of nucleic acids dropped sharply, becoming lower than that in control plants.

2/2

USSR

UDC 621.384.6

ZHUKOV, B. N.

"Effect of Currents of Capacitance Leakage on Azimuthal Nonuniformity of Magnetic Field of the Electromagnet of an Electron Synchrotron"

V sb. Elektrofiz. apparatura (Electrophysical Apparatus--Collection of Works), Vyp 8, Moscow, "Atomizdat," 1969, pp 94-98 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5A346)

Translation: The results are presented of a computation of the disturbances of a magnetic field caused by the currents of a capacitance leakage, and an allowance for the magnitude of the nonuniformity of the capacitance of the leakage is assessed. The actual disturbances of the magnetic field, measured at the mounted annular electromagnet, are compared with the disturbances as computed on the basis of measurements of the capacitances of the leakage of the coupling cables. The system of power supply for the units of the electromagnetic is a resonant circuit containing series-connected units of the electromagnet and a bank of capacitors. The circuit is divided into 16 banks. Compensation is proposed for the capacitance leakage currents which contribute the basic portion of the disturbances of the magnetic field, with the correcting capacitance connected at the end or beginning of each bank. 3 ill. G. B.

1/1

USSR

YEPIFANTSEVA, I. V., ZHESTKOV, N. G., ZHUKOV, B. P. and ENTIN, S. B.

"Device for Modeling of Pulse-Frequency Modulation in Automatic Systems"

Otkrytiya Izobreteniya Promyshlennyye Obraztsy Tovarnyye Znaki, No 8, Feb 74, pp 142-3

Translation:This is a device for modeling of pulse-frequency modulation in automatic systems,containing an integrator,unit for reproduction of relay characteristics,and direct current voltage source, differing in that in order to expand the functional capabilities of the device, it contains two comparison units, a multiplication unit,and a functional converter, the output of which is connected to the input of the unit for reproduction of relay characteristics, while the inputs are connected to the input signal source and the output of the integrator; to one of the inputs of the latter is connected the direct current voltage supply through the contacts of the output relays of the comparison units, while the other output of the unit for reproduction of relay characteristics is also connected to the first input of the multiplication unit, the second input of which is connected to the input signal source.

1/1

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SLAG FORMING MIXTURE -U-

AUTHOR-(05)-KUKLEV, V.G., SHALIMOV, A.G., VOINOV, S.G., LUBENETS, I.A., ZHUKOV, O.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,923

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

DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METALLURGIC PATENT, METALLURGIC SLAG, LIQUID METAL, SILICON DIOXIDE, ALUMINUM OXIDE, IRON OXIDE, CALCIUM OXIDE, MAGNESIUM OXIDE, SODIUM OXIDE, POTASSIUM OXIDE, CARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1058 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130093

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0130093

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SLAG FORMING MIXT. FOR PROTECTING THE SURFACE OF A MOLTEN METAL ALLOY FROM COOLING AND OXIDN. DURING CASTING CONSISTED OF: SIO SUB2 36-50, AL SUB2 O SUB3 25-35, FEO 3-10, CAO 3-9, MGO 1-4, (NA SUB2 O PLUS K SUB2 O) 0.2-4, C 9-15, FLUORITE 1-6, AND NA SUB2 CO SUB3 1-7PERCENT. FACILITY: BARDIN, I. P. CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF FERROUS METALLURGY.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THERMODYNAMICS OF BS SUB2 VAPORIZATION -U-

AUTHOR-(03)-GRINBERG, YA.KH., ZHUKOV, E.G., KORVAZHKIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(3), 589-92

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMICS, VAPORIZATION, BORON COMPOUND, SULFIDE, ABSORPTION SPECTRUM, MONTE CARLO METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1133 STEP NO--UR/0020/70/190/003/0589/0592

CIRC ACCESSION NO--AT0116598

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116598

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VAPORIZATION OF CRYST. BS SUB2 WAS STUDIED BY MEASURING THE PRESSURE OF THE SATD. AND UNSATD. VAPOR AT 550-1100DEGREES AND BY ANALYZING THE ELECTRONIC ABSORPTION SPECTRUM. THE EQUIL. CONSTS. (KAPPA SUBE) SUBN WERE CALCD. FOR THE DISSOCN. (BS SUB2) SUBN (GAS) YIELDS NBS SUB2 (GAS) FOR N EQUALS 1-8 BY USING THE MONTE CARLO METHOD FOR 9 TEMPS. AT 50DEGREES INTERVALS IN THE RANGE 550-950DEGREES. THE TEMP. DEPENDENCE OF KAPPA SUBE IS GIVEN FOR N EQUALS 2 AND 4. THE THERMODYNAMIC ANAL. SHOWED THAT THE MAIN COMPONENTS OF THE SATD. VAPOR AT GREATER THAN 550DEGREES ARE BS SUB2, (BS SUB2) SUB2, AND (BS SUB2) SUB4. FACILITY: INST. OBSHCH. NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.: AM0105463 Ref. Code: UR0000

Zhukov, G. P.; Vasilevskaya, E. G.; Lukin, M. I.

Legal Aspects in Utilization of Artificial Satellites for Purposes of Meteorology and Radio Communication (Pravovyye aspekty ispol'zovaniya iskusstvennykh sputnikov dlya tseley meteorologii i radiosvyazi) Moscow, Nauka, 1970, 170 pp (SL:2035)

TABLE OF CONTENTS:

1/2

REEL/FRAME
19880460

12

Acc. Nr.: AM0105463

The book deals with international problems encountered in connection with scientific and technological progress in the use of satellites for purposes of meteorology and radio communication...

The authors analyze problems in distribution of radio frequencies for space services, determine international principles in development and operation of long-distance radio communication systems by means of satellites, and the legal status of individual components of these systems - satellites, ground installations and stations.

2/2

Reel/Frame
19880461

Optics & Spectroscopy

USSR

UDC: 537.525.1

POLATBEKOV, P. P., ZHUKOV, I. A.

"Investigation of the Influence Which a Readily Ionized Additive has on the Distribution of Particles of a Substance in the Plasma of the Arc in Vaporization of Natural Specimens"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 18, No 3, Mar 73, pp 386-390

Abstract: An investigation is made of the way that the concentration of atoms and ions of the impurity component and the main component of various natural specimens is redistributed along the radius and axis of an arc column when a sodium additive is introduced into the arc. Iron ore, granite, and zinc concentrate were used as specimens. The concentration of impurity atoms and ions for all specimens was determined by the method of emission; the concentration of atoms of the main component of the specimen (zinc -- in the zinc concentrate) was determined from the width of the line undergoing self-absorption by interferometric measurements.

The radial distribution of the concentration of atoms and ions of impurity elements (Ca, Al, Ti, Mn, Pb, Mg, Cd) in the central cross section of the arc is axially symmetric with a maximum on the discharge axis

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USSR

POLATBEKOV, P. P., ZHUKOV, I. A., Zhurnal Prikladnoy Spektroskopii, Vol 18, No 3, Mar 73, pp 386-390

during vaporization of any of the investigated specimens. When sodium additives are introduced into the arc (in concentrations from 1 to 10%), there is an increase in the absolute values of the concentration of atoms of most impurity elements and a change in the nature of the distribution of concentrations both along the radius and along the axis of the discharge. Some differences are observed in the nature of radial and axial distributions for atoms with different ionization potentials and for arcs with different effective ionization potentials. The nature of the distribution of impurity atoms during vaporization of zinc concentrate is similar to the distribution of the atoms of the main component of the specimen (zinc).

2/2

ZHUKOV, K. I.

COLEEN

113. USSR UDC 612.821.35+15.072 : 154.6

SO: FOREIGN PRESS DIGEST 29 OCT 1971

DAYEVSKIY, R. M., BEREZINA, G. A., and ZHUKOV, K. I.

"The Use of the Method of Recording the Motor Acts of Writing in Order to Objectivize Psychological Tests and Research on Coordination of Movements"

Kiberneticheskiye Aspekty v Izuchenii Raboty Mozga (Cybernetic Aspects of the Study of the Brain's Functioning), Moscow, Nauka Publishing House, 1970, pp 171-187

Abstract: This article describes a procedure for recording the motor acts involved in the process of writing and the use of this procedure to carry out psychophysiological tests.

The procedure consists of the study of the oscillograms of the motor acts that occur in the process of writing. The motor acts are recorded with the aid of a special device. A description of this device is given.

The quantitative characteristics (with respect to time and amplitude) that are obtained for the motor acts make it possible to objectively evaluate the status of the coordination of movements in writing. The recording of written responses with the help of the instruments described makes it possible to use the procedure of studying the motor acts involved in writing to make certain psychological tests objective.

USSR

DAYEVSKIY, R. M., et. al., Kiberneticheskiye Aspekty v Izuchenii Raboty Mozga, Nauka Publishing House, 1970, pp 171-187

The procedure ensures that information on the fulfillment of psychophysiological tests is input directly from the man to a computer, thereby making it possible to process the results of psychophysiological research automatically.

Acc. Nr.: AP0044053 Ref. Code: UR0362

JPRS 52053-2

Vertical Movements in an Inhomogeneous Ocean

(Abstract: "Numerical Computation of Vertical Movements in an Inhomogeneous Ocean," by L. A. Zhukov, Leningrad Hydrometeorological Institute; Moscow, Izvestiya Akademii Nauk SSSR, Fizika Atmosfery i Okeana, Vol. VI, No. 1, 1970, pp. 76-85)

The author presents numerical computations of vertical movements in an inhomogeneous ocean using a three-dimensional model of a stationary circulation in a baroclinic ocean. The principal equations of the model have little sensitivity to the form of stipulation of boundary conditions, making computations possible for a restricted region of the ocean having both solid and liquid boundaries along the contour. Three-dimensional stationary movement in the ocean maintained by the wind an inhomogenous density field is examined. The problem is formulated and solved in an isobaric coordinate system in which the horizontal coordinates x and y are similar to ordinary Cartesian coordinates but the vertical coordinate is pressure p, read downward from the free surface at which it is assumed that p = 0. The characteristics of motion are examined at the isobaric surfaces whose heights H, read from some "zero" isobaric surface, are de-

AP0044053

pendent variables. The convenience of this system, widely used in dynamic meteorology, is that the dynamic effect of the density field is simply expressed through the relief of the isobaric surfaces. With this formulation, the author presents a numerical model for computation of stationary vertical velocity at several levels in an inhomogeneous ocean. A system of finite-difference vorticity and divergence equations is solved by successive approximations. Vertical velocity is found from the continuity equation. Applying this model, the author presents the results of computations of vertical movements along the northwestern coasts of Africa.

3/2

19770517

de

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--FLUCTUATION OF MONTHLY WOLF NUMBERS -U-

AUTHOR-(02)-MUZALEVSKIY, YU.S., ZHUKOV, L.V.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 541-550

DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--SUNSPOT, VARIATIONAL PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/C03 STEP NO--UR/0033/70/047/003/0541/0550

CIRC ACCESSION NO--AP0150262

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0150262

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF PROCEDURES FOR DETERMINING THE MONTHLY FLUCTUATIONS IN WOLF NUMBERS. A HISTOGRAM OF THE FLUCTUATION AMPLITUDE DISTRIBUTION IS GIVEN, SHOWING THAT THE MEAN SQUARE DEVIATIONS OF THE FLUCTUATIONS REFLECT THE CYCLIC VARIATIONS OF A WOLF NUMBER CURVE SMOOTHED BY A WHITTAKER OPERATOR. ARGUMENTS IN FAVOR OF THE SELECTION OF THIS OPERATOR FOR SMOOTHING THE CURVE ARE SET FORTH. THE CAUSES OF THE WOLF NUMBER FLUCTUATIONS ARE ANALYZED.

FACILITY: GLAVNAIA ASTRONOMICHESKAIAI OBSERVATORIIA, PULKOVO, USSR.

UNCLASSIFIED

ZHUKOV, M. F.

TECHNICAL TRANSLATION

FSTC-HT-23-823-71

ENGLISH TITLE: Simultaneous Combustion of High-Current and High-Frequency Arcs in a Plasmatron

FOREIGN TITLE: Sovmestnoye Goreniye Sil'notochnoy i Vysokochastotnoy Dug v Plazmatrone

AUTHOR: V. A. Bogatyrova, N. I. Vorob'yeva, M. F. Zhukov, Yu. I. Sukhinin

SOURCE: Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki No. 3, 1968, pp. 86-85

GRAPHICS NOT REPRODUCIBLE

Translated for FSTC by Leo Kanner Associates

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This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

ZHUKOV, M. F.

TECHNICAL TRANSLATION

FSTC-HT-23-824-71

ENGLISH TITLE: Characteristics of Plasmatron with Interelectrode Gas Injector

FOREIGN TITLE: Kharakteristiki Plazmotrona s Mezhelektrodnoy Vstavkoy

AUTHOR: G. Yu. Dautov, Yu. S. Dudnikov, N. P. Zhukov, G. M. Mustafin, M. I. Sazonov

SOURCE: *FMTF*, No. 1, 1967, pp. 172-176

GRAPHICS NOT REPRODUCIBLE

Translated for FSTC by Leo Kanner Associates

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This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--GENERALIZED CHARACTERISTICS OF AN ELECTRIC ARC DC HYDROGEN HEATER -U-

AUTHOR-(05)-ZHUKOV, M.F., SUKHININ, YU.I., MALKOV, YU.P., VOROBYEVA, N.I., MUKHO, G.S.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, SIBIRSKOE OTDELENIE, IZVESTIIA, SERIIA TEKHNICHESKIKH NAUK, FEB. 1970, P. 30-34

DATE PUBLISHED--------70

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

TOPIC TAGS--ELECTRIC ARC, DIRECT CURRENT, AIR HEATER, HYDROGEN, COPPER, TUNGSTEN, CATHODE, ANODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1272 STEP NO--UR/0288/70/000/000/0030/0034

CIRC ACCESSION NO--AP0124923

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810015-9"

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124923

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SURVEY OF THE RESULTS OF INVESTIGATIONS OF THE ELECTRIC, THERMAL, AND EROSION CHARACTERISTICS OF A SINGLE CHAMBER ELECTRIC ARC HYDROGEN HEATER. IT IS SHOWN EXPERIMENTALLY THAT A LAMINAR COPPER TUNGSTEN OUTPUT ANODE HAS HIGH EROSION STABILITY DURING OPERATION IN A HYDROGEN MEDIUM AND A LONG SERVICE LIFE. IT IS CONCLUDED THAT THE USE OF A COPPER TUNGSTEN CATHODE AND ANODE CAN ENSURE LONG LASTING SINGLE CHAMBER HYDROGEN PLASMATRONS WITH GAS VORTEX STABILIZATION OF HIGH POWER ELECTRIC ARCS.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT TEORETICHESKOI I PRIKLADNOI MEKHANIKI, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

ZHUKOV, M. V. and SHITIKOVA, K. V., Institute of Atomic Energy imeni I. V. Kurchatov

"Appliation of the K-Harmonics Method to Computation of the Properties of Nuclei When Using the $K = K_{min}+1$ Approximation"

Moscow, Yadernaya Fizika, Vol 14, No 2, Aug 71, pp 297-303

Abstract: The K-harmonics method of investigating the properties of multiple-body systems is often used to calculate the binding energies and wave functions of low-lying states or levels of atomic nuclei. A basic approximation of the K-harmonics method has been developed: the number K takes on a minimal value: that is, $K = K_{min}$, which is allowed because of the symmetry of the wave function with respect to rearrangements of the nucleons. Unfortunately, this approximation cannot be applied to the case of anomalous parity in which the parity of the low-lying state is the opposite of the parity of the basic state. In such cases, the approximation $K = K_{min}+1$ must be used. In the present article a procedure for calculating this approximation is developed. The matrix elements needed for the approximation are expressed in the form of the matrix elements of a translational-invariant shell model, and formulas for computing the latter elements are given. As an example, the procedure developed in the article is used to calculate the properties of an O^{16} nucleus.

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USSR

ZHUKOV, M. YU., SRUBSHCHIK, L. S., Rostov-na-Donu

"Behavior of a Closed Spherical Shell after Loss of Stability"

Moscow, Prikladnaya matematika i mekhanika, No. 5, Sep/Oct 71, pp 840-847

Abstract: New forms of equilibrium of a uniformly compressed closed elastic spherical shell for values of the load close to critical under which the momentless stress state loses stability are discussed. The problem is reduced to the construction of solutions for the equations that branch from the trivial solution in the neighborhood of the bifurcation point. The Lyapunov-Schmidt method for a wide class of operator equations in Banach spaces is applied. It is noted that this method was previously applied to construct new equilibrium shapes in the case of plates and hollow shells. The Reissner equations in dimensionless form for an axisymmetric elastic deformation of a closed spherical shell under a uniformly distributed pressure are used as the basis of the discussion. Some results of computer calculations for values of ε in the range $1 \cdot 10^{-4} \leq \varepsilon \leq 4.3 \cdot 10^{-2}$ are given.

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1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SEMICOKING OF LIGNITE FROM THE KANSK ACHINSK BASIN IN SHAFT BED FURNACES -U-

AUTHOR-(02)-BRUYER, G.G., ZHUKOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--KOKS KHIM. 1970, (5), 28-31

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--COKE, FERROALLOY, COAL, METAL REDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0075 STEP NO--UR/0068/70/000/005/0028/0031

CIRC ACCESSION NO--AP0132368

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132368

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEMICOKE CONTG. 20-7PERCENT H SUB2 O, 12-17PERCENT ASH, AND 8-12PERCENT VOLATILES, HAVING A HEAT OF COMBUSTION OF 6200-400 KCAL-KG, AND SUITABLE FOR USE AS A REDUCING AGENT IN FERROALLOY AND OTHER ELECTROTHERMAL PROCESSES BECAUSE OF ITS HIGH RESISTIVITY (3.3 TIMES 10 PRIME3 OHM-MM PRIME2 M) AND REACTIVITY (12.9 ML-G-SEC), WAS PRODUCED IN 33.7PERCNET YIELD AT A RATE OF 35-45 TONS-DAY (SIMILAR TO 50PERCENT OF THE RATE OF COAL) FROM LIGNITE CONTG. 20-4PERCENT H SUB2 O, 8-12PERCENT ASH, 43-4PERCENT VOLATILES, AND 0.3-0.4PERCENT S WHEN THE LIGNITE CHARGE WAS REDUCED TO A HEIGHT SMALLER THAN OR EQUAL TO 1.5 M ABOVE THE BLAST ZONE IN A DOUBLE SHAFT FURNACE AND THE SEMICOKE WAS REMOVED ALMOST CONTINUOUSLY AND WAS COOLED ADDNL. BY ADDED WATER IN THE WORM CONVEYER. REDUCED PERMEABILITY IN THE CHARGE RAISED GAS PRESSURES SIMILAR TO 250PERCENT, BUT THE INCREASED CONSUMPTION OF HEAT EXCHANGER (800-1000 M PRIME3 TON LIGNITE AT 725-800DEGREES) WAS COMPENSATED BY HIGHER GAS YIELDS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810015-9"

USSR

UDC 669.14.018.44:539.4

BABICH, B. N., BULYGIN, I. P., ZHUKOV, N. D., KRIVENKO, M. P., and PARFENOVA, N.I.
All-Union Scientific Research Institute of Aviation Materials (Moscow)

"The High-Temperature Strength of Dispersion-Hardening Composition Alloys Potentially Suitable for Use in Engines"

Kiev, Problemy Prochnosti, No 11, Vol 73, pp 73-77

Abstract: An investigation is made of the high-temperature strength of the nickel-based dispersion-hardened alloys VDU-1 and VDU-2, hardened by finely dispersed, uniformly distributed particles of high-melting oxides of the ThO_2 type in the amount of 2-3% by weight. A study was made of the strength of semi-finished products in the form of rods 6-12 mm in diameter and sheets 0.8-1.2 mm in thickness, obtained from powders of the components via shaping, baking, and hot extrusion. Results are presented of an investigation of the short- and long-term strength, the creep, fatigue, and heat resistance of the alloys to establish their suitability for use in gas-turbine engines. An analysis was made of such strength features of these alloys as the nature of the temperature-time relationship of the strength, the scattering of the heat-resistance indicators, the sensitivity to loading instability, etc. in comparison to the strength properties of series-produced highly heat-resistant alloys. The

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810015-9"

USSR

BABICH, B. N., et al., Problemy Prochnosti, No 11, Vol 73, pp 73-77

obtained results demonstrate the fact that with regard to their high-temperature strength, dispersion-hardened alloys are potentially suitable for use in gas-turbine engines. 8 figures. 2 tables. 5 references.

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USSR UDC 620.171.2

SKLYAROV, N. M., KONONCHUK, N. I., ZHUKOV, S. L., ZHUKOV, N. D., VASIL'EV, B. N., AKIMOV, L. M., LAPITSKIY, Yu. A., BELYAYEV, M. S., KRIVONOGOV, G. S., ISHCHENKO, I. I., POGREBNYAK, A. D., and KUFAYEV, V. N. (Moscow, Kiev)

"Estimating the Heat Resistance of Heat-Resistant Alloys Under Actual Operating Conditions"

Kiev, Problemy prochnosti, No 1, 1971, pp 13-21

Abstract: Problems concerned with estimating the endurance of heat-resistant materials under unstable loading conditions are analyzed. A method is suggested for producing and using "secondary" endurance characteristics, increasing the accuracy of estimation and calculation of guaranteed durability under operating conditions and forced equivalent loading modes. These secondary characteristics represent the dependence of the durability of materials on combinations of preceding programed and subsequent stationary loads in various proportions. The formula of linear addition of damage applies. The secondary characteristics are produced by accelerated testing over limited test periods with extrapolation to the area of increased durability.

1/1

USSR UDC 632.954

SOKOLOV, M. S., ZHUKOV, N. P., SHCHEGLOV, YU. V., KASIKHIN, A. N., and MUSIKAYEV, D. A., All-Union Scientific Research Institute of Phytopathology

"Determination of the Volatility and Phytotoxicity of Vapors of Hormonal Herbicides"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 3, Mar 70, pp 52-54

Abstract: The article suggests a modification of the "isolated system" method for a comparative estimate of the volatility and phytotoxicity of vapors of hormonal herbicides. This method was used to determine the phytotoxicity of the vapors of six 2, 4-D derivatives, viz. the butyl, butoxyethyl, chlorocrotyl and octyl esters (synthesized at the All-Union Scientific Research Institute of Phytopathology), the trichloroallyl ester (synthesized at the Institute of Organic Chemistry, Academy of Sciences USSR, and tested at the All-Union Scientific Research Institute of Phytopathology) and the triethanolamine salt, using beans as the test plants. The herbicides are ranked as follows in ascending order of phytotoxicity: triethanolamine salt < trichloroallyl ester < butoxyethyl ester < octyl ester < chlorocrotyl ester < butyl ester. It was found that there is a negative correlation between the volatility of a substance and its molecular weight and boiling point.

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TITLE--DETERMINATION OF THE VOLATILITY AND PHOTOTOXICITY OF THE VAPOR FROM HORMONAL HERBICIDES -U-

AUTHOR-(05)-SOKOLOV, M.S., ZHUKOV, N.P., SHCHEGLOV, YU.V., KASIKHIN, A.N., MUSIKAYEV, D.A.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN POT EXPTS. BEAN PLANTS WERE HELD IN CLOSED CONTAINERS TOGETHER WITH FILTER PAPER STRIPS, PREVIOUSLY WETTED WITH 0.02PERCENT SOLNS. OF 2,4-D ESTERS IN ETHANOL OR DIOXANE, FOR 24 HR AT 27DEGREES. THE ORDER OF VOLATILITY AS WELL AS PHYTOTOXICITY OF THE ESTERS WERE: TRIETHANOLAMINE SALT SMALLER THAN TRICHLOROALLYL ESTER SMALLER THAN BUTOXYETHYL ESTER SMALLER THAN OR EQUAL TO OCTYL ESTER SMALLER THAN CHLOROOCTYL ESTER SMALLER THAN BUTYL ESTER. A CORRELATION BETWEEN MOL. WT., B.P., AND VOLATILITY WAS FOUND.

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TITLE--DETERMINATION OF VOLATILITY AND PHYTOTOXICITY OF VAPORS OF HORMONAL HERBICIDES -U-

AUTHOR-(05)-SOKOLOV, M.S., ZHUKOV, N.P., SHCHEGLOV, YU.V., KASIKHIN, A.N., MUSIKAYEV, D.A.

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CIRC ACCESSION NO--AP0136723
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURPOSE OF THE WORK WAS TO DEVELOP A RELIABLE METHOD FOR DETERMINATION OF THE VOLATILITY AND PHYTOTOXICITY OF VAPORS OF ESTER DERIVATIVES OF 2,4-D. BUTYL, BUTOXYETHYL, CHLOROCROTYL, OCTYL AND TRICHLOROALLYL ESTERS WERE USED. AN ASSUMPTION WAS MADE THAT THE PHYTOTOXICITY OF THE ABOVE COMPOUNDS (CHEMICALLY PURE) WAS PRACTICALLY IDENTICAL. THE PHYTOTOXICITY WAS DETERMINED BY A MODIFIED "ISOLATED SYSTEM" METHOD. THE METHOD WAS BASED ON DETERMINATION OF PLANT WEIGHTS AFTER EXPOSURE OF JUST SPROUTED SEEDLINGS TO THE VAPORS FOR 24 HOURS AND THEIR SUBSEQUENT DEVELOPMENT AND GROWTH FOR 10 DAYS. THE RESULTS OBTAINED INDICATED THAT THE METHOD IS RELIABLE WITH 4-12PERCENT ERROR, THAT VOLATILITY OF THE COMPOUNDS TESTED DIFFERS CONSIDERABLY IN REVERSE DEPENDENCE TO THE MOLECULAR WEIGHT AND BOILING POINT OF THE COMPOUNDS, AND THAT THESE HERBICIDES CAN BE ARRANGED ACCORDING TO THEIR INCREASING PHYTOTOXICITY ACCORDING TO THE FOLLOWING SERIES: TRIETHANOLAMINE SALT OF 2,4-D, TRICHLOROALLYL ESTER, BUTOXYETHYL ESTER, OCTYL ESTER, CHLOROCROTYL ESTER, BUTYL ESTER.
FACILITY: VSESOYUZNYY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT FITOPATOLOGII.

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BURDANINA, N. A., ZOLOTOTRUBOV, YU. S., KAMYSHEVA, L. N., ZHUKOV, O. K., and KOVALENKO, A. N., Voronezh State University imeni Leninskiy Komsomol

"Dielectric Losses in Triglycinesulfate Crystals Subjected to Various Effects"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1943-1946

Abstract: The influence of gamma and x-radiation has been studied previously as it concerns the ferroelectric properties of a triglycine sulfate crystal (TGS). Since the parameter most sensitive to radiation is the tangent of the angle of dielectric losses tan δ, it can be expected that even small radiation doses will significantly change both the value of tan δ and the function tan δ (T) for the TGS. In this work the authors study the effect of the amplitude of the measuring field on these same functions. They first study the influence of annealing on the dielectric properties and find that orientation polarization makes a significant contribution to the dielectric permeability of the TGS as a result of heat annealing. The next section is devoted to the influence of the amplitude of the measuring field on samples having different thickness, which is probably determined by the characteristics of the domain structure. Preliminary investigations confirm that the degree of

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BURDANINA, N. A., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1943-1946

unipolarity in the samples increases as their thickness decreases. The authors then look at the influence of irradiation on the dielectric properties and find that there is a decrease in the dielectric losses in the TGS crystal irradiated with comparatively small radiation doses. The article contains 4 illustrations and 9 bibliographic entries.

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YEPIFANTSEV, Yu. F., ZHUKOV, O. K., KLEMENT'YEV, F. M., KULIKOV, V. M., LIBERMAN, Z. A., OGURTSOV, S. I.

"Measurement of the Permittivity of (Ba,Zn)TiO_3 Ceramic in the 3-cm Microwave Band, and Evaluation of the Effect Which Destabilizing Factors Have on Measurement Accuracy"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 92-94 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A357)

Translation: The authors investigete the dispersion of permittivity of type $(Ba_{1-x}Zn_x)TiO_3$ ferroelectric crystals in the 3-cm frequency band using a measurement installation whose block diagram is given. Permittivity is calculated from the results of measurement of the microwave signal amplitude and phase determined when specimens of various thicknesses are introduced into the feedback circuit. The results of measurements made on three frequencies (8,900, 10,000 and 10,800 MHz) are presented for four types with

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YEPIFANISEV, Yu. F., et al., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1, 1970, pp 92-94

various values of x. The results show that barium titanate ceramic with 4 percent zinc has the least dispersion. The effect which destabilizing factors have on measurement precision is examined. Three illustrations. E. L.

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