

USSR

YABOYSKIY, V. I., et al., IAN SSSR, Metally, No 2, Mar-Apr 71, pp 50-57

The thermodynamic characteristics of equilibrium of the deoxidation reaction for titanium determined by the two methods agree well. As titanium concentration rises to over 1%, the activity of oxygen in the Fe-Ti melt increases. Based on experimental data, the interaction parameter e_0^{Ti} is calculated. The high value of e_0^{Ti} (-0.65 at 1600°C) indicates the strong influence of titanium on the activity of oxygen in liquid iron.

2/2

USSR

UDC 669.046.5

BORODIN, D. I., TSIKIN, L. V., YAVOYSKIY, V. I., and VOLYNKIN, V. M.

"Sulfur Removal Through the Gas Phase in a Converter With Bottom Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 172-176

Translation of Abstract: Metal desulfuration in a converter with bottom blowing as a result of sulfur oxidation by oxygen-containing gases is considered.

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USSR

UDC 669.046.5

~~YAVOYSKIY, V. I.~~, SVYAZHIN, A. G., GRIGOR'YEV, M. S., LUZGIN, V. P.,
KONOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TRUBEVTSKOV, K. M., RAKEVICH, S. Z.,
and NECHAYEV, E. A.

"Metal Acidity in Intense Oxygen Bath Blowing"

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 84-90

Translation of Abstract: Results are presented of an investigation on metal heterogeneity in intense blowing. Comparable data on the average metal acidity level in a two-bath furnace and in other steel-melting furnaces are given. The effect of various technological factors on metal acidity in the two-bath furnace is considered. 5 figures, 3 references.

1/1

USSR

UDC 669.046.5

IODKO, E. A., MORGUNOV, A. V., and YAVOYSKIY, V. I.

"Concerning the Problem of Nonmetallic Impurities Distribution in Killed Steel Ingots"

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 48-51.

Translation of Abstract: Data are presented on a study of primary nonmetallic impurities distribution in ingots. The study was made on a physical model at various ratios of geometrical dimensions. Two figures, two refs.

1/1

USSR

UDC 669.046.5

STEPANOV, V. I., YAVOYSKIY, V. I., and MAYOROV, A. I.

"Phosphorus and Sulfur Removal Processes in an Oxygen Converter"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 170-172

Translation of Abstract: The results of investigations on metal quality carried out during operation of a 3-ton test oxygen converter with two axes of rotation are presented. By varying the converter rpm and oxygen flow rate it is possible to control the phosphorus and carbon oxidation rate in reduction of high-phosphorus pig iron. The sulfur oxidation process is described. It occurs along two directions: the sulfur removal with the slag and through the gas phase (more than 35% S is removed through the gas phase). The results show that favorable conditions for dephosphoration and desulfuration reactions are generated in a converter with two axes of rotation. 1 figure.

1/1

Analysis and Testing

USSR

UDC 669.046.54:66.012.1

YAVOYSKIY, V. I., LUZGIN, V. P., and VISHKAREV, A. F.

"The State of Oxidation of Steel and Methods of Testing It"

Okislennost' Stali i Metody Yeye Kontrolya [English Version Above],
Metallurgiya Press, 1970, 288 pages

Translation of Annotation: This work studies problems of the use of the express method for determination of the activity (concentration) of oxygen, based on the use of the concentration galvanic element. Problems from the theory of concentration galvanic elements are briefly presented.

A diagram is presented and the operating principle is described of a device created at the Moscow Institute of Steels and Alloys, an activometer, which is a device for express measurement of the activity (concentration) of oxygen directly in steel making units and during pouring. Based on a large volume of research work performed under plant conditions using the activometer, the problems of the behavior of oxygen in open hearth and electric furnaces, in oxygen converters, during pouring and evacuation are studied. A comparison of the state of oxidation of metal upon completion of the cycle in converters

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USSR

YAVOYSKIY, V. I., et al., Okislennost' Stali i Metody Yeye Kontrolya, Metallurgiya Press, 1970, 288 pages

of various capacities with the oxidation of open hearth metal is performed. The relationship between the state of oxidation of the metal and technological factors is described. Prospects are discussed for further expansion of the range of application of the method under laboratory and plant conditions.

The book is designed for engineering and technical workers of metallurgical and machine building plants and scientific research institutes. 98 figures; 40 tables; 177 biblio. refs.

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USSR

YAVOYSKIY, V. I., Et al., Okislennost' Stali i Metody Yeye Kontrolya, Metallurgiya Press, 1970, 288 pages

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Semiconductor Technology

USSR

UDC 543.51

CHUPAKHIN, M. S., RAVENDEK, G. I., and YAVRIYAN, A. N., Institute of Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy, Moscow, Academy of Sciences USSR

"A Layer by Layer Mass-Spectroscopic Method of Analysis. Communication 4. In-Depth Resolution During Analysis of Semiconductor Films"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 25, No 7, Jul 70, pp 1301-1306

Abstract: Uniform parallel layers may be taken along the entire sample being analyzed by covering the entire area with identical craters, which in turn, depends on the stability of the interelectrode gap. Random error due to taking the sample layers is less than 30%, and in most cases ranges from 10 to 15%. It was determined that during the study of the distribution of impurities in thin semiconductor films, layers of 1μ thickness may be analyzed by the mass-spectroscopic method with vacuum spark. The authors sincerely thank S. Ya. Fedyukina for measuring the craters and samples, and also A. D. Semenov for his part in setting up the experiments.

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--KINETICS OF ETHYL ACRYLATE TRANSESTERIFICATION BY ALLYL AND ISOAMYL
ALCOHOLS ON KU-2-8 CATION EXCHANGER -U-
AUTHOR--(03)-FILIPPOV, N.A., YAVSHITS, G.P., REYKHSFELD, V.O.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 467-70
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ESTERIFICATION, ACRYLATE, ALCOHOL, CATION EXCHANGE RESIN,
DEHYDRATION, ACTIVATION ENERGY, DIELECTRIC CONSTANT, REACTION KINETICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1421 STEP NO--UR/0080/70/043/002/0467/0470
CIRC ACCESSION NO--APO116868
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116868

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

ABSTRACT. EFFECT OF TEMP. AND QUANTITY OF CATION EXCHANGER ON THE RATE OF TRANSESTERIFICATION OF ET ACRYLATE (I) BY ALLYL (II) AND ISOAMYL (III) ALCS. AND ON THE RATE OF DEHYDRATION OF II WAS STUDIED AT 60-90DEGREES. RATE CONSTS. WERE CALCD. THE ACTIVATION ENERGIES OF THE DEHYDRATION OF II AND OF TRANSESTERIFICATION OF I BY II, AND OF TRANSESTERIFICATION OF I BY III WERE 24, 15.2, 14.6 KCAL-MOLE, RESP. RATE CONSTS. INCREASED LINEARLY WITH QUANTITY OF THE CATION EXCHANGER. LINEAR DEPENDENCE WAS FOUND BETWEEN LOGARITHM OF LIMIT SORPTION OF THE ALCS. BY CATION EXCHANGER AND DIELEC. CONSTS. OF THE ALCS. RELATION IS CONSIDERED BETWEEN DIELEC. CONST., LIMIT SORPTION, AND REACTION ACTIVITY OF THE STUDIED ALCS.

FACILITY:

LENINGRAD. TEKHNOL. INST. IM. LENDSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

UDC 613.644.612

USSR

YAZBURSKIS, B. I., Candidate of Medical Sciences

"Effect of Ultrasound and Noise on the Cardiovascular System of Workers at Powerful Acoustic Installations"

Moscow, Gigiyena i Sanitariya, Vol 3, May 71, pp 105-10.

Abstract: In this study, radio electrocardiograms were recorded and blood pressure measured on 36 laboratory staff members operating 8, 18, and 20 kc, 98-160 db acoustic radiation equipment before, during, and after work. All individuals wore antiphonic earmuffs. Heart rate decreased from 63-100 beats per minute in the control state to 55-80 after 4-5 hours of work and increased slightly to 55-85 immediately after termination of work. Blood pressure decreased during performance of work. Changes observed in the ECG pattern during work included: decreased P and R waves, increased T wave, slightly increased PQ interval, and a decreased ratio of QT over TQ. All subjects under investigation also performed standard physical fitness tests before and after work; characteristically, after work, the rise in heart rate was less pronounced but lasted for a longer period. The conclusion is drawn that low-frequency ultrasound and high intensity noise act as nonspecific stimuli on the cardiovascular system, bypassing the organ of hearing.

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USSR

UDC 669.71.472(088.8)

SMORODINOV, A. N., POPCHENKOV, I. N., NOSIKHOV, V. I., KIL', I. G., AND
YAZEV, M. V.

"Electrolyzer With Calcined Anodes for Production of Aluminum"

USSR Author's Certificate No. 262396, Filed 19/07/68, Published 21/05/70,
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract
No. 1 G140 P)

Translation: The anode packets of buses and anodes are fastened on the
inside with an anode frame in order to improve sealing and simplify the
design of an electrolyzer.

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ENGINEERING
Aeronautical and Space

USSR

UDC 621.438.056(088.8)

SHEVCHENKO, A. M., YAZICK, A. V., DIDENKO, V. I., and PANURIN, V. M.

"The Effect of the Gas Distribution Arrangement on the Characteristics of the Gas Turbine Combustion Chamber"

Kiev, Vestn. Kiyev. Politekhn In-ta. Ser. Teploenerg. (Journal of the Kiev Polytechnical Institute. Series on Thermal Power) No. 8, 1971, pp 14-17 (from Referativnyy Zhurnal - Turbostroyeniye, No. 9, Sep 71, Abstract No. 9.49.117)

Translation: The effect of the gas delivery arrangement on the fundamental characteristics of the gas turbine combustion chamber of an aviation engine are considered. Characteristics covered include completeness of combustion, temperature field of the gas stream, temperature level of the hot pipe walls, ignition and stability of combustion. Tests were conducted with natural gas with four types of atomizers. The air speed at the chamber intake was approximately 120 meters per second, the temperature 80 degrees C. and the pressure approximately 1.3 bar. It is shown that in this chamber the tested arrangements of gas delivery primarily influence the completeness of combustion and the stability of the process. 3 illustrations, 2 tables, 3 bibliographic entries.

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USSR

UDC: 51

SHOSTAK, V. F., YAZIK, A. V., BALYASNYI, L. M.

"Two-Level Structure of Solution of Optimization Problems in Complex Automated Control Systems Using Models of Subsystems"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Devices and Systems of Automation. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp. 26, pp 63-72 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V555 by the authors)

Translation: The problem of optimizing a complex system designated by models of subsystems is considered. A formalized description is presented, and the structural singularities of solution of the optimization problem are analyzed. Two-level optimization structure is considered, the advantages of realization of such a structure are pointed out, and an example is given.

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USSR

UDC: 51

SHOSTAK, V. F., YAZIK, A. V., and BELYASNYI, L. M.

"Two-Level Structure of the Solution to Optimization Problems in Complex Automated Systems of Control Using Subsystem Models"

Pribery i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Systems and Instruments, Republic Interdepartmental Thematic Scientific-Technical Collection) No 26, 1973, pp 63-72 (from RZh--Matematika, No 7, 1973, Abstract No 7V555)

Translation: The problem of optimizing a complex system specified by subsystem models is examined. Formalized description and analysis of the structural characteristics of the problem's solution are given. A two-level optimization structure is considered, its superiority is demonstrated, and examples are given. Authors' abstract.

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USSR

UDC: 621.438:621.45:

YAZIK, A. V., KRUCHAN, I. S., YASTREBOV, L. A., REZNIKOV, V. S.

"The GTU-2000 -- a Promising Mobile Gas Pumping Installation"

Tr. Ukr. NII prirod. gazov (Works of the Ukrainian Scientific Research Institute of Natural Gases), 1970, vyp. 4(8), pp 315-318 (from RZh-Turbo-stroyeniye, No 5, May 71, Abstract No 5.49.68)

Translation: The Ukrainian Scientific Research Institute in cooperation with the Leningrad Administration of Gas Mains has developed a pilot model of the GTU-2000 gas-pumping unit based on the AI-20 aircraft engine and the 102-11-1 forcing gas pump. The AI-20 engine is a single-shaft unit with a rating of 3675 hp at a turbocompressor speed of 12,300 rpm. The engine has an axial ten-stage compressor, $\pi_H = 7.5$. The turbine is a three-stage reaction unit. The gas temperature following the turbine is no more than 500°C. The modified engine weighs about one ton. The 102-11-1 is a centrifugal pump with a single stage, $\pi_H = 1.31$, power consumption is 1720 kW, gas flow under suction conditions is $Q = 75$ cu. m. per min, and forcing pressure is $p_H = 56$ kg/cm².

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CSO: 1961 W

END

UDC: 621.317.74

USSR

AL'TSHULER, Yu. G., SCSUNOV, V. A., and YAZIKOV, V. M.

"Device for Measuring Complex Transfer Factors of Waveguide Four-Terminal Networks With Continuously Varying Parameters"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Engineering, Scientific-Research Collection, Control and Measurement Equipment) 1970, No. 3(21), pp 113-123 (from RZh-Radiotekhnika, no. 3, March 71, Abstract No. 3A401)

Translation: A description is given of a variant of a device for measuring complex transfer factors of four-terminal waveguide networks in which in-phase, antiphase, and quadrature bridges are used as information signal transmitters. Results are given of the use of the measuring device for controlling moisture and dielectric permeability of liquids. Resume

1/1

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USSR

UDC: 621.317.341.621.317.335

AL'TSHULER, Yu. G. SOSUNOV, V. A., YAZIKOV, V. N.

"An Automatic Instrument for Measuring the Complex Coefficients of Transmission of Two-Terminal -- Pair Networks, and its Use for Studying the Parameters of Materials"

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 73-74 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A387)

Translation: The authors describe the circuit of an instrument for automatic measurement of complex transfer constants. The device utilizes a combination of two-phase microwave discriminators, one based on a double waveguide connector (tee) (cophase-antiphase bridge), and the other based on a 3-dB loop coupler (quadrature bridge). The working characteristics of these discriminators are shifted in phase by 90°; therefore using them in the circuit of the instrument for automatic measurement of complex transfer constants makes possible panoramic display of the measured quantities. The instrument was developed in response to the need for measuring

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USSR

AL'TSHULER, Yu. G., SCSUNOV, V. A., YAZIKOV, V. N., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1, 1970, pp 73-74.

and monitoring the parameters of liquid dielectrics in the continuous mode. Measurements showed that the method has high sensitivity in measuring the moisture content of petroleum on superhigh frequencies. Two illustrations.
E. L.

2/2

- 81 -

1/2 042 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MEASUREMENT OF THE REFLECTION FACTOR MODULUS AND PHASE IN
SEMICONDUCTORS IN THE MILLIMETER WAVELENGTH RANGE -U-
AUTHOR--(03)-BILENKO, D.I., LUNKOV, A.YE., YAZIKOV, V.N. Y
COUNTRY OF INFO--USSR
SOURCE--BORKIY, IZVESTIYA VUZOV SSSR RADIOFIZIKA, VOL. 13, NO. 3. 1970, PP
453-461
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT,
PHYSICS
TOPIC TAGS--SEMICONDUCTOR PROPERTY, MILLIMETER WAVE, NONDESTRUCTIVE TEST,
ELECTRONIC MEASUREMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1956 STEP NO--UR/0141/70/013/003/0453/0461
CIRC ACCESSION NO--AP0130738
UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130738

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESEARCH INTO SEMICONDUCTOR CHARACTERISTICS IN THE MILLIMETER WAVELENGTH RANGE IS USEFUL IN THE DESIGN OF CONTACTLESS, NONDESTRUCTIVE METHODS FOR MEASURING SEMICONDUCTOR PARAMETERS. ESPECIALLY IMPORTANT ARE MEASUREMENTS OF THE MODULUS AND PHASE OF THE COEFFICIENT OF REFLECTION SINCE THESE QUANTITIES ARE CLOSELY CONNECTED WITH THE FUNDAMENTAL ELECTROPHYSICAL PARAMETERS OF THE SEMICONDUCTORS. THE AUTHORS WARN, HOWEVER, THAT METHODS FOR MEASURING THESE QUANTITIES IN THE CENTIMETER BAND DO NOT GIVE THE REQUIRED DEGREE OF ACCURACY WHEN APPLIED TO THE MILLIMETER BAND. MEASUREMENT ERROR IN THE MILLIMETER BAND WAS NO MORE THAN ONE PERCENT FOR THE MODULUS, AND PLUS OR MINUS ONE PERCENT FOR THE PHASE. THE SAME METHOD OF MEASUREMENT IS APPLICABLE TO LOW ALLOYED GAAS SPECIMENS IN THE TWO MILLIMETER BAND. A BLOCK DIAGRAM OF THE MEASURING EQUIPMENT IS GIVEN.

UNCLASSIFIED

USSR

UDC: 621.382

BILENKO, D. I., LUN* KOV, A. Ye., YAZIKOV, V. N.

"Measurement of the Reflection Factor Modulus and Phase in Semiconductors in the Millimeter Wavelength Range"

Gorkiy, Izvestiya VUZov SSSR Radiofizika, Vol. 13, No. 3, 1970, pp 453-461

Abstract: Research into semiconductor characteristics in the millimeter wavelength range is useful in the design of contactless, nondestructive methods for measuring semiconductor parameters. Especially important are measurements of the modulus and phase of the coefficient of reflection since these quantities are closely connected with the fundamental electrophysical parameters of the semiconductors. The authors warn, however, that methods for measuring these quantities in the centimeter band do not give the required degree of accuracy when applied to the millimeter band. Measurement error in the millimeter band was no more than one percent for 1/2

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USSR

UDC: 621.382

BILENKO, D. I., et al, Izvestiya VUZov SSSR Radiofizika, Vol. 13,
No. 3, 1970, pp 453-461

the modulus, and plus or minus one percent for the phase. The same method of measurement is applicable to low-alloyed GaAs specimens in the two-millimeter band. A block diagram of the measuring equipment is given.

2/2

Veterinary Medicine

USSR

UDC 619:616.981.42-084.47:616-092.4/.9

YAEYKOVA, K. N., Candidate of Biological Sciences, and N. I. YERZ, Candidate of Veterinary Sciences, Ukrainian Scientific Research Institute of Experimental Veterinary Medicine

"Changes in Organs Following Vaccination with Br. abortus B-8"

Moscow, Veterinariya, No 4, 1973, pp 41-42

Abstract: Histopathologic studies were conducted on calves immunized with Br. abortus B-8. The 6-8 month-old calves were injected subcutaneously in the neck region with 5 ml of the vaccine (100×10^9 cells per 1 ml), and 3-5 animals were sacrificed 19 and 46 days and 11 months after immunization. Control animals were infected through the conjunctival route with Br. abortus 544. Throughout the period of observation the experimental animals were negative serologically (CF and agglutination tests). Most of the significant pathological changes were observed 19 days after immunization, and consisted of the following: the liver showed hyperplasia of the RES cells, hyperemia, and limited lymphocyte infiltrates; the spleen showed RES cell hyperplasia, hyperemia, and moderate infiltration of the pulp with neutrophils, macrophages, plasma cells, and immature lymphocytes, while the lymph nodes showed hyperplasia of the secondary follicles and RES cells, infiltration of the cortex and the

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USSR

YAZYKOVA, K. N. and N. I. YERZ, Veterinariya, No 4, 1973, pp 41-42

medullary cords and the sinusoids with lymphoid cells, macrophages, plasma cells, and some neutrophils. By day 46 the changes in the lymph nodes were more pronounced, but abnormal findings were absent in the other organs. At 11 months the experimental animals were infected conjunctivally with Br. abortus 544; only mild changes of the type already noted were seen in the lymph nodes of the head region. Infection of nonimmunized controls with Br. abortus B-8 elicited severe changes in the lymphoid and other tissues of the type previously described, complicated by hemorrhages and necrotic changes in the liver and the lymph nodes. Infiltrative changes were much more pronounced than in the experimental animals.

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- 83 -

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--MAGNETO RESISTANCE IN THIN FILMS OF NICKEL PALLADIUM ALLOY SYSTEMS
-U-
AUTHOR--(04)-ANNAYEV, R.G., ROZYEV, M.A., MYALIKGULYEV, G., YAZLIYEV, S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK TURKM. SSR, SER. FIZ. TEKH., KHIM. GEOL. NAUK
1970, (1), 101-5
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--NICKEL ALLOY, PALLADIUM ALLOY, METAL FILM, MAGNETORESISTANCE,
MAGNETIZATION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0184 STEP NO--UR/0202/70/000/001/0101/0105
CIRC ACCESSION NO--AP0054980
UNCLASSIFIED

USSR

UDC 620.194.8:678.5.05 - 419.8

CHERVATYUK, V. P., KOSTENKO, A. YE., NAKONECHNAYA, A. A., PLYSYUK, A. K., SHAMRAY, R. YA., and YAZON, Z. P., Severodonetsk

"Study of the Corrosive Resistance and Atmospheric Stability of Fiberglass Produced From the Composition 311 TKhS"

Kiev, Khimicheskaya Tekhnologiya, No 2 (62), Mar-Apr 72, pp 22-23

Abstract: Fiberglass material studied was resistant to hydrochloric acid, dilute and concentrated acetic and formic acids, acetic anhydride, aniline, trichlorobenzene, toluene, and gaseous Cl₂, HCl, and SO₂. Prolonged usage of this material shows considerable wear due to the action of light, temperature and moisture. With aging the firmness of the plastic deteriorates at an increasing rate. The laboratory results were fully corroborated by experiments carried out in the field.

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2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054980

ABSTRACT APPROVED FOR RELEASE: 09/01/2001 THE CIA-RDP86-00513R002203620013-2"

THIN NI-PD FILMS OVER A WIDE RANGE OF THICKNESS AND COMPN. TO CONFIRM THE I PHASE NATURE OF THE FILMS. FILMS 600-1200 ANGSTROMS THICK CONTG. 0-80 AT. PERCENT PD WERE PREPD. BY THE METHODS DESCRIBED EARLIER (1968).

A STRONG EFFECT OF THE TRUE MAGNETIZATION WAS OBSD. FOR ALL OF THE FILMS EVEN AT ROOM TEMP. THE FILMS CONTG. SMALLER THAN OR EQUAL TO 40 AT. PERCENT PD ARE SINGLE PHASE.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--COLD SETTING ADHESIVES FOR CEMENTING APPARATUS AND PIPES -U-

AUTHOR--(02)-YAZON, Z.P., GONCHARENKO, D.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (2), 62-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ADHESIVE, POLYACRYLATE RESIN, GLASS FIBER, REINFORCED PLASTIC,
PIPE, POLYMER BINDER, COBALT COMPOUND, MANGANESE COMPOUND/(U)TGM3
ACRYLATE RES N, (U)TGMF11 ACRYLATE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3008/0856

STEP NO--UR/0436/70/000/002/0062/0063

CIRC ACCESSION NO--AP0137884

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COLD SETTING ADHESIVES WERE PREPD. FROM COMPN. 311 (A MIXT. OF POLYESTER ACRYLATE RESINS, E.G. TGM 3 AND TGMF 11), CO AND MN RESINATES AND TALC. GLASS FIBER REINFORCED PLASTIC PIPES BONDED WITH THE ADHESIVES CITED HAD GOOD CHEM. STABILITY IN VARIOUS CORROSIVE MEDIA. FACILITY: OKBSP, SEVERODONETSK, USSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ISOLATION AND PURIFICATION OF EMBRYOSPECIFIC ALPHA GLOBULINS OF MAN
AND ANIMALS USING PREPARATIVE DISC ELECTROPHORESIS ON POLYACRYLAMIDE GEL
AUTHOR--(G2)-GUSEV, A.I., YAZOVA, A.K.
COUNTRY OF INFO--USSR
SOURCE--BIOKHIMIYA 1970, 35(1), 172-81
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FETUS, BLOOD SERUM, ALPHA GLOBULIN, ELECTROPHORESIS,
POLYACRYLAMIDE RESIN, GEL, ANTIGEN, TRANSFERRIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0634 STEP NO--UR/0218/70/035/001/0172/0181
CIRC ACCESSION NO--AP0117860
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117860

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FETAL SERUM WAS FRACTIONATED BY DISC ELECTROPHORESIS ON POLYACRYLAMIDE GEL (B. Y. DAVIS, 1964). THE EMBRYO SPECIFIC ANTIGENS (ALPHA SUB1 GLOBULINS) WERE LOCATED IN THE GEL, AFTER ELUTION WITH A PHYSIOL. SOLN. OF NA CL, BY SPECIFIC SEROL. REACTIONS (A. I. GUSEV, 1968). THE ALPHA SUB1 GLOBULINS OF THE 3 SPECIES WERE DETECTED IN THE ZONE OF POST ALBUMINS, WHILE ALPHA SUB2 GLOBULIN WAS FOUND IN THE ZONE OF GAMMA GLOBULINS AND SLOW ALPHA GLOBULINS. AN IMMUNOL. PURE MOUSE ALPHA SUB1 GLOBULIN AND A RAT ALPHA SUB1 GLOBULIN CONTAMINATED BY 2 ANTIGENIC ADMIXTS. WERE OBTAINED BY DISC ELECTROPHORESIS. THIS TECHNIQUE, FOLLOWED BY THE REMOVAL OF ALBUMINS BY SPECIFIC ANTIBODIES, PERMITTED THE PURIFICATION OF HUMAN ALPHA SUB1 GLOBULIN THAT CONTAINS ONLY A NEGLIGIBLE AMT. OF TRANSFERRIN.
FACILITY: LAB. CANCER IMMUNOCHEM., INST, EXP. MED., MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF AFFERENT INNERVATION ON SOME FUNCTIONS OF THE SPLEEN -U-
AUTHOR--YAZVIKOV, V.V. Y
COUNTRY OF INFO--USSR
SOURCE--ARKH ANAT GISTOL EMBRIOL 58(1): 74-79. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SPLEEN, HEMATOPOESIS, BLOOD COUNT, LYMPHOCYTE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1090 STEP NO--UR/9076/70/058/001/0074/0079
CIRC ACCESSION NO--AP0128517
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128517

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

ABSTRACT. FUNCTIONS OF BLOOD FORMATION AND DESTRUCTION WERE EVALUATED BY STUDYING THE CELL TYPE COMPOSITION OF SMEARS FROM SPLEEN PULP OR BLOOD FROM THE SPLENIC VEIN OF CATS. COUNTS OF 500 CELLS WERE MADE FROM EACH SMEAR. DEAFFERENTATION RESULTED IN DIMINUTION OF LYMPHOCYTES AND AUGMENTATION OF PLASMA CELL NUMBERS. NEUTROPHILS ACCUMULATED GRADUALLY WITHIN THE ORGAN. CHANGES OF A SIMILAR ORDER WERE REVEALED IN BLOOD DRAINING THE SPLEEN.

FACILITY: N. I. PIRGOV 2ND MOSCOW MED. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THERMOOXIDATIVE BREAKDOWN AND STABILIZATION OF POLYESTER
PLASTICIZERS -U-
AUTHOR-(05)-LEVANTOVSKAYA, I.I., YAZVIKOVA, M.P., BARSHTEYN, R.S.,
GORBUNOVA, V.G., ISAYEVA, Z.S.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 52-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--THERMAL DEGRADATION, OXIDATIVE DEGRADATION, PLASTICIZER,
POLYESTER RESIN, GLYCOL, THERMAL STABILITY, CHEMICAL STABILIZER,
PHOSPHORUS COMPOUND, ORGANIC SULFUR COMPOUND, PHENOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0681 STEP NO--UR/0191/70/000/002/0052/0054
CIRC ACCESSION NO--AP0119589
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0119589

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(I) GP-0- ABSTRACT. THE OXIDATIVE THERMAL DEGRADATION OF POLYESTER PLASTICIZERS (I), PREPD. FROM ADIPIC ACID (II) AND ALKYLENE GLYCOLS (E.G., HOCH SUB2 CH SUB2 OH, HOCH SUB2 (CH SUB2) SUB3 CH SUB2 OH, HOCH SUB2 (CH SUB2) SUB4 CH SUB2 OH), II AND ISOGLYCOLS (E.G., HOCH SUB2 CH(OH)ME, HOCH SUB2 CH SUB2 CH(OH)ME, AND HOCH SUB2 CME SUB2 CH SUB2 OH), II AND OXYALKYLENE GLYCOLS (III) (E.G., O(CH SUB2 CH SUB2 OH) SUB2, HOIC SUB2 H SUB4 O) SUB3 H, AND POLY(ETHYLENE GLYCOL) OF MOL. WT. 400) WAS STUDIED AT 120-200DEGREES. I PREPD. FROM II AND III WERE THE MOST SUSCEPTIBLE TO OXIDN. THE THERMAL STABILITY OF I WAS INVERSELY PROPORTIONAL TO THE NO. OF CH SUB2 GROUPS IN THE GLYCOL. THE MOST EFFECTIVE STABILIZERS OF I WERE POLYGARD, POLYPHOSPHINITE, AND ESP. 2.2 PRIME, THIOBIS(4, METHYL, 6, TERT, BUTYLPHENOL).

UNCLASSIFIED

1/2 009
TITLE--GELATIN AND GLUE -U- UNCLASSIFIED
AUTHOR--(Q2)-BABLLOYAN, D.O., YAZYKOV, V.K. PROCESSING DATE--16OCT70
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 264,576
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--GLUE, GEL, PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1086
CIRC ACCESSION NO--AA0116552
STEP NO--UR/0482/70/000/000/0000/0000
UNCLASSIFIED

272 009

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AA0116552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GELATIN AND GLUE, WITH DESTRUCTION, SAPON., AND REMOVAL OF FATTY BY PRODUCTS AND PREPN. OF COLLAGEN FOR EXTN., IS PREPD. BY TREATING PULVERIZED GLUE GELATIN RAW MATERIAL WITH AN ALK. SODA SOLN. AFTER PICKLING, WASHING, AND NEUTRALIZING. THEN THE MATERIAL IS FURTHER WASHED, NEUTRALIZED, AND TREATED IN THE USUAL MANNER.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--REMOVAL OF TANNINS FROM SOLUTIONS OF COLLAGEN CONTAINING BY
PRODUCTS FROM THE LEATHER INDUSTRY -U-
AUTHOR--YAZYKOV, V.K., GOLOVTEYEVA, A.A.
COUNTRY OF INFO--USSR
SOURCE--KOZH.-OBUV. PROM. 1970, 12(1), 29-32
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--LEATHER, TANNING MATERIAL, COLLAGEN, INDUSTRIAL WASTE
TREATMENT, GLUE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0207 STEP NO--UR/0498/73/012/001/0029/0032
CIRC ACCESSION NO--AP0106863
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106863
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. LEATHER WASTE IN THE FORM OF SPLITS CONTG. CR SUB2 O SUB3 3.63PERCENT, "WELDING TEMP." (A MEASURE OF THE CHEM. AFFINITY OF THE TANNING AGENT TO COLLAGEN) 106DEGREES, WAS SOAKED 8 HR AT 18-22DEGREES IN A SOLN. CONTG. 100 G NAOH AND 150 G NA SUB2 CO SUB3-L. AT A LIQ.-CHARGE RATIO OF 3:1, THEN WASHED UNDER THE SAME CONDITIONS FOR 12 HR IN 25 G NA SUB2 CO SUB3 SOLN.-L. THE PRODUCT WAS WASHED IN RUNNING WATER FOR 0.5 HR IF IT WAS TO BE DISSOLVED IN AN ALK. MEDIUM OR FOR 4 HR IF IN AN ACID MEDIUM. IT HAD A FUSION TEMP. OF 49.6DEGREES, AND CONTAINED 0.46PERCENT CR SUB2 O SUB3. THE LOSS OF PROTEIN WAS 4.1PERCENT. IT WAS DISSOLVED BY HEATING IN WATER FOR 2 HR AT 80DEGREES, OR SOAKED IN 25PERCENT HOAC FOR 1 HR AT A LIQ. CHARGE RATIO OF 0.3:1, THEN HEATED IN WATER UNTIL DISSOLVED. THE SOLNS. OBTAINED WERE USED FOR FILLING LEATHER OR FOR THE PRODUCTION OF GLUES AND GELATIN. INCREASING THE AMT. OF NAOH IN THE DETANNING SOLN. OR INCREASING THE TIME OF TREATMENT INCREASED THE DETANNING, BUT ALSO INCREASED THE LOSS OF PROTEIN.

UNCLASSIFIED

USSR

UDC: 621.372.85

NEKRASOV, M. M., BERNSHTEYN, E. A., POPLAVKO, Yu. M., RUDYACHENKO, N. K.,
YAZYTSKIY, B. Ya.

"Investigation of the Effect of Temperature Self-Stabilization in the SHF
Band"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetali (Electronic Technology.
Scientific and Technical Collection. Radio Components), 1970, vyp. 1(18),
pp 47-50 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B152)

Translation: The authors discuss the effect of temperature self-stabilization which is observed in some ferroelectric crystals. Strong dielectric dispersion which occasions considerable losses in the ferroelectric phase results in the establishment of the SHF temperature self-stabilization mode. These losses lead to intensive heat release and heating of the ferroelectric by a SHF field past the Curie point. The results of an experimental study of ferroelectrics in strong SHF fields are given. Experimental relationships are given for the coefficient of losses in ferroelectrics as a function of temperature, as well as relationships for the dielectric constant and through power as functions of the suppressed power in the SHF range for a polycrystal specimen of barium titanate with impurities. The experiment was carried out on a frequency of 10 GHz. Four illustrations, bibliography of nine titles.
V. S.

1/1

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USSR

UDC 546.46'21:539.4.016.3

BONDAR', I. A., VOLYNETS, F. K., YDALOVA, L. V., and USACHEV, V. P.,

"Physical and Chemical Processes Involved in Heat Treatment of Polycrystalline Magnesium Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-637

Abstract: A study was made of the effect of heat treatment of polycrystalline hot pressed specimens of magnesium oxide containing one wt.% lithium fluoride in air at 700-1300°C on density, grain growth, and transparency. During heat treatment, recrystallization occurred, the activation energy of which was 27.3 kcal/mol. Recrystallization during heat treatment was accompanied by a process of recondensation of particles of the dispersed phase. The activation energy of this process, calculated from the dimensions of the dispersed particles in specimens which underwent various heat treatments, was 22.5 kcal/mol. The specimens of polycrystalline magnesium oxide studied were found to have circular formations larger than grains, inclusions comparable in 1/2

USSR

BONDAR', I. A., et al., Neorganicheskiye Materialy, Vol 7,
No 4, Apr 71, pp 634-637

size to the dispersed particles, and inclusions on grain boundaries and in grain boundaries, the dimensions of which were an order of magnitude less than the dimensions of the grains and vacuum pores.

2/2

Single Crystals

USSR

UDC 669.26-172

ABANIN, D. D., (DECEASED), YEBSTYUKHIN, A. I., MASLOV, V. P., RAKITSKIY, A. N.,
and TREFILOV, V. I., Moscow, Kiev

"Structure and Mechanical Properties of Chromium Iodide Single Crystals"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan/Feb 74, pp 143-149

Abstract: The structure and mechanical properties of chromium iodide were studied to determine why chromium is extremely brittle at room and low temperatures. Single crystals of chromium were produced from the thermal dissociation of chromium iodide which had a high degree of perfection (ratio of electrical resistances measured at 300 and 4.2° K was equal to $(1.5-3.0) \times 10^2$). Bend tests of the single crystals showed that the modulus of elasticity for chromium has a minimum value in the $\langle 111 \rangle$ direction which is caused by the accumulation of dislocations in the $\{111\}$ plane, being higher than in planes $\{100\}$ and $\{110\}$. It was also noted that with increased purity of the single crystals from interstitial impurities the specific surface energy minimum transfers from plane $\{111\}$ to plane $\{100\}$. Therefore, brittle slip in chromium single crystals occurs in these two planes. Six figures, two tables, 32 bibliographic references.

1/1

USSR

UDC 541.26.118

VOLODIN, A. A., KIREYEV, V. V., FOMIN, A. A., YEDELEV, M. G., and KORSHAK, V. V., Corresponding Member Academy of Science USSR, Moscow, Chemico-Technological Institute imeni D. I. Mendeleev, Moscow

"Synthesis and Study of Pentaaryloxyfluorocyclotriphosphazotrienes"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 98-100

Abstract: Pentaaryloxychlorocyclotriphosphazotrienes (I) with aryl groups RH_4C_6 , where R = H, p-MeO, p-Me, m-MeO, m-Me, were prepared according to E. T. McBee et al., Inorg. Chem., 5, 450, 1966. By treating compounds I with potassium fluorosulfinate in O_2NPh , the corresponding nonfluoro derivatives (II) were prepared: $P_3N_3(OC_6H_4R)_5Cl + KSO_2F \rightarrow P_3N_3(OC_6H_4R)_5F + KCl + SO_2$. KSO_2F was obtained by treating KF with liquid SO_2 . The physical properties of compounds II were determined (table) and their nuclear (^{31}P and ^{19}F) magnetic resonance spectra studied.

1/1

USSR

UDC 539.385

GUREVICH, S.Ye. and YEDIDOVICH, L.D., Institute of Metallurgy
imeni A.A. Baykov, Academy of Sciences USSR

"Fatigue Crack Propagation Velocity"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press,
1971, pp 60-64

Translation: Formulas are proposed for determining fatigue crack propagation velocities; the formulas are shown to relate the propagation velocity to the coefficient of stress intensity at the apex of the crack (in the fourth power) as well as with the strain characteristic of the plastic zone near the crack (which depends on the properties of the material). The latter is a function of the zone size and the strain at the crack's apex (or the exponent of strain hardening). The fatigue tests of flat specimens using bending support the above proposition, indicating that the crack propagation velocity is determined not only by the coefficient of stress intensity but is also related to the localized plastic properties of the material in the region adjoining the crack. (2 illustrations, 5 bibliographic references; summary).

1/1

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USSR

UDC-669.1:539.216:538.248

ARUTYUNYAN, R. G., YEGIYAN, K. A., YEDIGARYAN, A. A., KOKOYAN, A. B., and
ALANAKYAN, G. A., Yerevan Scientific Research Institute of Mathematical
Machines

"Effect of Roughness and Thickness on the Coercive Force of Cylindrical
Iron-Nickel Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 732-736

Abstract: A study was made of the nature of coercive force H_c in cylindrical iron-nickel films, 0.4-2.2 microns thick, having a magnetoelastic constant close to zero. Two groups of films were investigated: smooth and rough films deposited respectively on polished and specially etched beryllium-bronze wire, 0.25 mm in diameter. In both cases an amorphous Ni-P alloy sublayer was applied to eliminate the effect of the wire's crystal structure. Sublayer roughness was altered by varying the wire-etching current density i_E and bath temperature T . From examination of microphotographs the following features were noted: 1) films deposited on the polished wire with $i_E = 0$ had an extremely smooth surface with an average diameter of heterogeneities of approximately 0.1 microns but with a large spread amounting to 0.01-0.05 microns; 2) increase in i_E led to the formation of a characteristic hilly surface and sharp rise of H_c and the anisotropic dispersion φ_{80} with the highest value of 1/2

USSR

ARUTYUNYAN, R. G., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 732-736

$H_c = 1.8$ erg observed at $i_E = 16$ ma-cm² and D (hill diameter) and h (hill height) equal to 1.5 and 0.25 microns, respectively. After 16 ma-cm², hill size diminishes; 3) a definite relationship exists between H_c , φ_{80} and D, h. 5 figures, 9 bibliographic references.

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1/2 015
UNCLASSIFIED
PROCESSING DATE--23OCT70
TITLE--MIXED ADSORPTION CATALYSTS FOR HYDROGENATION. XVI. RHODIUM PLATINUM
AND RHODIUM PALLADIUM CATALYSTS ON SILICA GEL -U-
AUTHOR--(03)-ALCHUDZHAN, A.A., YEDIGARYAN, N.Z., MANTIKYAN, M.A.
COUNTRY OF INFO--USSR
SOURCE--ARM. KHIM. ZH. 1970, 23(1), 3-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--RHODIUM ALLOY, PLATINUM ALLOY, PALLADIUM ALLOY, CATALYST,
HYDROGENATION, ADSORPTION, SILICA GEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1573
STEP NO--UR/0426/70/023/001/0003/0008
CIRC ACCESSION NO--AP0120352
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--APO120352

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS WORK INVESTIGATED THE EFFECT OF PT AND PD ON THE CATALYTIC ACTIVITY OF RH ADSORBED ON A SIO SUB2 CARRIER. THE MIXED CATALYSTS CONTAINED 0.5 WT. PERCENT OF RH ON SIO SUB2 AND VARIOUS AMTS. OF PT AND PD. IN ADDN. TO THESE RH PT-SIO SUB2 AND RH PD-SIO SUB2 CATALYSTS, SINGLE CATALYSTS RH-SIO SUB2, PT-SIO SUB2 AND PD-SIO SUB2 WERE ALSO USED FOR COMPARISON. CATALYTIC ACTIVITY WAS MEASURED FOR HYDROGENATION OF BENZENE AT 90DEGREES, WITH VOL. RATIO H SUB2:C SUB6 H SUB6 EQUALS 4:1, AND RATE OF H SUB2 GAS STREAM SUPPLY 1.5 AND 2.5 L.-HR. THE ACTIVITY WAS EXPRESSED IN PERCENT CONVERSION OF BENZENE INTO CYCLOHEXANE. EXPTL. RESULTS SHOWED THAT RH-PT-SIO SUB2 CATALYSTS EXHIBIT GREATER ACTIVITY THAN THE RH-SIO SUB2 CATALYSTS, AND THAT THE ACTIVITY INCREASES PROPORTIONALLY TO THE INCREASE OF THE CONTENT OF PT. THE ACTIVITY OF CONCURRENTLY DEPOSITED RH PT-SIO SUB2 CATALYST IS CONSIDERABLY LARGER THAN THE ADDITIVE ACTIVITIES OF RH-SIO SUB2 AND PT-SIO SUB2 CATALYSTS CONTG. THE SAME AMTS. OF RH AND PT. WHEN PD WAS INTRODUCED INTO THE RH-SIO SUB2 CATALYST, THERE WAS SOME NOT VERY PRONOUNCED BUT UNMISTAKABLE REDN. IN THE CATALYTIC ACTIVITY. THIS CONTRASTING BEHAVIOR IS ASCRIBED TO DIFFERENT ELECTRONIC INTERACTIONS BETWEEN RH AND PT, AND RH AND PD, SINCE ELECTRONIC STRUCTURES OF PT AND PD ARE DIFFERENT. IT IS, HOWEVER, QUITE POSSIBLE THAT THE CARRIER SIO SUB2 IS LARGELY RESPONSIBLE FOR THE EFFECT. FACILITY: EREVAN. POLITEKH. INST. IM. MARKSA, EREVAN, USSR.

UNCLASSIFIED

USSR

UDC: 517.5

YEDIGARYAN, V. M.

"Generalizing the Problem of the Stieltjes Moments"

Yerevan, Doklady Akad. Nauk ArmSSR, LIV, No 1, 1972, pp 17-27

Abstract: The following variant of the well-known problem of the Stieltjes moments is considered in this paper: for a given sequence of positive numbers

$$0 = \gamma_0 < \gamma_1 < \dots < \gamma_n < \dots, \sum_{\nu=1}^{\infty} \frac{1}{\gamma_{\nu}} = \infty, \sum_{\nu=1}^{\infty} \frac{1}{\gamma_{\nu}^2} < \infty,$$

indicate the conditions on a sequence of positive numbers $\{m_n\}$ so that the function $f(t) \in L_M [0, \infty)$ would exist such that

$$\int_0^{\gamma_n} t^{\gamma_n} f(t) dt = m_n.$$

The basis for the solution of the generalized problem of the Stieltjes moments is explored, and a theorem for arriving at that solution is proved.

1/1

USSR

UDC 536.242:621.389.577

YERMAKOV, V. S., ZALUZHENYY, G. I., and YEDINOVICH, A. A., Minsk Branch, Power Institute imeni G. M. Krzhizhanovskiy

"Conjugate Problem of Heat Transfer and Optimum Control of the Unsteady-State Thermal Process of a Nuclear Reactor"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 19, No 2, Aug 70, pp 243-251

Abstract: A determination is made of the optimal control conditions of the thermal unsteady-state processes of a water-cooled water-moderated power reactor by means of a non-classical variational problem whose analysis is carried out with the use of the Pontryagin maximum principle. The considered system of conjugate equations incorporates the parabolic equation of heat conductivity and the hyperbolic equation of convective heat transfer. The system of input equations is complemented by two criterial functionals J_1 and J_2 , which describe the maximum heat removal and minimum temperature deviation of the coolant at the channel outlet in which a heterogeneous fuel element is placed axisymmetrically. The reactivity and coolant velocity are utilized as the control parameters. A computing algorithm is constructed and fuel element data of the VVER-1 water-cooled water-moderated reactor are assumed for the numerical estimation.

1/1

USSR

UDC 669.15.018.295:539.52

YEDNERAL, A. F., ZHUKOV, O. P., and PERKAS, M. D., Institute of Physical Metallurgy and Metal Physics and the Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Effect of Cobalt on the Strength of Martensite in Fe-Ni-Co-W Alloys During Aging"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 3, 1973, pp 569-573

Abstract: Changes in hardness, electrical resistance, and mechanical properties, occurring during aging of martensite in alloys with Fe-15% Ni-10% W-(0-20)% Co, were studied. It was found that cobalt in Fe-Ni-Co-W alloys, the same as in Fe-Ni-Co-Mo alloys, promotes effective martensite strengthening during aging. The addition of cobalt to Fe-Ni-W martensite leads to a large amount of tungsten leaving the solid solution during aging and to an increased rate of this process. Of the 10 alloys tested, alloy N15K20V10 had the highest tensile strength (273 kg/mm²) with good ductility after aging for four hours at 475°C. When the tungsten content is increased to around 18%, a tensile strength of 300 kg/mm² can be achieved but ductility is very low, which is apparently caused by precipitation of the mu-phase from the austenite. Aging should be done after forging because the austenite grains are smaller then after high-temperature hardening. 2 figures, 2 tables, 5 bibliographic references. 1/1

USSR

UDC 669.15.018.295:538.5

GRUZIN, P. L., RODIONOV, YU. L., LI, YU. A., YEDNERAL, A. F., ZHUKOV, O. P.,
and PERKAS, M. D., Institute of Metal Science and Physics of Metals, Central
Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Redistribution of Alloying Elements Upon Recovery in Martensite-Aging
Alloys Fe-Ni-Mo and Fe-Ni-Co-Mo"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973,
pp 423-427

Abstract: In order to determine the reasons for differences in the nature of change of recovery of the alloys N16M5 and N16K15M5 at various temperatures, the phenomenon was studied by nuclear γ -resonance (NGR). The composition of the alloys is as follows: N16M5--16 wt.% Ni, 5Mo; N16K15M5--16.4% Ni, 5.25% Mo, 15.1% Co, remainder Fe in both case. Low temperature aging was at 420° C for 8-100 hours; the recovery temperature was 100° C higher. It was found that cobalt has a significant influence on the processes of redistribution of alloy-element atoms during recovery. The degree of recovery in alloys with cobalt increases, apparently as a result of decomposition of metastable segregations at low temperatures.

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USSR

UDC 669.15'24'25-192:669.017.3

YEDNERAL, A. F., ZHUKOV, O. P., KABLUKOVSKAYA, M. A., MOGUTNOV, B. M., and
PERKAS, M. D., Institute of Metal Science and Physics of Metals; Central
Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Investigation of the Ordering Process in Iron-Nickel-Cobalt Alloys with
Martensite Structure"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 727-734

Abstract: In the martensite of Fe-Ni-Co ternary alloys an exothermal process accompanied by increased strength and modulus of elasticity takes place at 300-500°C. The process depends on the formation of a short-range order. In the alloy with high Ni and Co contents, zones with a long-range order of the FeCo-type were disclosed by the electron-microscopy method. The maximum change in properties on isochronal heating for 1 hr is observed at 450-500°. The plastic deformation of specimens processed for maximum hardness leads to a loss in strength. A change of Co and Ni contents has an influence on hardening in the heating of Fe-Ni-Co alloys. In the Fe+15%Co and Fe+20%Co binary alloys hardening on heating was not observed. The increase in hardening of Fe-Ni-Mo

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USSR

YEDNERAL, A. F., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4,
Oct 73, pp 727-734

alloys in aging and when introducing Co is explained by the formation of a short-range order of Fe-Co-type and the decreased solubility of Mo in the α -phase. The latter makes the principal contribution to hardening. Eight difures, two tables, 15 bibliographic references.

2/2

Transformation and Structure

USSR

UDC 669.15.018.295:539.25

YEDNERAL, A. F., ZHUKOV, O. P., PERKAS, M. D., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Structural Changes Upon Aging of Martensite of Iron-Nickel-Tungsten and Iron-Nickel-Cobalt-Tungsten Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 339-346

Abstract: The alloys N17V10, N15K15V10 and N15K20V10 were studied by diffraction electron microscopy. The structure of the alloys in the aged state, the structure of hardening phases, and the distribution and form of their segregations were studied. The structure of the alloys was studied after aging at 520, 550 and 600°. Segregations rich in tungsten were found to be one of the products of decomposition of the solid solution of martensite Fe-Ni-W alloy. These segregations consist almost entirely of tungsten atoms and have a body-centered cubic lattice. At 440°, a hexagonal close-packed phase based on Ni_3W is also formed.

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USSR

YEDNERAL, A. F., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 339-346

At 500° and higher, there is also a stage of formation of tungsten segregations, but the phase separated is primarily an Fe₂W-based intermetallide. The segregations are formed heterogeneously on martensite crystal structural defects. The introduction of 15-20% Co causes the solid solution to stratify into microvolumes, some rich in iron and cobalt, others rich in tungsten and nickel. All of these decomposition products help to harden the alloy.

2/2

USSR

UDC 669.15'24'28'25-194:669-157.97

PERKAS, M. D., GRUZIN, P. L., YEDNERAL, A. F., MOGUTNOV, B. M., RODIONOV, Yu. L., and YEREMENKO, M. A., [Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin]

"The Effect of Cobalt on Martensite Aging in Fe-Ni-Mo Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 2-10

Abstract: Experimental data indicate that aging of N16M5 alloy occurs in two stages. At first, Mo atoms migrate to dislocations, and new centers of homogeneous structure are formed. In the second stage a stable intermetallic (Fe, Ni)₂Mo phase is formed. When the same steel was alloyed with 5% Co, the first aging stage was not affected, but more of the intermetallic phase was formed during the second aging stage. When the Co amounts to more than 8-10% (N16K10M5, N16K15M5, N12K15M10) the aging of martensite changes. In this case three aging stages were observed: (1) deformation aging with the formation of regions with short-range order; (2) formation of segregations and separations containing Mo and Ni and having ordered atom positions and ω-phase structure. These segregations were stable and were formed not only at dislocations but also away from the dislocation lines. The third

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PERKAS, M. D., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 2-10

stage became apparent at high temperatures (480-500°C) when separations containing ω -phase are unstable and dissolve or transform into the stable (Fe, Ni, Co)₂Mo phase.

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Transformation and Structure

USSR

UDC 669.15.620.187:536.425

YEDNEPAL, A. F. and PERKAS, M. D., Institute of Physical Metallurgy and Metal Physics, Central Scientific Research Institute for Ferrous Metallurgy imeni I. P. Bardin

"Formation of a Metastable Ordered Omega-Phase in the Maraging of an Fe-Ni-Co-Mo Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 2, Feb 72, pp 315-325

Abstract: An electron microscope study was made of the martensite structure of N18M6, N16K15M5, and N12K15M10 alloys after aging at 440°C for 16 hours. The Ni, Co, and Mo content of these iron-base alloys is as follows (in wt %):

	<u>Ni</u>	<u>Mo</u>	<u>Co</u>
N18M6	17.8	5.95	-----
N16K15M5	16.2	5.35	14.7
N12K15M10	11.9	10.50	15.0

It was shown that addition of cobalt to a maraging Fe-Ni-Mo- alloy causes the formation of homogeneously nucleating enriched molybdenum concentration heterogeneities which change into highly dispersed precipitates with ordered
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YEDNERAL, A. F., and PERKAS, M. D., Fizika Metallov i Metallovedeniye, Vol 33, No 2, Feb 72, pp 315-325

molybdenum atoms. The size of the precipitates was approximately 30 Å. Electron microscope photographs revealed that the precipitates had a somewhat distorted b.c.c. lattice similar to the lattice of the hexagonal omega-phase and a probable change in composition of these precipitates according to the formulas: A_8B -- A_7B_2 -- A_2B , where A is nickel, iron, and cobalt and B is

molybdenum. The given state is metastable and upon increasing the aging temperature to 520°C the precipitates of the ordered omega-phase are converted into a more equilibrium intermetallic phase $(Fe, Ni, Co)_2Mo$. The authors

thank A. G. KHACHATURYAN for his observations regarding the work. Four figures, 3 tables, 16 bibliographic references.

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Steels

USSR

UDC 669.14.018.2

YEDNERAL, A. F., ZHUKOV, O. P., and PERKAS, M. D., Central Scientific Research Institute of Ferrous Metallurgy

"Martensitic-Aging Steels With Strength Higher Than 200 kg/mm²"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, 1971, pp 9-14

Abstract: Investigation results are presented on the aging of martensite of three-component and multi-component alloys, all of them containing < 0.01 % C, < 0.004 % S, and < 0.002 % P, and melted down in a vacuum-induction furnace on carbonyl iron of high purity. The investigation results are discussed by reference to tabulated data and diagrams showing the methods of thermal treatment and aging, the effect of the aging temperature and of Co on the change of mechanical properties, and the sequence of processes by aging martensite in Fe - Ni - Mo alloys alloyed with Co. It was found that martensitic-aging steels with a

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YEDNERAL, A. F., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, 1971, pp 9-14

tensile strength of $\bar{\sigma} = 240 - 250 \text{ kg/mm}^2$ possess satisfactory plasticity and ductility. In martensitic-aging steels melted down on pure burden materials, the contents of Ti and Al can be increased up to 1.8% and 1.0 %, respectively, and high strength ($\bar{\sigma} > 220 - 230 \text{ kg/mm}^2$) and satisfactory plasticity will be obtained after aging. Seven illustr., five tables, seventeen biblio. refs.

2/2

- 63 -

1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--FUNCTIONAL DISORDERS OF THE LIVER IN CHRONIC TONSILLITIS -U-
AUTHOR--PLYUYKO, M.YE., NOSENKO, A.G., YEDOMAKHA, Y.KH.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 47-49
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, LIVER FUNCTION, CLINICAL MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0964 STEP NO--UR/0475/70/000/003/0047/0049
CIRC ACCESSION NO--AP0102903
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF THE FUNCTIONAL STATE OF THE LIVER IN 157 PATIENTS SUFFERING FROM CHRONIC TONSILLITIS REVEALED DISORDERS OF THE HEPATIC FUNCTION MANIFESTED IN CHANGES OF THE METABOLIC, ANTITOXIC, PIGMENTARY, CARBOHYDRATE FUNCTIONS AND OTH. LONG LASTING SUBCOMPENSATED AND DECOMPENSATED FORMS OF TONSILLITIS ARE ACCOMPANIED BY MORE SEVERE DISORDERS OF THE HEPATIC FUNCTION. GRADUAL NORMALIZATION OF THESE INVOLVED FUNCTIONS OF THE LIVER IS OBSERVED FOLLOWING TONSILLITIS CURE.

UNCLASSIFIED

USSR

UDC: 621.391.822:621.396.6

YEDVABNYY, V. M.

"On the Problem of Permissible Noise Level in an Heterodyne Receiver"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatury (Calculations of Radio Circuits and Design of Radio Equipment--collection of works), Omsk, 1970, pp 96-105 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A52)

Translation: The author considers the operation of a mixer with quadratic characteristic when useful, interfering and heterodyne signals are present at the input of the mixer. It is assumed that heterodyne noises are also present. An analysis is made of the interaction of interference and heterodyne noise in the mixer, leading to the formation of noise signals. It is shown that the actual selectivity depends on the power and bandwidth of the frequencies of parasitic noise of the heterodyne. Conditions are found under which heterodyne noises do not lead to impairment of selectivity. The procedure for determining requirements for parasitic noises in the heterodyne is presented. Ye. L.

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF BINARY CODE DISCRIMINATION METHOD TO STUDY THE EFFECT OF
CARBON DIOXIDE ON METHANOL SYNTHESIS UNDER INDUSTRIAL CONDITIONS -U-
AUTHOR--(02)-SHCHEGLOV, V.N., YEFANKIN, G.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM. UKR. 1970, (1), 29-31
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CARBON DIOXIDE, METHANOL, CATALYTIC ORGANIC SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1157 STEP NO--UR/0436/70/000/001/0029/0031
CIRC ACCESSION NO--AP0120006
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0120006

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BINARY CODE DISCRIMINATION ALGORITHM METHOD WAS APPLIED TO 17 INPUT VARIABLES FOR 60 EXPTS. ON MANUFG. MEOH FROM CO AND H. WHEN THE VARIABLE MEDIANS WERE: PRESSURE P EQUALS 297 ATM, INPUT AND OUTPUT TEMPS. T SUB1 EQUALS 323DEGREES AND T SUB2 EQUALS 384DEGREES, FRESH AND CIRCULATING GAS COMPNS. CO SUB2F, H SUBF, CO SUBF, AND N SUBF 2.7, 69.0, 25.4, AND 1.9PERCENT AND CO SUB2C, H SUBC, CO SUBC, N SUBC, AND CH SUB4C 0.6, 75.0, 7.0, 12.1 AND 3.1PERCENT, H SUBF-CO SUBF EQUALS 2.68:1, H SUBC CO SUBC EQUALS 11:1, DURATION OF THE RUN R EQUALS 210DAYS, VOL. INPUT RATE V EQUALS 20,000 HR PRIME NEGATIVE1, AND H SUB2 O CONTENT IN THE CRUDE MEOH W EQUALS 6.4PERCENT, AND A NEG. SIGN ABOVE THE SYMBOL WAS USED TO DESIGNATE VALUES LOWER THAN THE MEDIAN, LOW H SUB2 O CONTENT CORRESPONDED TO 8 VARIABLE COMBINATIONS: PT SUB1 T SUB2, CO SUB2F CO SUB2C, PT SUB2 H SUBF, T SUB1 H SUBF:CO SUBF CO SUB2C, PCO SUBF CO SUB2C, H SUBF N SUBF R, PT SUB2 CO SUB2C CH SUB4C, AND PT SUB2 H SUBF:CO SUBF H SUBC, WHICH APPEARED 10, 8, 7, 7, 6, 6, 6, AND 1 TIMES, RESP., AND HIGH H SUB2 O CONTENT CORRESPONDED TO 7 VARIABLE COMBINATIONS: CO SUBF CO SUB2C CH SUB4C, T SUB1 CO SUB2C N SUBC, PT SUB1 CO SUB2C, T SUB2 H SUBF CO SUB2C, PT SUB1 H SUBF, CH SUB4C N SUBC V, AND H SUBC:CO SUBC R, WHICH APPEARED 12, 9, 8, 7, 3, 3, AND 1 TIMES RESP. THUS, A HIGHLY ACTIVE UPPER CATALYST LAYER TO INSURE HIGHER THAN MEDIAN VALUES OF T SUB2 WAS DESIRABLE TO REDUCE H SUB2 O CONTENT; THE RATE OF FOKMATION OF MEOH FROM CO AND H WAS MIN. AT 330-80DEGREES, WHERE EQUIL. FOR THE FORMER REACTION OCCURRED.

FACILITY: SEVERODONETSK. FILIAL OKBA, SEVERODONETSK, USSR.

UNCLASSIFIED

1/2 022
UNCLASSIFIED
TITLE--SOME EXPERIMENTAL NEUTRON PHYSICAL PARAMETERS OF CO I ASSEMBLY -U-
PROCESSING DATE--16OCT70
AUTHOR--(04)-KOSTANTINOV, L.V., NIKOLAYEV, V.A., YEFANOV, A.I., USTINGV,
A.A.
COUNTRY OF INFO--USSR
SOURCE--AT. ENERG. (USSR); 28: 53-5(JAN 1970)
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--NEUTRON ACTIVATION ANALYSIS, RADIATION SOURCE, SUBCRITICAL
REACTOR, URANIUM DIOXIDE, POLYETHYLENE, NEUTRON FLUX, ENRICHED FUEL
REACTOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1983/1707
STEP NO--UR/0089/70/028/000/0053A0055
CIRC ACCESSION NO--AP0054549
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0054549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION IS GIVEN OF THE NEUTRON SOURCE CO 1 SUBCRITICAL SYSTEM USED FOR ACTIVATION ANALYSES. THE ACTIVATION ZONE OF THE SYSTEM WAS ASSEMBLED WITH URANIUM POLYETHYLENE DISKS. THE ACTIVATION ZONE IS 200 MM IN DIAMETER AND 230 MM HIGH. URANIUM DIOXIDE FUEL, ENRICHED UP TO 36PERCENT WITH PRIME235 U, IS HOMOGENEOUSLY DISPERSED IN THE POLYETHYLENE. TABULATED DATA ARE GIVEN ON MEASURED THERMAL FLUXES OF $10 \text{ PRIME}^7 \text{ NEUTRONS-CM PRIME}^2\text{-SEC}$ IN THE CO 1 INSTALLATION. DATA OBTAINED SUGGESTED THE FOLLOWING PARAMETERS FOR THE INSTALLATION: $0.5 \text{ TIMES } 10 \text{ PRIME}^7 \text{ NEGATIVE}^2$ SUBCRITICALITY; $\text{PRIME}^{238} \text{ PU-BE}$ (T SUBDNE HALF EQUALS 89.6 YEARS; λ EQUALS $2.3 \text{ TIMES } 10 \text{ PRIME}^8 \text{ NEUTRONS-SEC}$) SOURCE; 0.9 W; AND THE NEUTRON FLUX IN EXPERIMENTAL CHANNELS EQUAL TO $1.3 \text{ TIMES } 10 \text{ PRIME}^7 \text{ NEUTRONS-CM PRIME}^2\text{-SEC}$.

UNCLASSIFIED

USSR

UDC: 621.375.029.4:621.317(088.8)

YEFANOV, A. S.

"A Device for Monitoring the Sensitivity and Timbre of a Low-Frequency Amplifier"

USSR Author's Certificate No 263746, filed 7 Aug 67, published 15 Jun 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A372 P)

Translation: In existing devices for monitoring the sensitivity and timbre of low-frequency amplifiers, a signal with a predetermined frequency and amplitude is fed to the input of the channel to be checked, and the output signal is monitored. The quality of the timbre is monitored by tuning to boundary frequencies. Devices of this kind are complicated to use and do not comply with the present level of measurement technology. A distinguishing feature of the proposed device is that the amplifier which is used is simultaneously connected through corresponding switches and detectors to three measurement channels. Two channels are identical, being two comparison circuits and indicators connected in parallel, while the third channel is a series circuit made up of a divider, amplitude discriminator and indicator. The second outputs of the divider are connected to the corresponding comparison circuit, which automates the monitoring process.
E. L.

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UNCLASSIFIED
 1/2 : 006
 TITLE--A DEVICE FOR CHECKING THE TUNING PRECISION OF A FREQUENCY DETECTOR
 -U-
 AUTHOR--YEFANOV, A.S., KOSYY, O.R.
 COUNTRY OF INFO--USSR
 SOURCE--PATENT NO 263700
 REFERENCE--MOSCOW, OTKRYIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO
 DATE PUBLISHED-----70
 SUBJECT AREAS--METHODS AND EQUIPMENT
 TOPIC TAGS--PATENT, FREQUENCY ANALYZER, ERROR MEASUREMENT
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1992/1096
 CIRC ACCESSION NO--AA0112218
 STEP NO--UP/0482/70/000/000/0000/0000
 UNCLASSIFIED

PROCESSING DATE--11SEP70

PROCESSING DATE--11SEP70

UNCLASSIFIED

2/2 . 006

CTIC ACCESSION NO--AA0112218
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A DEVICE FOR CHECKING THE TUNING PRECISION OF A FREQUENCY DETECTOR. THE UNIT CONTAINS A SAWTOOTH VOLTAGE GENERATOR, A CONTROLLABLE OSCILLATOR, A MEMORY DEVICE, A NULL INDICATOR AT THE OUTPUT OF THE FREQUENCY DETECTOR, AND A MIXER WITH A REFERENCE OSCILLATOR CONNECTED TO THE OUTPUT OF THE VFO. IN ORDER TO AUTOMATE THE CHECKING PROCESS, THE MEMORY DEVICE IS CONNECTED BETWEEN THE OUTPUT OF THE SAWTOOTH VOLTAGE GENERATOR AND THE INPUT OF THE CONTROLLABLE OSCILLATOR, AND THE OUTPUT OF THE NULL INDICATOR IS CONNECTED TO THE SAWTOOTH VOLTAGE GENERATOR.

UNCLASSIFIED

USSR

UDC 523.164

YEEANOV, V. A., KEYS, Ye. M., KLICH, S. M., MOISEYEV, I. G.,
CHESNOKOV, A. A. (Deceased), and ESMAN, A. P.

"Radiometer in the 8-mm Range With a Parametric Amplifier"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 3, 1970,
pp 627-629

Abstract: Although parametric amplifiers have been successfully used in centimeter-wave radiometric receivers, no information has hitherto appeared in the literature concerning similar use of these amplifiers in the millimeter range. This brief communication gives the characteristics and some of the results of a radiometer used in the 8-mm wavelength range with a semi-conductor parametric amplifier at its input. The observations were made with the radiotelescope RT-22 in the Crimean Astrophysical Observatory. The amplifier in question is a single tuned-circuit type with a circulator and ferrite valve at the input for additional decoupling, connected to the modulation radiometer with no change in the latter. Observations using

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USSR

YEFANOV, V. A., et al, Radiotekhnika i Elektronika, Vol 15,
No 3, 1970, pp 627-629

Abstract: this device were made of the planets Jupiter and
Venus, and of discrete sources such as 3C273, 3C279, etc. The
use of this amplifier improved the sensitivity of the radio-
meter and the reliability of the operations.

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UNCLASSIFIED

PROCESSING DATE--11SEP70

1/3 022

TITLE--8-MM BAND RADIOMETER WITH PARAMETRIC AMPLIFIER -U-

AUTHOR--YEFANOV, V.A., KEYS, YE.M., KLICH, S.M., MOISEYEV, I.G.,
CHESNOKOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 627-629

DATE PUBLISHED----MAR 70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--RADIOMETER, PARAMETRIC AMPLIFIER, RADIO TELESCOPE, RADIO
ASTRONOMY/(U)RT22 RADIOTELESCOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1673

STEP NO--UR/0109/70/000/003/0627/0629

CIRC ACCESSION NO--AP0104895

UNCLASSIFIED

2/3 022

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS THE CHARACTERISTICS AND SOME RESULTS OF THE USE FOR RADIOASTRONOMICAL OBSERVATIONS OF A 8-MM BAND RADIOMETER WITH A SEMICONDUCTOR PARAMETRIC AMPLIFIER AT THE INPUT. THE OBSERVATIONS WERE MADE ON THE RT-22 RADIO TELESCOPE OF THE CRIMEAN ASTROPHYSICAL OBSERVATOR OF THE ACADEMY OF SCIENCES, USSR. THE MEASURED CHARACTERISTICS OF THE RADIOMETER WITH THE SEMICONDUCTOR PARAMETRIC AMPLIFIER (PA) ARE: 1) NOISE TEMPERATURE OF THE PA, INCLUDING LOSSES OF THE CIRCULATOR, SIMILAR TO 540DEGREES K; 2) SINGLE CHANNEL AMPLIFICATION FACTOR OF THE PA, INCLUDING LOSSES OF THE CIRCULATOR, SIMILAR TO 16 DB; 3) TRANSMISSION BAND OF PA AT THE 3 DB LEVEL, 150-190 MHZ; 4) NOISE TEMPERATURE OF THE MIXER, INCLUDING THE NOISE OF THE I F AMPLIFIER, 4400DEGREES K; 5) TRANSMISSION BAND OF THE I F AMPLIFIER, CONGRUENT TO 20 MHZ; 6) LOSSES OF THE WAVEGUIDE CHANNEL UP TO THE PA, INCLUDING FERRITE MODULATOR AND RECTIFIER, 2 DB; 7) LOSSES OF THE WAVEGUIDE CHANNEL BETWEEN THE PA AND THE MIXER, INCLUDING THE FERRITE RECTIFIER AT THE OUTPUT OF THE PA, 3 DB; 8) OVER ALL NOISE TEMPERATURE OF THE RADIOMETER (INCLUDING THE NOISE OF THE RADIOTELESCOPE ANTENNA), MEASURED AT DIFFERENT TIMES, TAU SUBOVERALL EQUALS 1300-1700DEGREES K; AND 9) FLUCTUATION SENSITIVITY OF RADIOMETER MEASURED UNDER THE SAME CONDITIONS AS TAU SUBOVERALL (WITH A TIME CONSTANT OF THE LOW FREQUENCY CIRCUIT TAU EQUALS 1 SEC), DELTATAU EQUALS 0.5 - 0.7DEGREES K.

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PROCESSING DATE--11SEP70

3/3 022

CIRC ACCESSION NO--AP0104895

ABSTRACT/EXTRACT--THE RADIOMETER DESCRIBED, BUT WITHOUT THE PA HAD, ACCORDING TO CERTIFIED DATA, TAU SUBOVERALL EQUALS 7500-9000DEGREES K, DELTATAU CONGRUENT TO 3DEGREES K WITH TAU EQUALS 1 SEC, AND WITH THE BEST ADJUSTMENT OF THE ELEMENTS OF THE RECEIVING CHANNEL IT WAS POSSIBLE TO ATTAIN TAU SUBOVERALL EQUALS 5000DEGREES K AND DELTATAU EQUALS 2DEGREES K. A COMPARISON OF THESE DATA WITH THOSE PRESENTED ABOVE SHOWS THAT USE OF THE PA EVEN WITH ITS NONOPTIMUM USE, AS OCCURED IN THE WORK, LEAD TO AN INCREASE OF THE RADIOMETER'S SENSITIVITY BY FOUR TIMES. 2 -

FIGS. 8 REF. RECEIVED BY EDITOR: 22 JAN 69.

UNCLASSIFIED

Acc. Nr:

A70048356

Abstracting Service:

INTERNAT. AEROSPACE

Ref. Code:

ABST. 570 7 R 0141

A70-25153 # Observations of Jupiter, Venus and 3C 273 at the wavelengths of 2 and 8 mm (Nabludeniia Iupitera, Venery i istochnika 3C 273 na volnakh 2 i 8 mm). V. A. Efremov, A. G. Kisliakov, I. G. Moiseev, and A. I. Maumov (Gor'kovskii Gosudarstvennyi Universitet, Gorki, USSR). *Radiotizika*, vol. 13, no. 2, 1970, p. 219-224. 15 refs. In Russian. IZV VUZ

Results of observations carried out in May 1968, using a 22-m radio telescope. The brightness temperature of Venus, found by comparison with that of Jupiter, appeared to be equal to 290 plus or minus 25 K at 2.16 mm and 495 plus or minus 20 K at 8 mm. The densities of the radiation fluxes of the source 3C 273 at the same wavelengths are equal to $(1.14 \text{ plus or minus } 14) \times 10$ to the minus 26th W/sq m-H2 and $(62 \text{ plus or minus } 4) \times 10$ to the minus 26th W/sq m-H2. The data are presented without taking into account the errors in determining the brightness temperatures of Jupiter, the latter accepted to be equal to 150 plus or minus 20 K at 2.16 mm and 144 plus or minus 20 K at 8 mm.

(Author)

REEL/FRAME
19800063

40

12

UDC: 621.317.7

USSR

YEFANOV, V. M., KLITORIN, I. F., Novosibirsk

"Method and Device for Measuring the Noise of Microcircuits"

Novosibirsk, Avtometriya, No 4, Jul/Aug 71, pp 109-115

Abstract: The paper describes a principle of measurement of the effective noise at the input of a microcircuit. This principle can be used as a basis for instruments to measure noise in the audio and sub-audio ranges with accuracy and sensitivity comparable to those of instruments based on the zero-modulation and correlation methods. The actual noise-measuring instrument is an analog-digital converter with readout device. A block diagram of the device is given and its operation is described as well as the sequence to be followed in measurements. The finished instrument is made with microcircuits and is designed so that it can be used either as a laboratory instrument or as a component of an information measurement system. The device has a dynamic measurement range of 0.1-99 μ V in three subranges and an effective passband of 100-1000 Hz. Measurement time is less than 10 s. With a slight modification of the input circuitry, the instrument can be used for measuring the internal noises of individual transistors. Three figures, bibliography of nine titles.

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USSR

UDC: 539.3:534.1

SHALASHILIN, V. I., KULAKOV, N. A., KUZNETSOV, Ye. B., YEFANOV, V. V.

"Concerning Some Peculiarities of the Behavior of Elastic Systems With Cracking Under the Effect of Dynamic Loads"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 237, pp 3-24 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7V267)

Translation: Solutions are found for problems on determination of critical loads for a Mises girder and a mildly sloping elastic arch under various types of dynamic loading. In this connection, the Mises girder is treated as a system with one degree of freedom, and the arch is treated as a system with two degrees of freedom. The critical load is taken as that external force which puts the system into motion such that it reaches deflections corresponding to an unstable trajectory on the phase plane at zero velocity. On this basis, the value of the critical load P_{cr} is determined from the condition of equality between the work of external forces and the potential energy of deformation of the system. A graphic method is used to find P_{cr} . Numerical integration of the equation of motion confirmed the admissibility of the proposed approach to solution of problems of this kind. V. B. Silkin.

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USSR

UDC 0-96

ALESKEROV, A. S., ~~YEFENDIYEV, S. S.~~, and GUSEYNOVA, S. M.

"Changes in Relation to the Season of the Year in the Amount of Antibiotic- and Sulfanilamide-Resistant Conditionally Pathogenic Microorganisms Isolated From Sea Water"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Biologicheskikh Nauk, No 3, 1971, pp 123-126

Abstract: Seasonal changes in the amount of antibiotic- and sulfanilamide-resistant conditionally pathogenic and pathogenic microorganisms (*E. coli*, *Bact. paracoli*, *Proteus vulgaris*, *Ps. aeruginosa*, and *Staph. aureus*) isolated from the water of Baku Bay, the sea water of Apsheron beaches, and the sewage effluent released into the sea were studied. It was established that as a result of the injudicious use of antibiotics and sulfa drugs in large amounts, pathogenic and conditionally pathogenic microorganisms had developed resistance. *Staph. aureus* isolated from sea water was highly sensitive to penicillin, tetracycline, leyomyctin, and sulfanilamide drugs. The amount of resistant conditionally pathogenic microorganisms isolated from Apsheron sea water was highest in the summer. The condition which develops in this respect in the summer is an epidemiological hazard.

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1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--OIL FREE PUMPING OUT OF LARGE VOLUMES TO 10 PRIME NEGATIVE 13 TORR
USING ONLY CRYOGENIC PUMPS -U-
AUTHOR--(03)--YEFEROV, V.B., KOBZEV, P.M., GLASOV, B.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. TEKH. FIZ. 1970, 40(3), 592-9
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS
TOPIC TAGS--VACUUM PUMP, CRYOGENIC PUMP, SORPTION, HELIUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1554 STEP NO--UR/0057/70/040/003/0592/0599
CIRC ACCESSION NO--AP0118537
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0118537
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THE OIL FREE EVACUATION OF AN 800-L. VOL. FROM ATM. PRESSURE WAS STUDIED. AFTER 2 HR THE VOL. ENCLOSED BY WALLS HAVING A TEMP. OF 5DEGREEEK, WAS EVACUATED TO 10 PRIME NEGATIVE13 TORR; THE PRESSURE IS REACHED BECAUSE OF THE ADSORPTION OF THE HE ON LAYERS ON CONDENSED GASES AND VAPORS. INSIDE THE CRYOPANELS HAVING A TEMP. OF 20DEGREEEK, A PRESSURE OF 6 TIMES 10 PRIME NEGATIVE11 TORR WAS REACHED AFTER 1.5 HR. THE HERMETIC SEALING OF THE VOL. IS NOT NECESSARY TO ACHIEVE THESE PRESSURES IF THE VOL. IS SITUATED WITHIN THE CRYOPANEL SURFACE. THE RATE OF CRYOSORPTION PUMPING OF HE BY THE MAINTAINED VACUUM, ON WHICH LAYERS OF AR ARE CONDENSED AT 5DEGREEEK, WAS 10PRIME5 L.-SEC. THE CONSUMPTION OF ELEC. ENERGY IN KEEPING THE SYSTEM AT 10 PRIME NEGATIVE13 TORR WAS SIMILAR TO 4 TIMES 10 PRIME NEGATIVE4 KW HR-L. SEC.

UNCLASSIFIED

USSR

UDC: 621.374.33(088.8)

YEFIMCHIK, M. I.

"A Device for Random Quantizing"

USSR Author's Certificate No 259147, filed 16 Aug 68, published 5 May 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A325 P)

Translation: The proposed device may be used in designing timers, stroboscopic oscillographs, phase meters, etc. The device contains a mixer and a quantizing pulse train generator. To improve measurement accuracy and extend possibilities for application, the device is equipped with a flip-flop whose output is connected to a master oscillator, one input of the flip-flop is connected either directly or through additional circuits to the input or output of the mixer, and the second input is connected to a random function generator. E. L.

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USSR

UDC: 621.317.755(086.8)

YEFIMCHIK, M. I., NAYDENOV, A. I.

"A Device for Stroboscopic Oscillographic Registration"

USSR Author's Certificate No 267741, filed 16 Aug 68, published 20 Jul 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A387 F)

Translation: It is pointed out that conventional devices for stroboscopic oscillographic registration containing a mixer, strobing oscillator, delay line, trigger circuit, time function oscillator and registration device have a limited frequency range. Moreover, time scanning in the registration device is done in the signal time scale, which precludes the use of "slow-action" registration devices (such as pen recorders). The proposed device contains a number of changes which eliminate these drawbacks. E. L.

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USSR

YEFLMCHIK, M. I.

UDC 621.372.85(088.8)

"Gating Device"

USSR Author's Certificate No 248769, Filed 29 Apr 68, Published 13 Jan 70
(from RZh-Radiotekhnika, No 9B152P)

Translation: The proposed device is executed in the form of a coaxial-ribbon-coaxial junction. It contains an input coaxial section, a ribbon section and an output coaxial section which is connected to the master oscillator. The pulses from the oscillator output go to two shaping diodes which are connected via blocking capacitances between the external conductors of the ribbon part of the junction. These diodes shape the leading edge of the gate pulse the length of which is determined by the length of the ribbon section. The pulses from the shaping diodes are propagated opposite to each other, and they are summed in the mixing diodes. Under simultaneous effect of pulses on these diodes, they open, and a voltage occurs on the reservoir capacitors proportional to the input voltage which it has at the time of triggering the mixing diodes. The voltage from the reservoir capacitors is fed to the amplifier for further processing. The device permits expansion of the pass band. There are two illustrations.

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USSR

UDC 621.374.5

YEFINCHIK, M. K., CHERNYAVSKIY, A. F., BAKINOVSKIY, K. N.

"Nanosecond Time-Amplitude Converter"

Tr. 7-y Konferentsii po yadern. elektron. T. 1. Ch. 4 (Works of the 7th Conference on Nuclear Electronics. Vol 1, Part 4), Moscow, Atomizdat Press, 1970, pp 182-185 (from PZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G262)

Translation: The high speed circuit of a time-amplitude converter with shaping and sorting of the photomultiplier signals is investigated. The circuit is executed from semiconductor devices and is designed for operation in the nanosecond range. The output signals of the device are shaped in the short circuit segments of a coaxial cable, and the transition time of the shaped pulses through the zero line is fixed by the bridge circuit.

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USSR

UDC 621.791.793.052.01:669.017.3:669.14.013.298.3

KHAKIMOV, A. N., Candidate of Technical Sciences, YEFIMENKO, L. A., Engineer, and PRYGAYEV, A. K., Engineer, Moscow Institute of the National Economy imeni G. V. Plekhanov and GP (abbreviation unknown) imeni I. M. Gubkina; SMIRNOV, B. A., Candidate of Technical Sciences, IVOCHKIN, I. I., Candidate of Technical Sciences, SOSEDOV, A. F., Engineer, and ROSHCHUPKIN, N. P., Engineer, All-Union Scientific Research Institute Montazhspetsstroy

"Regulation of the Structure and Properties of Welded Joints of 10G2FR Heat-Treated Steel in Electroslag Welding"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 24-26

Abstract: A study was made of the conditions for the regulation of the structure and properties of electroslag-welded joints of 10G2FR heat-treated low-alloy sheet steel, 40 mm thick, with a view to increase the structural-mechanical homogeneity of welded joints. The introduction of a powerlike additive metal into the slag bath favors a reduction of the stay period over the temperature of the critical point A_{c3} of the near-seam metal at heating from 45-50 to 10-12 sec., an increase of the heating rate from 8-10 to 35-40°C/sec, and nearly two-fold increase of the welding rate. The application of

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KHAKIMOV, A. N., et al., Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 24-26

accompanying cooling makes it possible to decrease the stay period over the Ac_3 temperature of the near-seam metal on cooling from 140-170 to 80-95 sec and to increase the cooling rate from 0.7-1 to 13.5-14° C/sec. At 12.5-14° C/sec cooling rate, the impact ductility of the seam and the near-seam zone of welded joints of 10G2FR heat-treated steel increases up to a level exceeding the norm values within the temperature interval of 20 to -60° C, and a loss of strength is practically prevented. Six figures, three tables, two bibliographic references.

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USSR

UDC 621.438-226:536.24

YEFIMCHUK, L. A., ZUBAREV, A. P., BLYUMIN, Ya. I.

"Experimental Study of Film Protection of Output Edges of Nozzle Apparatus
Blades"

Teplofiz. i Teplotekhnika, Resp. Mezhved. sb. [Heat Physics and Thermal
Engineering, Republic Interdepartmental Collection], No 20, 1971, pp 116-
120, (Translated from Referativnyy Zhurnal Aviatsionnye i Raketnye Dvigateli,
No 12, 1971, Abstract No 12.34.32, from the Resume).

Translation: Materials are presented from an experimental study of the effec-
tiveness of the film protection of the output edges of the blades in a gas
turbine engine nozzle apparatus, as well as comparative study of various
versions of air flow over the protected surface.

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Magnesium

USSR

VASIL'YEV, G. S., YEFIMENKO, G. G., KOVALEV, D. A., SULIMENKO, YE. I., and
GAMAZOVA, L. B., Dnepropetrovsk Metallurgical Institute

"Effect of Magnesium on the Process of Sintering Briquettes Made of an Iron-
ore Agglomerate Charge in an Oxidizing Atmosphere"

Novokuznetsk, IVUZ-Chernaya Metallurgiya, No 6, 1971, pp 23-30

Abstract: A study was made of the effect of magnesium additives on the pro-
cess of sintering and on the quality and phase composition of a briquetted
agglomeration charge for its solid-phase sintering without fuel in an oxidizing
atmosphere.

The introduction of MgO into a charge prevents oxidation of magnetite to
hematite due to its introduction into the magnetite lattice and the sub-
stitution of FeO for MgO with the formation of solid solutions of MgO in
Fe₃O₄. Dissolving of magnetite in magnesium ferrite increases the system's
melting point.

Strengthening of samples is manifested by producing a denser structure
due to the lack of a change in volume as a result of oxidation of magnetite
to hematite as well as the formation of minerals, containing MgO, which possess
a coefficient of thermal expansion close to the coefficient of its related
minerals. Two figures, 5 tables, 5 bibliographical references.

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USSR

UDC 629.19:533.6

BORODINA, R. M., DOKUCHAYEV, L. V., YEFIMENKO, G. G.

"Three-Dimensional Motion of a Two-Body Packet in Orbit"

V sb. Konf. po kolebaniyam mekh. sistem. Tezisy dokl. (Conference on Oscillations of Mechanical Systems. Abstracts of the Reports), Kiev, "Nauk. dumka", 1971, p 12 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10B260)

Translation: The authors consider the three-dimensional motion of two bodies bound by a flexible connector for the following three cases:

1. The bond is weightless and nonextensible, and the masses of the bodies are concentrated at a point. The center of mass of the system moves in a circular orbit. Gravitational and aerodynamic forces are taken into consideration. The regions of possible motions and the position of stable equilibrium are determined.

2. The bond is heavy, and there are no aerodynamic forces. Small oscillations of the system relative to some undisturbed motion are studied. Modes of oscillations in the plane of the orbit and in the perpendicular plane are determined.

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BORODINA, R. M. et al., Konf. po kolebaniyam mekh. sistem. Tezisy dokl.,
Kiev, "Nauk. dumka", 1971, p 12

3. The effect of external forces is disregarded, but distribution of the masses of the bodies and the elasticity of the cable are accounted for. It is assumed that the cable is weightless, stretches axially, is free of twist about its axis, and has no bending rigidity. Necessary conditions are found for stability of such rotation.

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USSR

UDC: 621.791.793 2

SMIRNOV, B. A., MALYSHEV, B. D., IVOCHKIN, I. I., Candidates of Technical Sciences, ROSHUPKIN, N. P., SOSEDOV, A. F., Engineers, VNIImontazhspetsstroy, and YEFIMENKO, L. A., Engineer, Moscow Institute of the Petrochemical and Gas Industry imeni Academician I. M. Gubkin

"Particulars Associated With the Structure and Mechanical Properties of Joints Made by Electro-Slag Welding Using Powdered Filler Metal"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 73, pp 46-50

Abstract: It is shown that the use of powdered filler metal reduces significantly the amount of thermal energy expended on joint formation and sharply changes the thermal and technological characteristics of the electro-slag welding process. The operating energy is reduced by 1.7 times. The time of the weld zone metal at above A_c temperatures is reduced by a factor of two and the volume of the metal bath and its duration time in a molten state is also reduced by a factor greater than two. Varying the thermal conditions and the nature of crystallization implies improvement of the primary and secondary structure of the seam metal and weld zone. This raises the impact strength of the metal at low temperatures by a factor of two. In welding heat hardened steel, the extent of the weakening zone is significantly reduced.

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USSR

UDC 69-419.4:669.24'26'28'27

BAVAS, F. P., GAYDUK, V. V., NATAPOV, E. S., ALEKSANDROV, B. V.,
and YEFIMENKO, L. N., Zaporozh'ye Machine Building Institute

"Niobium-Molybdenum, Tungsten Composites"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8,
1971, pp 6-11

Abstract: The article describes a process for obtaining composite sheet material based on nickel-chromium alloys reinforced with refractory metals and their alloys in the form of unidirectional wires and different types of gauze. Packs of alternating sheets of the matrix and reinforcing fibers with superimposed wire contour frame undergo isothermal hot pressing in a vacuum chamber. During pressing the wire contour frame seals the pack, which permits subsequent rolling of the pressed material in air at 1100-1150° C. Scale-resistant sheet alloys KhN78T (EI435) (20% Cr, 78% Ni, 1% Fe, 1% the balance) and VZh98 (29% Cr, 14%

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USSR

BANAS, F. P., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 6-11

W, 56% Ni, 1% the balance) are used as the matrix material, 0.2-0.5-mm-diameter molybdenum and tungsten wire gauze as the reinforcement. The described method permits the fabrication of compact materials.

A white unetched zone is formed at the "fiber-matrix" interface. This zone apparently is a solid solution of chromium based on the intermetallides WNi_4 and $MoNi_n$. The hardness of the zone is greater than that of the fiber and matrix. The distribution of tungsten, molybdenum, nickel, and chromium along the width of the transition zone shows that the total interdiffusion depth can be characterized by the width of the white unetched zone. The rate of interdiffusion between fibers and matrix is stabilized in 250 hours for tungsten fibers and 500 hours for molybdenum

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USSR

BANAS, F. P., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 6-11

fibers. The width of the transition zone is approximately ten times greater for molybdenum fibers than for tungsten fibers. The solubility of molybdenum in both matrices is considerably higher than that of tungsten. The degree of dissolution of tungsten fibers is considerably lower in the VZh98 matrix containing tungsten than in the tungsten-free KhN78T matrix. The solubility of molybdenum fibers is approximately the same in both matrices. The regularities of the interdiffusion between fibers and matrix in nickel-chromium materials reinforced with molybdenum and tungsten fibers make it possible to select the fiber diameter and the thickness of the outer protective layer of the matrix in relation to the required temperature and service life.

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USSR

FOMENKOV, V. N., STREKALOVA, E. Ye., KATOSOVA, L. D., CHIRKOVA, Ye. M.,
SAL'NIKOVA, L. S., SILANT'YEVA, I. V., YEFIMENKO, L. P., KULAKOV, A. Ye.

"Experimental Data on Adaptation and Its Limits in the Action of Poisons
Having a Mutagenic and Embryotropic Action"

Sb. Farmakol, Khimioterapevt. sredstva. Toksikol. Probl. toksikol.
(Pharmacology of Chemically Therapeutic Substances. Toxicology. Problems
in Toxicology--Collected Works), T. 5 (Itogi nauki i tekhn. VINITI AN
SSSR - Results in Science and Technology of the All-Union Institute of
Scientific and Technical Information, Academy of Sciences, USSR), 1973,
pp 128-145) (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya,
No 18, 25 September 1973, abstract No 1754)

Translation: The dependence of the development of a cytogenetic and embryo-
tropic effect on long-term exposure was studied in an example of the action
of different groups of chemicals: chlorine releasing substances, phenoxy-
acetic acid esters, triazines, carbamates, epoxy compounds, imines, and
others. The possibility of adaptation of animals to some substances that
cause pathological changes in offspring was demonstrated.

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