

Acc. Nr:

AP 0044916

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CHEMICAL ABST.

Ref. Code:

US0000

84257m Electron transitions in strong magnetic fields.
 Brandt, N. B.; Svistova, E. A. (Moscow State Univ., Moscow, USSR). *J. Low Temp. Phys.* 1970, 2(1), 1-35 (Eng). Various types of electron transitions in strong magnetic fields due to equal changes of the energy spectrum of electrons (and hence of properties of materials) were predicted and obsd. at certain critical values of the magnetic field. Metallic and semiconducting Bi-Sb alloys were investigated at ≈ 8 at. % and at 8-16 at. % Sb, resp. The transverse and longitudinal magnetoresistance measurements on Bi-Sb alloy single crystals were performed at various orientations of current and fields relative to the cryst. axes. The measurements were performed in magnetic fields ≈ 000 kOe at 4.2-77°K. The following types of electron transitions were discovered: (a) semiconductor-metal transition; (b) a transition from a semiconducting state into a state with an abnormally small energy gap referred to as quasimetallic; (c) a semiconductor-quasimetal-semiconductor transition; (d) a semiconductor-quasimetal-semiconductor-metal transition; and (e) metal-semiconductor transition.

RCMY

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19771774

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CPHS 57631
30 November 1972

ABSTRACTS OF REPORTS PRESENTED AT THE FIRST ALL-UNION
CONFERENCE ON METAL-DIELECTRIC PHASE TRANSITIONS

Excerpt from Russian language book: *Stroina Khatika Soderzhaniiya*
Nokladov, Predstavleniya Na I Vsesoyuznyy Kongress Iy 1972
Kerzhomov Metall-Dielektrik, 1972, Academy of Sciences USSR, Ministry
of Higher and Secondary Specialized Education USSR, Izdatel'stvo
Moskovskogo Universiteta, Moscow, pp 8-10, 10-12, 15-17, 18-23.

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SVISTOVA, Ye. A.

SVISTOVA, Ye. A.

JPRS 57631
30 Nov. 1972

METAL-DIELECTRIC PHASE TRANSITIONS OF ¹¹⁵Sb ALLOYS IN STRONG MAGNETIC FIELDS

Article by N. S. Ruzmf, Ye. A. Svistova, Moscow State University, Physics Department, pp 6-101

Presented in this paper are the results of a study of the magnetic resistence of specimens with small controlled overlapping of zones and controlled energy slit, i.e., of metallic and semiconductor alloys of bismuth and antimony in which the antimony concentrations vary up to 25%. In pulsed magnetic fields up to 700 Ke in the 2-77°K temperature range, the purpose of which was to discover effects related to qualitative changes in the energy spectrum of the specimens in the ultraquantum region of magnetic fields.

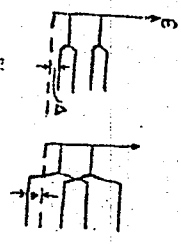


Figure 1.

Quantization of carrier energy and the spin distribution of the energy levels in the magnetic field lead to displacement of the boundaries of the energy zones (Figure 1).

In the ultraquantum region the displacement of zone boundaries (A) reaches a magnitude comparable to or greater than the Fermi energy in the zones of the metals or the energy slit in semiconductors. Here electron transitions may occur, depending on the ratio of the spin and orbital masses of the carriers.

USSR

UDC 539.43

TKACHENKO, N. N., LISKEVICH, I. YU., TEREKH, O. I. and SVISTUN, R. P.
Institute of Physics and Mechanics, Academy of Sciences Ukrainian SSR

"Corrosion-Fatigue Strength of Welded Joints From St.3 Steel Under Elastic-Plastic Torsion in Nitrate and Alkali Solutions"

Kiev, Fiziko-khimicheskaya mekhanika materialov, Vol 8, No 1, 1972, pp 37-40

Abstract: This study concerns the service life of welded joints from St.3 steel under elastic-plastic torsion in nitrate and alkali solutions at boiling temperatures (57% $\text{Ca}(\text{NO}_3)_2$ + 6% NH_4NO_3 + 37% H_2O , boil. p. = 114°C; 40% NaOH + 60% H_2O , boil. p. = 112°C). The cyclic strength tests of both single-piece and welded specimens were conducted at atmospheric pressures at 2 cycles per minute. Metallographic studies of the specimens indicate that the cyclic strength is reduced to a greater extent by the active corrosive medium than by the presence of welding, specifically at low strain levels. The softening effect of the medium is more pronounced in testing welded specimens. It is also shown that alkaline solutions are more aggressive, in this respect, than nitrate solutions. (1 illustration, 14 bibliographic references.

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Acc. Nr: **AP0052303**

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Ref. Code: **UR0238**

PRIMARY SOURCE: Fiziologichnyi Zhurnal, 1970, Vol 16, Nr 2, pp 274-280

INTERRELATION OF SECRETORY PROCESS AND NUCLEIC METABOLISM IN THE STOMACH MUCOSA

T. I. Sviistun

Laboratory of Bioenergetics, the A. A. Bogomoletz Institute of Physiology, Academy of Sciences, Ukrainian SSR, Kiev

Summary

The investigations under conditions of acute experiment on dogs showed non-uniform distribution of RNA in different parts of the stomach. The amount of RNA is the greatest in the region of small and large curvature, i. e. in the places of the most intensive secretory and pepsin-producing functions of the stomach, and it is the least in the region of cardiac and pyloric parts. A definite parallelism is shown between the RNA content and mucosa proteolytic activity. No definite regularities were found with respect to DNA distribution in the mucosa.

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19820870

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RNA content in mucosa is not uniform when different methods are applied for exciting gastric glands. Non-uniform RNA content in the mucosa might be connected with different mechanism of stimulation, pepsin-producing by the cells of gastric glands on histamine and with reflex stimulation.

The conducted investigations give grounds for speaking of the connection of the stomach secretory process with the intensity of nucleic metabolism in the mucosa.

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SVISTUNOV, I. B.

OPRS 56,499
14 JULY 72

PHYSIOLOGIC REACTIONS OF COSMONAUTS REGISTERED DURING
FLIGHT ON THE 'SOYUZ-9' SPACESHIP

Article by A. A. Butusov, A. D. Yegorov, V. R. Lyamin, I. F. Polyakova and V. B. Sviridov, Moscow, Akhmat'nyye Voprosy Kosmicheskoy Biologii i Meditsiny (Current Problems in Space Biology and Medicine), Russian, 1971, pp 36-38/

The principal peculiarities of flight of the "Soyuz-9" spaceship were its great duration (18 days) and saturation of the flight program with different kinds of scientific investigations. In this connection it is of great interest to consider data on the physiologic reactions of the crew members during prolonged exposure to spaceflight factors.

In addition to the earlier described sources of information on the health of these cosmonauts (Ye, I. Voreb'yev, et al., 1969; Yu. G. Nefedov, et al., 1970), the retest with a specially measured standard functional load was registered during this flight. In addition, an important place was given to medical self- and mutual monitoring which the cosmonauts carried out aboard the ship during the flight.

As on the earlier manned flights, in the crew members of the "Soyuz-9" ship the frequency of cardiac contractions after the ship had been put into orbit exhibited a well-expressed tendency to a decrease and already on the third-sixth revolution attained mean values characteristic of the 70-80th flight period (75-75 beats per minute). Later this index for both cosmonauts persisted at lower levels, but during the third of the flight had no statistically reliable difference from the data for one day prior to the flight. During the performance of dynamic operations (spinning, ship orientation, orbital corrections, etc.), as well as physical exercises and some experiments, in a number of cases there was a

SVISTUNOV, I. B.

SPRS 56,499
14 JULY 72

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SOME RESULTS OF USING DISPERSION ANALYSIS FOR EVALUATING THE
PHYSIOLOGIC REACTIONS OF COSMONAUTS DURING FLIGHT OF THE
"SOYUZ-3," "SOYUZ-4," AND "SOYUZ-5" SPACE SHIPS

Article by V. I. Antonov, G. A. Zubanov, V. A. Zorin, A. D. Yermolov, N. A. Arshinin, G. G. Anisimov, V. I. Lyubimov, A. B. Fedorova and I. B. Svistunov. Moscow, 1972. 178 pages. *Kosmicheskoye Biologiya i Meditsina* (Current Problems in Space Biology and Medicine), Russian, 1971, pp 9-11.

During the space flight of the "Soyuz-3," "Soyuz-4," and "Soyuz-5" ships, radiotelemetric systems were used in stepping such physiologic parameters as the electrocardiogram (ECG), seismocardiogram (SCG) and phonocardiogram (PCG). In processing this information it was possible to determine the frequency of cardiac contractions and the respiration rate and the arrhythmias. The collected data were grouped in accordance with the stages in training and conducting space flight. The following periods were discriminated:

- pre-flight (PF) period, including data obtained in the examination of crews during ordinary work activity 15-20 days prior to the flight;
- prolongation, including the results obtained in an the registry of physiologic parameters several hours prior to the launching (PL-1) and during the period of the five-zero-minute countdown (PL-2);
- active segment (AS), the segment in which the space-ship is put into orbit;
- orbital flight (OF);
- descent segment (D).

YPRS 56038
18 May 72
UDC 612-089

NEW METHOD FOR IMPLANTING ELECTRODES IN CHRONIC EXPERIMENTS
[Article by M. T. Svistunov, Moscow, *Kosmicheskaya Biologiya i Meditsina*,
Russian, Vol. 6, No 2, March-April 1972, pp 90-91, submitted for publication
5 May 1971]

Implanted electrodes and sensors account for a high percentage of the physiological information obtained from animals in chronic experiments (B. I. Medvedev, et al.; G. S. Ayzikov, et al.; Yu. V. Kreydich; Stroy and Mitchell). However, one frequently encounters cases of an unexpected distortion or dis- appearance of the monitored parameters. The main reasons for the loss of collected information include an increase in interelectrode resistance, a shifting of the electrodes and sensors, and disruption in conducting the biopotentials to the recording instrument. This is dependent on the method for placement of the leads in the tissues of the animal and the lack of reliable methods for connecting the electrodes and sensors to the emanating leads.



Fig. 1. Set of devices for placement of leads beneath the skin of animals. It is known that the leads from implanted electrodes and sensors are fixed under the skin in a straight line to the point where they emerge. The

ВИСТУНОВ, М. Т.

Biophysiology

SOI JPRS 55100
4 FEB 72

UDC 612.014.421.8:621.3.035.2

USE OF EMBEDDED ELECTRODES AND SENSORS IN CHRONIC EXPERIMENTS ON RATS
Article by M. T. VISTUNOV, V. M. GAVRILIN, V. M. GAVRILIN and N. I. KOSTEYEV, Moscow, Koami-
chekova Biological Institute, Russian, Vol 5, No 6, 1971, submitted for
publication 5 March 1970, pp 44-47

Abstract: This paper describes electrodes used to register the ECG and ECG temperature sensors, a special harness fixed to the rat body immediately after operation, as well as procedures for preparing white rats for chronic experiments. The procedure and harness help to avoid destruction of wires by the animals and to prevent any complications in the postoperation period.

White rats are readily available and convenient objects for conducting large-scale chronic experiments. However, the absence of readily available and reliable instrumental methods for obtaining various kinds of physiological information limits the possibilities of research in prolonged observations of these animals, especially under special conditions.

At the present time, both in the clinic and in experiments with large animals, physiological information is obtained using surface and embedded electrodes and sensors with wire leads and also using embedded radio transmitters or contactless sensors (A. A. Kiselev, et al.; B. I. Kadykov and V. I. Bazanin; Richardson). The use of surface electrodes and sensors is difficult due to their small size and the exceptional mobility of the skin on these animals. Presently existing embedded radio transmitters are also ill-suited for use on rats during prolonged experiments due to their significant power resources (Ya. B. Babitskiy and V. V. Parin). Moreover, construction of individual types of sufficiently high-quality information.

Accordingly, the most acceptable method for obtaining the necessary information on the condition of rats in a chronic experiment still remains embedding of electrodes and sensors with wires. However, the use of this

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UDC 613.644-07:[612.7+612.88

SVISTUNOV, N. T., Special Design and Technological Office, Leningrad and
"Biorizpribor" Physiological Laboratory

"The Effect of Industrial Noise on the Steadiness of the Upright Position of
the Body"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, Jul 70,
pp 49-50

Abstract: The steadiness of the upright position was studied by means of a cephalograph in persons who had been operating electrical equipment for periods of up to 1 year, 1 year to 5 years, and over 10 years. The subjects had been exposed to medium-high-frequency noise up to 120 db. No vibration sickness was observed. Cephalograms were recorded before and after work for a period of 1 minute. It was found that for these subjects the steadiness of the upright position is apparently linked to the direct effect of intense noise on the vestibular apparatus, as well as to a weakening in the coordination function of the cerebral cortex.

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USSR

UDC: 537.312.62:539.89

GALKIN, A. A., Academician Ukrainian Academy of Sciences;
SVISTUNOV, V. M.; CHERNYAK, O. I.; and BELOGOLOVSKIY, M. A.

"Effect of Pressure on the Phonon Impurity Zone of a Pb-In Alloy"

Moscow, Doklady Akademii auk SSSR, No 4, 1 Jun 73, pp 815-817

Abstract: The purpose of this study is to determine experimentally the change of characteristics in the oscillatory spectrum of lead with a slight impurity of indium when the substance is put under pressure. As in experiments executed earlier by the same authors (e.g., Phys. Stat. Sol., 30, KI 07, 1968) fine-film tunnel materials of the superconductor-dielectric-superconductor type, as the most sensitive detectors of changes in density of the material, were used. Methods of preparing these materials and their Al-Al₂O₃-PbIn contacts are described. It is found that under pressure, with a reduction in volume, the phonon spectrum of the metal is shifted in the high-energy direction. An illustration is given of the shift of the second harmonic for an Al-Al₂O₃-Pb_{0.93}In_{0.07} specimen under pressures of zero and 9 kbar. The results of this work were reported to the 17th All-Union Conference on Low-Temperature Physics, held in Donetsk, 26-30 June 1972. The authors thank

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GALKIN, A. A., et al, pp 815-817

UDC: 537.312.62:539.89

Doklady Akademii nauk SSSR, No 4, 1973,

V. G. Bar'yakhtar and V. V. Shevtsov for their assistance.

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USSR

UDC 537.312.62

GALKIN, A. A., Academician of the Academy of Sciences UkrSSR, BORODAY, B. I.
ZIL'BERMAN, L. A., IVANCHENKO, YU. M., SVISTUNOV, V. M., Donetsk Physicotechni-
cal Institute of the Academy of Sciences UkrSSR

"Role of Low-Frequency Fluctuations in the Josephson Effect"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 556-558

Abstract: The role of low-frequency fluctuations which lead to variations in the Josephson current as a function of anomalous current-voltage characteristics and magnetism is discussed. It is noted that for superconducting tunnel systems it is possible to establish phase coherence through the barrier to ensure tunneling of paired electrons. The presence of fluctuations comparable with the binding energy of the barrier can considerably effect the behavior of Josephson contacts, and many theoretical and experimental studies have been devoted to the effect of thermal fluctuations on the characteristics of superconducting tunneling. Tunnel contacts of the type Sn-I-Sn with specific resistance $0.01-0.02 \text{ ohm}\cdot\text{mm}^2$, a high ratio $I_{\text{exp}}/I_{\text{theor}} \sim 87-92\%$, and with a dependence of the critical current on the magnetic field close to $\sin \frac{1}{2} \pi H/H_0$ were studied. For all samples the

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GALKIN, A. A., et al., Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 556-558

transition width did not exceed twice the Josephson penetration depth $(2\omega \sim 2\lambda_j)$. Since fluctuation frequencies were considerably less than the characteristic frequencies of the system, the capacitance C and the inductance L of the tunneling and the external loop could be neglected in order to simplify the calculations. A graph of the effect of low-frequency fluctuations on the variation of Josephson current with magnetism and the initial segments of the current-voltage characteristics for different noise voltages shows that the presence of noise voltages result in the resistance state. The experiment showed that noise voltages result in the envelop of oscillations of the superconducting tunnel current in magnetic fields dropping more rapidly than $1/H$ and ultimately in the oscillations completely disappearing in strong noises. This is said to demonstrate the significance of low-frequency noises in superconducting tunneling.

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UNCLASSIFIED
TITLE--RECOMBINATION RADIATION OF A CONDENSED PHASE OF NONEQUILIBRIUM
CHARGE CARRIERS IN GERMANIUM -U-
AUTHOR--(02)-SVISTUNOVA, K.I., POKROVSKIY, YA.YE.
PROCESSING DATE--30OCT70
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 491-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--RECOMBINATION RADIATION, GERMANIUM, TEMPERATURE
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UNCLASSIFIED

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CIRC ACCESSION NO--AP0120418
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THE RECOMBINATION RADIATION IN PURE GE (RESISTIVITY 50 OHM-CM AT ROOM TEMP.) WAS STUDIED AT 2-4.2 DEGREE SK, UNDER VARIOUS TYPES OF ILLUMINATION. WHEN THE TEMP. AND PHOTOSTIMULATION REACH THE CRIT. VALUES, A NEW INTENSE RECOMBINATION RADIATION OCCURS (WITH A MAX. AT HV EQUALS 709.6 MEV; THE LINE WIDTH IS SIMILAR TO 5 MEV, THE QUANTUM YIELD 0.8-1, AND THE CHARACTERISTIC RELAXATION TIME SIMILAR TO 20 MUSEC), WHEREAS THE FREE EXCITON RADIATION HAS A MAX. AT 714.2 MEV. THE EXPTL. RESULTS CAN BE EXPLAINED BY CONSIDERING THE CONDENSED PHASE WITH A NONEQUIL. CHARGE CARRIER CONC. OF SIMILAR TO OR EQUAL TO 2 TIMES 10 PRIME 17-CM PRIME 3.
FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

USSR

GODIK, E.E., POKROVSKIY, Ya.Ye., and SVISTUNOVA, K.I.

UDC: 621.315.592

"Photosensitivity of Silicon Doped with Boron, Gallium, or Indium"
Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 739-744

Abstract: Although doped germanium is now principally used for manufacturing photoresistors sensitive to radiation of 3-30 microns in wavelength, the authors investigated the photoconductivity and noise in silicon doped with In, Ga, and B to get information concerning the possibility of using doped silicon for photoresistances. Most of the results obtained from that investigation -- the bibliography lists six such references -- were published earlier; the present article offers the hitherto unpublished results which directly characterize the photosensitivity of doped silicon. A table lists various types of silicon doped by the different impurities, and gives the various characteristics of each, including the concentration of acceptor and donor impurities as determined from the Hall effect and the conductivity. The equipment used for absolute measurements of the photosensitivity of the doped silicon is described in one of these earlier references. Various curves are given for the characteristics of these various silicon forms. The authors express their gratitude to S.G. Kalashnikov, L.N. Kurbatov, S.A. Kaufman, P.A. Bogomolov, and O.I. Evanchinskiy for their useful comments, and to V.P. Sinis for

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UDC 620.197.1.001.5

IVANOVA, I. P., Candidate of Technical Sciences, and SVISTUNOVA, L. A., Engineer, All Union Thermotechnical Institute

"Corrosion of 12Kh1MF Steel and Various Anticorrosion Coatings in a Smoke Gas Medium From the Burning of Anthracite"

Moscow, Teploenergetika, No 1, Jan 71, pp 60-63

Abstract: An experimental investigation was made of a mechanism of the effect of fuel gas on 12Kh1MF steel samples and on various anticorrosion coatings. The purpose of the investigation was to determine 1) the corrosion properties of the fuel gas in relation to its composition; 2) the effect of metal temperature on the corrosion rate, and 3) the efficiency of various anticorrosion coatings in the burning of anthracite. Tests were conducted on steel samples and metallic coatings at 310 to 520°C, with constant fuel gas composition. A systematic analysis of the fuel gas during the tests showed a clear relationship between hydrogen sulfide concentration and the carbon monoxide content in the fuel gas. The dependence of steel corrosion rate on hydrogen sulfide at 500°C and on temperature is shown in graphs. The results show that 1) the corrosion rate increases proportion-

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IVANOVA, I. P., and SVISTUNOVA, L. A., Teploenergetika, No 1,
Jan 71, pp 60-63

ally to hydrogen sulfide concentration; 2) that its content in gaseous anthracite combustion products increases proportionally to the degree of fuel gas reduction; 3) that coatings containing free nickel are unsuitable for high-temperature corrosion protection, and 4) that the technology of Al-type coatings must be improved.

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USSR

UDC 632.95

KRUZOVA, S. I., SVISTUNOVA, N. S., GUSKOVA, L. A., FADEYEV, YU. N., SAVENKOV, N. F., KHOKHLOV, P. S., and BLYUZYUK, N. K.

A Nematocide

USSR Author's Certificate No 296546, filed 17 Nov 69, published 27 Sept 71 (from Referativnyy Zhurnal -- Khimiya, No 10(II), 1972, Abstract No 10N528 by T. A. Belyayeva)

Translation: The nematocidal activity is determined for substances of the general formula $R(OCC_2H_4CHCl_2)_n$ (I) (R= phenyl or arylene n=1-2), which are obtained by the reaction of halides of aromatic acids with vinyl chloride in the presence of $AlCl_3$. I is used in concentration 0.1, 0.01 and 0.001%.

Some 30-50 mg I is dissolved in a 2-5-fold volume of acetone and mixed with 30-50 mg OP-7. The solution obtained is mixed with water. I ($R=C_6H_4$, n=2) (Ia) and I ($R=$ $\text{p-C}_6\text{H}_4\text{NO}_2$, n=1) (Ib) causes 100% destruction of *salic* nematode. I (R and n given): $\text{p-BrC}_6\text{H}_4$, 1 (Ic); $m-C_6H_4-NO_2$, 1; $m-C_6H_4Cl$, 1, Ia, b cause 100% destruction of *Aphelenchoides besseyi*, *Aphelenchus avenae*, and Ia and Ic (concentration 0.1 and 0.01%) cause a 100% destruction of *Ditylenchus allii*.

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USSR

UDC 669.14.018.8

SVISLONKOVA, T. V., KAZAKOVA, G. V., ANDRUSHOVA, N. V., and
GHEBEMENSKAYA, N. F., Central Scientific Research Institute of
Ferrous Metallurgy imeni I. P. Bardin

"Electrochemical Behavior of Alloys Containing Chromium, Nickel,
and Molybdenum"

Moscow, Zashchita Metallov, Vol 7, No 6, Nov-Dec 71, pp 695-698

Abstract: The electrochemical behavior of alloys containing chromium, nickel, and molybdenum, of the system 15% Cr-15% Mo (OOKh15N7OM15, OOKh15N65M16V (EP-567), and Kh15N55M15V (EP-375) was investigated in a wide potential interval, depending on the content of C, Si, Fe, and W in the alloy and also on conditions of heat treatment. Diagrams show potentiokinetic polarization curves of the investigated alloys and the anode current dependence on the potential for the third alloy after inducing heating, both in 30% H₂SO₄ at 90°. The first alloy was found to possess the highest corrosion resistance, the third alloy the lowest. With potentials more positive than 0.3 v, potentiostatic curves of Cr-Ni-Mo alloys show an activation zone related to the presence of selectively etching excess phases: the μ -phase in the (EP-567) alloy and carbides of M₆C-type and intermetallic phases of the μ -type in both other alloys. Two illustr., two tables, four biblio. refs.

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Corrosion

USSR

UDC 669.14.018.841.001.5

ANDRUSHOVA, N. V., KAZAKOVA, G. V.,
CHERMENSKAYA, N. F.

SVISTINOVA, T. V., and

"Influence of Chromium and Molybdenum on Electrochemical and Corrosion Behavior
of Ni-Cr-Mo Alloys"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No. 77, Metallurgiya Press, 1970, pp 141-145

Translation: The corrosion and electrochemical behavior of nickel-chromium-
molybdenum alloys is studied in 30% H₂SO₄ at 90°C and 10% HCl at 20°C, depending
on chromium and molybdenum content.

It is demonstrated that alloying of a nickel alloy with 15% Mo and up to
25% Cr significantly increases corrosion resistance throughout the entire range
of potentials studied.

Molybdenum (>10%) improves the corrosion resistance of the nickel alloy with
10% Cr in reducing media and worsens it in oxidizing media. 2 figures; 9 biblio.
refs.

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Corrosion

USSR

UDC 669.24^28:620.193.41

PAVLOV, S. S., and SVISTUNOVA, T. V., Moscow, Chemical Machine Building Institute, Central Scientific Research Institute of Ferrous Metallurgy

"Intercrystalline Corrosion in Alloys Such as N70M28"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 20-22

Abstract: A study was made of the effect of tungsten, titanium, and zirconium on the tendency of N70M28 alloy toward intercrystalline corrosion. Ten laboratory melts were studied with the following chemical composition, in percent: Fe about 3; W 3.5, 4.3, and 5.3, Ti 1.1, 1.8, and 2.6; Zr 0.012, 0.02, and 0.12, plus 25.6-29.0% Mo; 0.02-0.03% C; 0.01-0.08% Si; 0.13-0.24% Mn; 0.002-0.003% S; 0.001-0.005% P; remainder nickel. The continuous lattice of carbides on the grain boundaries was found to be the main reason for the tendency of N70M28 alloy toward intercrystalline corrosion when heated. The intercrystalline corrosion tendency of the alloy can be eliminated by introducing 3.5-5.3% W, whereas addition of 1.1-2.6% Ti and 0.012-0.12% Zr accelerates the appearance of intercrystalline corrosion under high-temperature.

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PAVLOV, S. S., and SVISTUNOVA, T. V., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 20-22

conditions. The tendency of N70M28 alloy toward intercrystalline corrosion in the low-temperature area results from the formation of the intermetallic phase Ni_4Mo and the resulting stresses. Strong carbide forming elements (tungsten, titanium, and zirconium) have no influence on the tendency of this alloy toward intercrystalline corrosion in the low-temperature area.

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USSR

UDC 669.187

TARAKANOV, L. A., KAZAKOV, V. I., SVISTUNOVA, T. V., and BOYARSHINOV, V. A.

"Cathode Ray Remelting of EP496 and EP 567 Corrosion-Resistant Alloys"
Proizvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75, Metallurgiya Press, 1970, pp 148-155

Translation: Cathode ray remelting of EP496 and EP567 corrosion-resistant alloys provides a high degree of refining of oxygen, nitrogen, and carbon. The increased purity provides better resistance in chemically aggressive media. Due to the lower separation of excess phases along grain boundaries, the resistance to intercrystalline corrosion is particularly high. 9 figures; 3 tables; 1 biblio. ref.

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Corrosion

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UDC 620.193.4:669.24'28

SVISTUNOVA, T. V., RUNOVA, Z. K., and SAKHAROV, A. A., Central Scientific Research Institute of Ferrous Metallurgy

"Knife-Line Corrosion in Ni-Mo Alloys"

Moscow, Metallovedeniye, No 5, May 70, pp 2-6

Abstract: An investigation was made of the specific and combined effect of carbon (0.02 and 0.04%) and iron (5% max) on the degree of knife-line corrosion in N70M27 and N70M27F (1.45-1.65% V) alloys and of their crystal structure and phase composition after heating to 1150-1300°C.

Sheets 3 mm thick were water quenched from 1150°C after furnace heating, and then quenched after induction heating at 1000-1300°C and after welding. Welding was done on sheet measuring 3 x 100 x 150 mm using the TIG method. Analysis of the obtained data revealed that in the process of superheating the heat-affected zone of welds (above 1250°C), structural changes take place that promote knife-line corrosion in the N70M27F alloy with 0.04% C and 1.5-2% Fe.

Dissolving of the M_6C carbides and redistribution of the alloying elements begins with carbon, which is concentrated in the grain boundaries and causes the formation of eutectic dendritic carbides M_6C and Mo_2C , which leads to the formation of

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USSR

SVISTUNOVA, T. V., et al., Metallovedeniye, No 5, May 70, pp 2-6
molybdenum-enriched boundary zones.

To inhibit knife-line corrosion in the N70M27F alloy, the carbon and iron content should not exceed 0.02 and 1%, respectively. Emergence of knife-line corrosion in the superheated zone of N70M27F weld samples with an increased iron and carbon content causes the formation of a solid matrix of M_6C and Mo_2C dendritic carbides in the grain boundaries.

Knife-line corrosion in Ni-Mo alloys can be eliminated by heat treating the weld joints at 1050-1100°C with subsequent air or water quenching.

USSR

Mechanical Properties

UDC 621.791.89:669.04

ABRAMOV, O. V., DMITRIYEV, N. N., and SVISTUNOVA, T. V.

"Ultrasonic Treatment of Corrosion-Resistant Nickel Alloys During Their Vacuum Electric Arc Melting"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 145-146

Abstract: Corrosion-resistant nickel alloys ON70M27F, OKh15N65M16B, and N85S8D3L were subjected to ultrasound during their melting to see what effect it would have on their mechanical and industrial properties which were determined after alloys were subjected to hot deformation at 900-1250°C. Plasticity of alloys ON70M27F and OKh15N65M16V was slightly higher after ultrasonic treatment, but their corrosion resistance, as well as resistance to intercrystalline corrosion was unaffected. Macrostructure of all alloys became smaller in size, but the microstructure of ON70M27F and OKh15N65M16V remained unchanged, and that of alloy N85S8D3L became nonuniform. Malleability of the first two alloys was slightly higher after the ultrasonic treatment compared with controls.

1/1

USSR

UDC 621.771.35.001.15

POLUKHIN, P. I., GOLUBCHIK, R. M., MILENNYY, K. F., and SVISTURNOV, Ye. A.
"Specific Normal Pressures and Specific Friction Forces During Cross Rolling
on Multiroll Mills"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya,"
1970, pp 278-281

Translation: On the basis of distribution curves for specific normal pressures and specific friction forces in the contact zone between lead test pieces and the roll, a comparison is made for the first time of the power conditions of rolling on two-, three-, and four-roll mills. The dependencies of average specific normal pressure and full metal pressure against the roll on reduction are obtained as a function of the number of working rolls. It is shown, from an analysis of the curves of specific friction forces, that adopting an average value of friction forces for the entire arc of contact instead of considering average values of specific friction forces in the zones of lag and advance decreases the amount of power on the roll. Five figures and ten bibliographic entries.

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TITLE--EQUILIBRIUM OF CARNALLITE HYDROLYSIS WITH THE FORMATION OF
KCL AGCL, OH, CL, SOLID SOLUTIONS IN AN ATMOSPHERE CONTAINING WATER VAPOR
AUTHOR--(03)-SAVINKOVA, YE.I., VILNYANSKIY, YA.YE., SVIT, T.F.

UNCLASSIFIED
PROCESSING DATE--11DEC70

COUNTRY OF INFO--USSR

SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 754-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL EQUILIBRIUM, HYDROLYSIS, SOLID SOLUTION, HYDROCHLORIC
ACID, CRYSTAL LATTICE STRUCTURE, OPTIC PROPERTY, POTASSIUM COMPOUND,
MAGNESIUM COMPOUND, CHLORIDE

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY RELL/FRAME--3C04/C945

CIRC ACCESSION NO--AP0131530

STEP NO--UR/0080/70/043/004/0754/0753

UNCLASSIFIED

272 022
CIRC ACCESSION NO--AP0131530
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT. THE EQUIL. BETWEEN THE COMPN. OF SOLID SOLNS. $KClMgCl(OH, Cl)$ AND THE COMPN. OF GASEOUS PHASE CONTG. HCl , H_2O , AND AIR WAS STUDIED AT 220-370DEGREES. CHEM. X RAY, AND CRYSTALLOGRAPHICAL STUDIES CONFIRM THE FORMATION OF SOLID SOLNS. BY THE SUBSTITUTION IN CRYST. LATTICE OF HYDROXYL ION FOR CHLORIDE IONS. THE SOLID SOLN. CAN BE EXPRESSED BY THE FORMULA $KMgCl_{2-2N}OH_N$ WHERE N IS SMALLER THAN OR EQUAL TO 0.33 AND ITS VALUE CORRESPONDS TO THE MOLE FRACTION OF $MgOHCl$ BASED ON ALL THE UNHYDROLYZED CARNALLITE. FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

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

PAN'KIN, V. G., RZHANOV, A. V., and SVITASHEV, K. K.

"Photoelectric Phenomena on Boundary Between Two Single-Crystal Germanium Blocks"

V sb. Tonkiye plenki sovedineniy tellura s metallami podgrupp tsinka i galliya (Thin Films of Tellurium Compounds with Metals of Zinc and Gallium Subgroups -- Collection of Works), Vil'nyus, 1970, pp 216-227 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE807 by V. B. SANDOMIRSKIY)

Translation: The authors investigated the photovoltage (PV) and photoconductivity (PC) of the contact of two n-Ge single crystals at 300 and 77° K. Dimensions of specimens: 17x12x3 mm; specific resistances at 300° K: of the order of 40 ohm·cm. The PV distribution along the specimen has two maxima of opposite signs on both sides around the interface. The PV sign corresponds to the blocking band bending around the interface (IF). Contact is nonsymmetrical. The form of the current-voltage characteristic agrees with that reported in the literature. The PV spectral dependence indicates a change of charge in the surface states of the IF on illumination. The conclusion was drawn that each block has its own system of surface states. PC also increases sharply as the "signal probe" approaches the IF. The PC localized at the IF is

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USSR

PAN'KIN, V. G., et al., Tonkiye plenki sovedineniy tellura s metallami podgrupp tsinka i galliya (Thin Films of Tellurium Compounds With Metals of Zinc and Gallium Subgroups -- Collection of Works), Vil'nyus, 1970, pp 216-227 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE807 by V. B. SANDOMIRSKIY)

observed when excited by light in the region of impurity absorption. It can be positive or negative and varies with the superposition of voltage.

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USSR

UDC 539.216.2

KOVALEVSKAYA, T.I., NESTEROVA, S.N., RZHANOV, A.V., SVITASHEV, K.K.
"Study By The Method Of Infrared Spectroscopy Of Multiple Distorted Internal Reflection Of The Structure Of The Transition Layer In The System Germanium--Silicon-Dioxide Film"

Fiz. i tekhn. poluprovodnikov (Physics And Technology Of Semiconductors), 1971, 2, No 9, pp 1720-1724 (from RZh:Elektronika i yeye primeneniya, No 1, Jan 72, Abstract No 1B157)

Translation: The structure of an extremely thin transition layer in the system germanium--SiO₂ film is studied by the method of infrared spectroscopy of multiple distorted total internal reflection. A precise computation is made of the reflection factor in the region of the absorption band of the valence vibrations of the Si-O bonds. The computed and experimental spectra are compared. It is established that the structure of the transition layer is similar to the structure of germanium--silicate glass. Summary.

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USSR

UDC 535.39 : 539.238

SEMENENKO, L. V., SVITASHEV, K. K., SEMENENKO, A. I., and SOKOLOV, V. K.
"Ellipsometry of Absorbing Films"

Leningrad, Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1204-1210

Abstract: The article shows on the basis of reflection theory that the ellipsometry method can be used for the nondestructive measurement of the thickness (over a wide range) of light-absorbing films, particularly semiconductor films on dielectric substrates during operation in the visible or near-infrared region. As an example, results are given of a theoretical and experimental study of the use of the ellipsometric method to measure the thickness of a layer of single-crystal silicon on a silicon dioxide substrate. A diagram is given of the ellipsometer constructed by the authors for the purpose. The results obtained with the ellipsometer were compared with the thickness values obtained as a result of direct measurements with an MBI-11 microscope. It was found that the results obtained by the two methods coincide to within measurement errors.

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USSR

NOSKOV, L. D., SVITEL'SKIY, V. V.

531.787

"Device for Measurement of Pressure Pulsations"

Tr. Koordinats. Soveshchaniy Po Gidrotekhn [Works of Coordination Conference on Hydraulic Engineering], No. 51, 1969, pp 8-11 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.739, unsigned)

Translation: This device is designed for measurement of the variable component of fluid pressure under laboratory and natural conditions. The transducer is a converter based on cylinders of TSTS-19 piezo-ceramic. The preamplifier is a three-stage emitter repeater, the load of which is a voltage divider placed in the main device. A diagram of the device and its technical characteristics are presented. Two illustrations.

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USSR

SVITENKO, V.N.

UDC 621.385.832.82.001

"Study Of The Kinetics Of Formation Of A Charging Spot At The Surface Of The Target Of Bistable Electron-Beam Devices. Parts I and II"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb (Radio Engineering. Republic Interdepartmental Thematic Scientific-Technical Collection), 1971, No 19, pp 113-123 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A295)

Translation: In part I expressions are obtained for the potential of a non-uniform charging spot originating at the target dielectric of a bistable cathode-ray tube operating in a recording regime, and the current of the reproducing gun during creation of this spot. The effect is established of the reproducing gun on the parameters of the charging spot and the target current. In part II the mechanism is studied of the formation of a charge track on the target dielectric during irradiation of its surface by a moving beam of fast electrons with preliminary irradiation by a defocused beam of slow electrons. Analytical expressions are presented for determination of various parameters of a linear charge pattern produced by scanning of the electron writing beam with respect to the target surface. Summary.

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USSR

PRCSHKIN, YE.G., SVITENKO, V.V.

UDC 621.385.832.82.001

"Interior Recharge Readout In Potentialsopes With Visible Image"

Radiotekhnika. Resp. mezhd. tsamat. nauch.-tekhn. sb. (Radio Engineering, Republic Interdepartmental Thematic Scientific-Technical Collection), 1971, No 19, pp 123-129 (from RZh:Elektronika 1 yeye primeneniya, No 2, Feb 72, Abstract No 2A266)

Translation: An analytical expression is obtained for the recharge current of the target, on the basis of which the optimum reading rate is determined, which makes it possible to obtain the optimum parameters of the counted signal. The marking pulse undergoes distortion during fulfillment of reading with a rate less than optimum. The results presented are useful during development of a device with a bistable cathode-ray memory tube. Summary.

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UNCLASSIFIED
 TITLE—PHASE DIAGRAMS OF DIETHYLAMINE TRIMETHYLBORON PYRIDINE AND
 TRIMETHYLAMINE BORANE PYRIDINE SYSTEMS —U—
 AUTHOR—(04)—SVITSYN, R.A., ZHIGACH, A.F., SORDKIN, P.Z., PETROVA, YE.I.
 PROCESSING DATE—30OCT70
 COUNTRY OF INFO—USSR
 SOURCE—ZH. NEORG. KHIM. 1970, 15(3), 829-30
 DATE PUBLISHED—70

S

SUBJECT AREAS—CHEMISTRY
 TOPIC TAGS—PHASE DIAGRAM, AMINE, ORGANOBORON COMPOUND, PYRIDINE,
 EUTECTICS

CNTRCL MARKING—NO RESTRICTIONS
 DOCUMENT CLASS—UNCLASSIFIED
 PROXY REEL/FRAE—2000/0968
 CIRC ACCESSION NO—AP0124627
 STEP NO—UR/0078/70/015/003/0829/0830
 UNCLASSIFIED

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CIRC ACCESSION NO—AP0124627
ABSTRACT/EXTRACT—(U) GP-0-

UNCLASSIFIED

PROCESSING DATE—30OCT70

ABSTRACT. PHASE DIAGRAMS OF THE TITLE
SYSTEMS ARE CONSTRUCTED. THE SYSTEM OF (ET SUB2 NH)BME SUB3 (I) FORMS
AN ADDUCT (II) CONTG. 61.98 WT. PERCENT I AND CONGRUENTLY M. 4.5DEGREES.
II FORMS EUTECTICS WITH PYRIDINE, M. MINUS 55DEGREES, AND WITH I, M.
MINUS 6.8DEGREES. THE SYSTEM OF ME SUB3 NBH SUB3 FORMS A SIMPLE
EUTECTIC (M. MINUS 44.2DEGREES AND CONTG. 5.0 WT. PERCENT ME SUB3 HBH
SUB3) SYSTEM WITH PYRIDINE.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--PHASE DIAGRAM OF HYDRAZINETRIMETHYLBORON PYRIDINE AND
METHYLAMINETRIMETHYLBORON PYRIDINE SYSTEMS -U-
AUTHOR--(05)-SVITSYN, R.A., ZHIGACH, A.F., SOROKIN, P.Z., PETROVA, YE.I.,
OSOKIN, V.A.
COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1131-3
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHASE DIAGRAM, ORGANOBORON COMPOUND, PYRIDINE, HYDRAZINE
COMPOUND, AMINE, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1145

CIRC ACCESSION NO--AP0136565

STEP NO--UR/0078/70/015/004/1131/1133

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136565

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE DIAGRAMS OF N SUB2 H SUB4
.BME SUB3 PYRIDINE (PY) AND MENH SUB2 .BME SUB2 -PY SYSTEMS ARE
PRESENTED. THE SYSTEMS FORM ADDUCTS (N SUB2 H SUB4 .BME SUB3).PY, (N
SUB2 H SUB4 .BME SUB3).2PY, AND (MENH SUB2 .BME).-PY WHICH CONGRUENTLY
M. MINUS 19.1, MINUS 30.3, AND MINUS 14.5DEGREES, RESP.

UNCLASSIFIED

1/2 019 UNCLASSIFIED S PROCESSING DATE--0900170
TITLE--PHASE DIAGRAM OF AN AMMINETRIMETHYLBORON AMMONIA SYSTEM -U-
AUTHOR--(04)-SVITSYN, R.A., ZHIGACH, A.F., SOROKIN, P.Z., OSOKIN, V.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 849-51
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHASE DIAGRAM, AMMONIA, ORGANOBORON COMPOUND, EUTECTIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1867 STEP NO--UR/0079/70/015/003/0849/0351
CIRC ACCESSION NO--AP0112847
UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AP0112847

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE DIAGRAM OF ME SUB3 BNH SUB3 (I)-NH SUB3 SYSTEM IS CONSTRUCTED. THE SYSTEM FORMS CONGRUENTLY MELTING ME SUB3 BNH SUB3.3NH SUB3 (II) (M. MINUS 80.4DEGREES) AND ME SUB3 BNH SUB3.2NH SUB3 (M. MINUS 71.3DEGREES) AND INCONGRUENTLY MELTING ME SUB3 BNH SUB3.NH SUB3 (M. MINUS 47.8DEGREES). II FORMS AN EUTECTIC WITH I AT 40.7 WT. PERCENT I AND M. MINUS 99.8DEGREES.

UNCLASSIFIED

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USSR

UDC 669.71:621.035

SVOBODA, R. V., VEDERNIKOV, G. F., CHALIK, S. M.

"Improvement of the Technological Process for Producing the Anode Mass and Improving its Quality"

Tr. Vses. n.-i. i provektn. in-ta alyumin., magn. i elektrodn. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 21-28 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G215)

Translation: On the basis of generalizing the operating experience of the Soviet aluminum industry in recent years, an analysis is presented of the results of introducing the technological process of firing the coke filler at reduced temperature, with consolidated granulometric composition of the dry charge and petroleum coke from the retarded coking units in anode mass production. Reducing the firing temperature of the coke permitted its losses during calcination to be reduced by 1.0-1.5%, which, just as consolidating the granulometric composition, led to improved operating properties of the anode mass. The basic areas of further improvement of the anode mass quality by introducing pitch with a high softening temperature and automation of the production process are demonstrated. There are 3 tables.

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USSR

UDC 669.71:472:621.035

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA, N. A.,
and SHIPKOV, N. N.

"Manufacture of Roasted Anodes for Aluminum Electrolyzers by the Method of
Combined Pressing and Roasting"

V sb. Konstrukts. materialy na osnove grafita (Graphite-Base Construction
Materials -- Collection of Works), No 6, Moscow, "Metallurgiya" (Metallurgy),
1971, pp 10-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G131 by
G. Svodtseva)

Translation of Abstract: The results of tests with experimental specimens
showed that the method of combined pressing and roasting makes it possible
to obtain roasted anodes with elevated physicomechanical and operational
characteristics from various raw materials.

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USSR

UDC 621.357.1:669.713.72

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA,
N. A., SHIPKOV, N. N.

"Manufacture of Annealed Anodes for Aluminum Electrolyzers by Combined
Pressing and Annealing"

Konstrukts. Materialy na Osnove Grapfita [Graphite-Based Structural Materials
-- Collection of Works], Moscow, Metallurgiya Press, No 6, 1971, pp 10-13
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No
2 L309 from the Resume).

Translation: The possibility is demonstrated of using the method of combined
pressing and sintering for the preparation of prismatic specimens of sintered
anodes based on various raw materials: type KNPE petroleum coke mixed with
pitch, shale, and also individually of non-roasted pitch coke. The properties
of the anodes produced are compared with those of anodes type DEZ, anodes
from companies in the GDR, FRG and Switzerland, tested under similar condi-
tions. The results indicate that manufacture of anodes by combined pressing
and sintering produces anodes with lower oxidizability, subject to consider-
ably less damage upon interaction with CO₂, with compact structure.

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1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INTERNAL FRICTION IN TWO PHASE ALLOYS OF IRON WITH BORON AND IRON
DISCRIDE -U-
AUTHOR--(03)--KRISHTAL, M.A., GOLOVIN, S.A., SVOBODOV, A.N.
COUNTRY OF INFO--LSSR
SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 646-8
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--METAL INTERNAL FRICTION, IRON ALLOY, IRON COMPOUND, BORIDE,
BORON, HEAT RESISTANCE, EUTECTIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0343 STEP NO--UR/0126/70/029/003/0646/0648
CIRC ACCESSION NO--AP0126099
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126099

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF THE INTERNAL FRICTION WAS STUDIED FOR THE FOLLOWING FE,B ALLOYS CONTG. 1.0, 1.45, 1.96, 3.06, 3.8, 5.0, 6.1, AND 8.83 WT. PERCENT B (THE LATTER COMPN. REPRESENTS THE DIBORIDE OF FE). IN 2 PHASE FE,B ALLOYS CONTG. SMALLER THAN OR EQUAL TO 6PERCENT B, 2 COUNTERACTING FACTORS DET. THE LEVEL OF THE HIGH TEMP. INTERNAL FRICTION: (1) THE BLOCKING ACTION OF FE SUB2 B AT BOUNDARIES OF ALPHA FE GRAINS; THIS EFFECT LOWERS THE HIGH TEMP. INTERNAL FRICTION, AND (2) THE LOWERING OF THE ALLOYS M.P. WITH INCREASING VOL. OF THE EUTECTIC; THIS EFFECT INCREASES THE HIGH TEMP. INTERNAL FRICTION. THE 2ND FACTOR WAS PREDOMINANT. AT A GIVEN TEMP., THE HIGHER THE INTERNAL FRICTION, THE LOWER WAS THE HEAT RESISTANCE OF THE ALLEY. THE STUDY ENABLED THE RELATIVE HEAT RESISTANCE OF VARIOUS FE,B ALLOYS TO BE EVALUATED. THE MAX. HEAT RESISTANCE AMONG HYPOEUTECTOIDAL ALLOYS WAS THAT OF AN ALLOY CONTG. SIMILAR TO 1PERCENT B.
FACILITY: TUL. POLITEKH. INST., TULA, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRON MICROSCOPE STUDY OF THE PRECIPITATION OF PHASES FROM A
SUPERSATURATED SOLID SOLUTION, OF BORON IN IRON -U-
AUTHOR-(03)-KRISHTAL, M.A., GONCHARENKO, I.A., SVOBODOV, A.N. S
COUNTRY OF INFO--USSR
SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV. 1970, (3), 53-54
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELECTRON MICROSCOPE, SOLID SOLUTION, IRON ALLOY, BORON
CONTAINING ALLOY, BORON INTENSIFIED STEEL, CRYSTAL DISLOCATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0929 STEP NO--UR/0129/70/000/003/0053/0054
CIRC ACCESSION NO--AP0133018
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133018

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

ABSTRACT. CHANGES TAKING PLACE IN THE STRUCTURE OF ARMC0 FE (QUENCHED FROM 725 AND THERMALLY AGED AT 200DEGREESC FOR VARIOUS PERIODS) AND IN THAT OF AN FE-B ALLOY (COOLED SLOWLY FROM 1000DEGREESC) AS A RESULT OF REARRANGEMENTS OF THE DISLOCATION STRUCTURE AND THE PRECIPITATION OF EXCESS PHASES FROM THE SUPERSATURATED SOLID SOLUTION WERE FOLLOWED IN THE ELECTRON MICROSCOPE. IN THE CASE OF THE ALLOY, BORIDES PRECIPITATED FROM THE SOLID SOLUTION AS A RESULT OF THE CHANGE IN SOLUBILITY ON COOLING WERE CLEARLY VISIBLE UNDER THE MICROSCOPE; THEY TENDED TO DEVELOP ALONG INDIVIDUAL DISLOCATIONS, GROWING PREFERENTIALLY IN THE (110) DIRECTION.

UNCLASSIFIED

Food Technology

USSR

UDC 613.291-099.001.5(47)

SHEENBERG, A. I. and SVODNOVA, N. S. Department of Hygiene, Institute of Nutrition,
Academy of Medical Sciences USSR, Moscow

"Toxicity Studies of Food Additives in the USSR"

Moscow, Voprosy Pitaniya, Vol 29, No 4, Jul/Aug 70, pp 51-57

Abstract: The literature on the toxicity of food additives published during the past 20 years is reviewed. Topics included are: the toxicological effects of such antioxidants as butoxyanisole, butoxytoluene, propyl gallate, dodecyl gallate, and maleic esters on the living organism; the high sensitivity of enzyme systems anti-oxidants; the importance of phosphatides in preventing the oxidation of fats; the use of sulfur derivatives, benzoic acid and its salts as food preservatives in the Soviet Union; the use of antibiotics as food additives on an industrial scale; food coloring and its toxicological effects; the use of nitrates and nitrites as food additives; aromatic principles and their toxicological effects; and the use of enzyme preparations.

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USSR

SVOREN', R.

"On the Road to Heart Prosthesis"

Alma-ata, Kazakhstanskaya Pravda, 22 Mar 73, p 4

Abstract: After a brief description of a prosthetic heart exhibited at a recent VDNKh exposition, an interview with M. A. Lokshin, supervisor of its development, is reported. He discusses the contributors to the development of the prosthesis. The purpose of the device is to replace the patient's stopped heart for 10 to 12 days, allowing sufficient time for donor-recipient matching prior to transplant. This is an improvement over the several hours possible with existing artificial circulatory apparatus. The major problems in the development of the prosthesis were pump construction, devising proper valves, for which a silicone resin three-valve system is presently used, control of the device, now being done magnetically, materials and testing of the device, being done on a hydrodynamic stand at present. Work in progress includes valves whose opening is controlled by internal signals, and a control system closer to the natural one. The solutions to these problems will contribute to the ultimate creation of a long-term, fully implanted prosthetic heart.

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USSR

UDC 621.57.041-213.3-752:621.565.92

BOGDANOV, V. P., MOROZOV, S. A., KOLOSOV, S. V., SVYATNYY, V. I.

"Vibration Spectrum of Household Refrigerator Compressors as a Function of Their Defects"

Moscow, Kholodil'naya Tehnika, No 6, 1971, pp 19-22

Abstract: A study is made of the relation between the vibration characteristics of the household refrigerator compressor DKh2-1010 and its defects and failures. The vibration spectra of the compressor for one revolution of the crankshaft are presented, and a mathematical analysis of them is performed. Both artificially induced and ordinarily occurring defects and failures are considered. Division of the signal in time does not permit determination of all types of defects in the compressor since more than one defect can occur in certain intervals. Further separation of the signal within the intervals by means of filters and application of devices realizing elementary logical functions to separate defects generating the same frequencies permit analysis of all types of defects by their vibration characteristics. The same type of diagnostic device can be extended to all types of compressors.

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Welding

USSR

UDC 621.791.85.037(012)

GHVERTKO, A. I., SVYATSKIY, A. M., and NEKRASOV, A. I., Electric Welding Institute imeni Ye. O. Paton, Academy of Sciences UkrSSR

"Classification of Equipment for Electron-Beam Welding"

Kiev, Avtomaticheskaya Svarke, No 7, Jul 70, pp 61-66

Abstract: Welding with the use of a beam of accelerated electrons has been gaining increasing acceptance in the industry in recent years. The rapid development of this area of technology is due to a number of features and advantages of the electron beam over other heat sources. Electron beam welding can be used successfully for almost any combination of metals and alloys including refractory and chemically active materials. The variety of equipment for electron beam welding has generated a need to classify the equipment according to the most characteristic features. The system described here classes the equipment into 3 categories according to the extent of protection of the weld metal against atmospheric effects. Each class is divided into groups depending on area of application and dimensions of parts to be welded; groups are divided into subgroups with respect to degree of specialization. Examples of classes, groups, and subgroups are given.

1/1

1/2 016
UNCLASSIFIED
TITLE--MILD DUCT CARCINOMA IN MEN -U- PROCESSING DATE--30OCT70
AUTHOR--(03)-NIVINSKAYA, M.M., SVYATUKHINA, D.V., MAKARENKO, N.P.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 5, PP 35-38
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CARCINOMA, GLAND, SURGERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0131
CIRC ACCESSION NO--AP0129387
STEP NO--UR/0531/70/000/005/0035/0038
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0129387

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER IS CONCERNED WITH STUDIES OF 57 MALE PATIENTS SUFFERING FROM MILK DUCT CARCINOMA. THEIR AGE RANGED FROM 20 TO 77 YEARS. THE MEAN AGE COMPRISED 56.4 YEARS. NOTE WAS MADE OF THE ALMOST SIMILAR TUMOR LOCALIZATION IN THE RIGHT AND LEFT MILK DUCTS (RESPECTIVELY 28 TO 29 PATIENTS). UPON HISTOLOGICAL INVESTIGATION CANCER WAS COMMONLY OF GLANDULAR STRUCTURE. AN ANALYSIS OF THE REMOTE RESULTS (FROM 5 AND MORE YEARS) THE AUTHORS CONCLUDE THAT THE RESULTS OF SURGICAL AND COMBINED TREATMENT DO NOT DIFFER ESSENTIALLY. FACILITY: INSTITUT EKSPERIMENTAL'NOY KLINICHESKOY ONKOLOGII, MOSCOW.

UNCLASSIFIED

USSR

UDC 669.046.5

YAVOYSKIY, V. I., SVYAZHIN, A. G., GRIGOR'YEV, N. S., LUEGIN, V. P.,
KONOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TRUBETSKOV, K. M., RAKEVICH, S. Z.,
and NECHAYEV, E. A.

"Metal Acidity in Intense Oxygen Bath 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 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

1/3 042

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--SPATIAL STRUCTURE OF THE EARTH'S BRIGHTNESS FIELD FROM KOSMOS 149 -
SATELLITE MEASUREMENTS -U-

AUTHOR--(03)--ISTOMINA, L.G., MALKEVICH, M.S., SYACHINOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA,
VOL VI, NO 5, 1970, PP 468-476

DATE PUBLISHED--70

5

SUBJECT AREAS--ATMOSPHERIC SCIENCES, MATHEMATICAL SCIENCES, SPACE
TECHNOLOGY

TOPIC TAGS--ARTIFICIAL EARTH SATELLITE, OPTIC BRIGHTNESS, EARTH PLANET,
AUTOCORRELATION FUNCTION, EIGENVECTOR, CLOUD COVER, METEOROLOGY,
PARAMETER, MEASUREMENT/(U)COSMOS 149 SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0520

STEP NO--UR/0362/70/006/005/0468/0476

CIRC ACCESSION NO--AP0132717

UNCLASSIFIED

2/3 042

CIRC ACCESSION NO--AP0132717
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. THIS PAPER GIVES SOME RESULTS OF A STUDY OF THE SPATIAL STRUCTURE OF THE EARTH'S BRIGHTNESS FIELD ON THE BASIS OF MEASUREMENTS OF REFLECTED SOLAR RADIATION MADE FROM THE "KOSMOS-149" ARTIFICIAL EARTH SATELLITE. OBSERVATIONS WERE MADE WITH SCANNING TELEPHOTOMETERS IN THE SPECTRAL INTERVAL 0.74 MICRON. IT WAS FOUND THAT IN EVALUATING THE DEGREE OF HOMOGENEITY AND ISOTROPY OF TWO DIMENSIONAL RANDOM FUNCTIONS IT IS NECESSARY TO FORMULATE A SYSTEM OF EMPIRICAL ORTHOGONAL VECTORS OF AUTOCORRELATION MATRICES OBTAINED FROM DISCRETE CROSS SECTIONS OF THE RANDOM FIELD IN SELECTED DIRECTIONS (FOR EXAMPLE, MUTUALLY PERPENDICULAR). IN THE CASE OF FIELD HOMOGENEITY THE FIRST EIGENVECTORS ARE CLOSE TO TRIGONOMETRIC FUNCTIONS AND THEIR FORM IS NOT DEPENDENT ON THE DIRECTIONS OF THE CROSS SECTION, BUT THE EIGENVALUES OF THE CORRELATION MATRICES FROM A HARMONIC SPECTRUM. IN THE CASE OF AN APPRECIABLE FIELD INHOMOGENEITY, WHEN IT IS IMPOSSIBLE TO USE THE CHARACTERISTICS OF HOMOGENEOUS RANDOM FUNCTIONS IN THE ANALYSIS, THE EIGENVALUES CAN BE REGARDED AS A GENERALIZATION OF SPECTRAL DENSITY AND EIGENVECTORS OF THE CORRESPONDING CORRELATION MATRICES CAN BE USED AS A CANONICAL SYSTEM. THE METHOD DESCRIBED IN THE STUDY MAKES IT POSSIBLE TO DETERMINE THE VALUE OF THE NATURAL SCALE OF RANDOM BRIGHTNESS FIELDS WHICH CAN BE CONSIDERED HOMOGENEOUS IN THIS SENSE (IN THIS CASE THIS VALUE IS 500 KM). WITH A DECREASE IN THE SCALE THE HOMOGENEITY PROPERTY IS EVIDENTLY NOT RETAINED UP TO THE SCALES OF SEVERAL KILOMETERS.

UNCLASSIFIED

3/3 042

CIRC ACCESSION NO--AP0132717

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--SINCE VARIATIONS OF THE EARTH'S BRIGHTNESS ARE RELATED FOR THE MOST PART TO THE CLOUD COVER DISTRIBUTION AND THE LATTER IS RELATED TO THE SPATIAL FIELDS OF TEMPERATURE AND HUMIDITY IT IS OBVIOUSLY NECESSARY TO CONDUCT STATISTICAL PROCESSING OF THE FIELDS OF METECROLOGICAL PARAMETERS AT DIFFERENT SCALES EMPLOYING THE METHOD DESCRIBED ABOVE.

FACILITY: INSTITUTE OF ATMOSPHERIC PHYSICS.

UNCLASSIFIED

USSR

UDC 576.851.48.095.38:576.851.315

5

POKROVSKAYA, M. P., EPSHTEYN-LITVAK, R. V., VIL'SHANSKAYA, F. L., RAKHIMOVA, N.G.
POSPELOVA, V. V., KUDRYAVTSEV, N. G., SIL'VESTOVA, T. N., KALININA, A. M., and
SYADUK, V. F., Moscow Institute of Epidemiology and Moscow Municipal Sanitary
Epidemiological Station

"In vitro Antagonistic Activity of E. coli (Strain M-17) and B. bifidum
(Strain 1) Against El Tor Cholera Vibrios"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972,
pp 54-59

Abstract: The antagonistic activity of E. coli (strain M-17) and B. bifidum
(strain 1) against 11 El Tor cholera vibrio strains (Inaba serotype 6 and Ogawa
serotype 5) was studied in mixed cultures in vitro. During the first 6 hours
of combined cultivation of E. coli and a cholera vibrio strain both microbial
species grew, but the number of live vibrios began to decrease after 24 hours
and after 48 hours almost all were dead. B bifidum had a similar inhibiting
effect on vibrio growth. In the presence of both antagonistic strains, all
the vibrios died within 48 hours without reproducing in the initial period of
cultivation. It is suggested that the antagonistic activity of the two strains
under study might be duplicated in an intestinal biocenosis and that a prepara-
tion made from these microorganisms (a combination of colibacterin and
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POKROVSKAYA, M. P., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
No 10, 1972, pp 54-59

bifidumbacterin) should, in principle, be an effective means of treating
vibrio carriers and correcting the change in intestinal microflora observed in
cholera.

2/2

- 30 -

USSR

UDC 621.313.12:538..

MOROZOV, A. Ye., SYAS'KIN, Yu. M., SHPIL'RAYN, E. E.

"Analysis and Optimization of the Cycles of Atomic Liquid-Metal MHD Installations"

V sb. Magnitogidrodinam. metod polucheniya elektroenergii (Magnetohydrodynamic Method for Producing Electrical Energy -- Collection of Works), No. 3, Moscow, "Energia", 1972, pp 268-282 (from RZh-50. Yardernyye reaktory, No 11, Nov 72, Abstract No 11.50.32)

Translation: A technique is presented for optimizing the cycles of atomic liquid-metal MHD installations by an analysis of the expended electrical energy. The cycle of an MHD injector installation is investigated. It was found that for a given surface of the scram system of the nuclear reactor and the maximum permissible temperature at the center of the fuel elements and also for the condition of independence of the effectiveness of the two-phase nozzle of the injector from the initial stage of steam dryness, the optimum cycle should be the cycle in which the initial point of the process of steam expansion is located in the left boundary curve. The effect of the fuel

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USSR

MOROZOV, A. Ye., et al, Magnitogidrodinam. metod polucheniya elektroenergi, No. 3, Moscow, "Energiya", 1972, pp 268-282

component cost of electrical energy on the selection of optimal parameters of the cycle is analyzed. It is shown that with an increase in the fuel component the initial parameters of the cycle also rise. The case when the upper temperature of the cycle is limited by structural considerations is considered. In this case the optimal dryness of the vapor is in the range 0-0.1. 5 ill., 10 ref.

2/2

- 62 -

USSR

UDC 546.431'824'21+546.16

NEKRASOV, M. M., SAVOSHCHENKO, V. S., SYCH, A. M., Kiev Poly-
technical Institute

"Fluorine-Containing Barium Titanate"

Moscow, Neorganicheskiye Materialy, Vol 6, No 12, Dec 70, pp 2175-2177

Abstract: A new type of solid solution based on barium titanate is produced by
interacting TiO_2 with BaF_2 in BF_3 --a substitution solid solution in the anionic
portion of the crystalline lattice of $BaTiO_3$ with the general formula $BaTi(OF)_3$.
The electrical parameters of the solid solutions produced are determined.

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USSR

UDC 669.822:621.039.5

KAZACHKOVSKIY, O. D., LEBEDEV, I. G., SYCH, A. P., MATVEYEV, P. P.

"Formation of the Structure of the Core of Fuel Elements Made of Metallic Uranium During the Irradiation Process"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation Solid State Physics and Reactor Material Science -- collection of works), Moscow, Atomizdat Press, 1970, pp 203-208 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I827)

Translation: Metallic uranium (0.21% content of admixtures) was irradiated to 2% burn-up in OKh16N15M3B steel cans 4-5 mm in diameter with walls 0.35-0.4 mm thick. The volume compensating for the swelling was 15-30% (filling with He). The mean temperature of the cans was 450-600^o, and the initial fuel temperature was 650-900^o. On irradiation, the fuel completely filled the free volumes. The can diameter did not change in any case. There are 2 illustrations and a 3-entry bibliography.

1/1

- 80 -

Acc. Nr: **AP0034766**

Ref. Code: UR 0241

PRIMARY SOURCE: *Meditsinskaya Radiologiya*, 1970, Vol 15,
Nr 1, pp **53-56**

ACUTE RADIATION AFFECTION OF THE HANDS

V. M. Orlov, V. N. Petushkov, L. I. Sych

Summary

The issue contains a detailed description of severe radiation lesion of the hands in a 49-year-old patient occurring as the result of failure to observe the rules of radiation safety resulting in direct contact of unprotected hands with Co^{60} granules with an activity of 51 Ra equiv. The exposure dose of gamma-irradiation at the body surface at the level of the chest comprised 150 r. on the region of the hands not less than 10,000 r. The article carries dynamic clinico-physiological data, as well as the results of pathomorphological investigation of amputated segments.

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USSR

UDC 669.295.053.24

PAVLYUK, YU. S., KARVATSKAYA, R. A., AKIMOVA, N. A., and SYCH, M. P.

"Study of the Properties of Powder of Ore-Thermal Furnaces"

Sb. tr. Vses. n.-i. i proyekt. in-t titana (Collection of Works of the All-Union Scientific Research and Design Institute of Titanium), 1970, 2, pp 105-109 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G155)

Translation: Results are described of an investigation of the fineness and chemical composition of powder carried away from the ore-thermal furnaces of a titanium-magnesium plant. When briquettes are used in the operation of ore-thermal furnaces the powder consists of particles which are considerably finer than those obtained when a concentrate is used. The chemical analysis of the powder shows a composition analogous to that of the charge material. 3 ill., 3 tables. Authors' abstract.

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Acc. Nr.: AN0103344

SYCH N

Ref. Code: UR9012

FROM: FBIS/FPD, Cybernetics in the USSR, 28 April 1970, Nr 0026/70 P

"Cybernetics and Power Systems"

Moscow, Pravda, 26 Jan 70, p 1

Translation: At the Institute of Electrodynamics of the Ukrainian Academy of Sciences, programs have been created for use with "M-220" and "BBSM-4" electronic computers; the programs are intended for routines ensuring the reliable and steady operation of the unified power systems.

Cybernetic machines have been installed in dispatcher administrations of the unified power systems. Having received a signal that the network is overloaded, the dispatcher seeks the counsel of the machine, and it issues the necessary recommendations with lightning-like speed.

The new programs are already being used in the Unified Power System of the European Part of the USSR, in the unified power systems of the Urals and Siberia. It has also been decided to use them for power systems being created in Central Asia.

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Acc. Nr.: AN0103344

About one million rubles in annual savings is involved in the realization of proposals of co-workers of the "Electric Power Systems and Networks" Chair of the Belorussian Polytechnical Institute for the "Volgogradenergo" System.

The head of the chair, Professor G. Pospelov, and docents N. Sych and V. Pedin have worked out methods of efficiently compensating for one of the types of loads in power systems. Using an electronic computer, the scientists calculated the most advantageous variant of compensating installations at substations of the "Volgogradenergo" System. Overall, losses of electric power have been significantly reduced. The recommendations of these Belorussian power-engineering workers are already being implemented by Volgograd workers.

The new methods can be used successfully in planning and carrying out any power system plan. On a nationwide scale, this will provide a tremendous economic savings.

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19861548

USSR

Burn Studies

IVANOVA, N. P.; YEVDOKIMOV, Ye. A.; SHEKHTER, A. B.; ISTRANOV, L. P.; RUDEMO, T. G.; SYCHENNIKOV, I. A.; Central Scientific Research Laboratory imeni S. I. Chechulin, First Moscow Medical Institute imeni I. M. Sechenov, and Central Institute of Traumatology and Orthopedics.

"Application of Collagen Sponge in the Treatment of Burns"

Moscow, Novosti v Diagnostike, Lechenii, Profilaktike Vazhnykh Zabolovaniy i Programy Issledovaniya (News in Diagnosis, Treatment, and Therapeutics of the Most Important Diseases and Methods of Investigation), Ministerstvo Zdravookhraneniya SSSR, 1971, 128 pp. pp 51-52

Abstract: Notwithstanding the large variety of materials and drugs used for the dressing and treatment of burns, to this date there is no generally accepted method of treatment. During the past few years information has appeared concerning the extensive utilization of collagen polymer preparations for the treatment of burns, trophic ulcers, scalp wounds, and so on,

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USSR

IVANOVA, N. P., et al, Novoye v Diagnostike, Lechenii, Profilak-
tike Vazhneyshikh Zabolevaniy i Ratsional'nykh Issledovaniya, 1971,
128 pp, pp 51-52

which is absorbed by the organism and has a positive effect on the regenerative processes of the lesion.

The porous collagen sponges are hemostatically effective, and by their hygroscopic and structural properties securely protect the injured surface from the effects of the external environment, considerably reduce plasma loss, and contribute to the growth of granulation tissue and the rapid healing of the lesions. In addition, the collagen can be permeated with different medicinal substances (antibiotics, antiseptics, hormones, vitamins, substances stimulating the growth of connective tissue, and others) which are released by lysis of the collagen sponge.

Taking into consideration the positive properties of the collagen preparation, researchers at the Central Scientific Research Institute of Traumatology and Orthopedics Burn Section applied

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IVANOVA, N. P., et al, Novoye v Diagnostike, Lechenii, Profilaktike Vazhnykh Zabolevaniy i Metodakh Issledovaniya, 1971, 128 pp, pp 51-52

a collagen sponge 0.5-0.8 cm thick and filled with boric acid, hydrocortisone, and furacillin to 20 patients with fresh burns and large granulation surfaces.

For the treatment of second and third degree burns, sponges corresponding in size to the injured areas were placed on the processed burned surfaces. Aseptic dressings were then applied. The dressings were changed within 2-3 days, and subsequently as required by the condition of the burned surface and the rapidity of lysis of the sponges. When applied to moist wound surfaces, the collagen sponges closely adhered to the wound, absorbing the lesion exudate. When exudation was copious, the sponges were absorbed by the second or third days.

The positive aspects of the application of collagen sponge are its rapid and painless covering of the burned surfaces, and the possibility of permeating the sponge with different medicinal substances which are able to exert a direct local effect on the

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IVANOVA, N. P., et al, Novoye v Diagnostike, Lechenii, Profilaktike Vazhnnykh Zabolevaniy i Ispolnizhenii issledovaniya, 1971, 128 pp, pp 51-52

wound with lysis of the sponge. Collagen sponges can be recommended for use in the general set of therapeutic measures for the treatment of patients with burns as a temporary dressing for the preparation of large injured surfaces for subsequent autoplasty.

4/4

USSR

UDC 621.375.82

BABENKO, V. A., ZEL'DOVICH, B. YA., MALYSHEV, V. I., and SYCHEV, A. A.

"Radiation Spectrum of Giant Laser Pulse With Allowance for Self-Frequency Modulation"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 19-24 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D820 from authors' abstract)

Translation: The article deals with a theoretical consideration of the broadening of the spectrum of a giant laser pulse due to the dependence of the refractive index of the matrix of the active medium on the light intensity. A calculation is performed for the integral effect for the entire giant pulse, assuming that the initial radiation is a Gaussian random process. Experiments are performed, the results of which agree with the theoretical estimates. Bibliography with eight titles.

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USSR,

UDC 621.791.75:037-52:62-419.4

TSYGAN, B. G., Engineer, "Pavlogradkhimash" Works, KAMAKIN, N. I.,
Engineer, SYCHEV, A. A., Engineer, LOBKOVSKAYA, R. M., Engineer,
All-Union Scientific Research, Planning and Technological In-
stitute of Chemical Machinery

"Effectiveness of Using Metal Additions in the Automatic Welding
of Two-Ply Steels"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 72, pp 16-18

Abstract: Results are presented of an experimental investigation to determine the optimum quantity and granulometric composition of metal additions, select the most efficient separation of edges, develop welding methods, and study their effects on the mechanical properties and the corrosion resistance in automatic welding of two-ply steel joints. The optimum quantity of metal additions can be found from an empirical formula. On the basis of investigations and industrial tests, automatic flux welding of two-ply steel St.3+Kh18Ni10T (up to 32 mm thick) in two welding operations using metallic crumb of cut wire was adopted. Bimetal joints

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USSR

TSYGAN, B. G., et al, Svarochnoye Proizvodstvo, No 3, Mar 72,
pp 16-18

welded according to the new technology are of high quality.
The use of metallic crumb in welding of bimetals increases the
welding output without lowering the quality of welds. 4 illustra-
tions, 2 tables, 5 bibliographic references

2/2

- 52 -

1/2 037 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--STRUCTURE OF SOLID LASER SPECTRA UNDER FREE GENERATION CONDITIONS
-U-
AUTHOR--(03)-MALYSHEV, V.L., MASALOV, A.V., SYCHEV, A.A.
COUNTRY OF INFO--USSR
SOURCE--PSI'KA ZH, EKSP. TEOR. FIZ. 1970, 11(7), 324-8
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--RUBY LASER, NEODYMIUM LASER, TRAVELING WAVE, RADIATION
SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/2001 STEP NO--UR/0386/70/011/007/0324/0328
CIRC ACCESSION NO--AP0120644
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120644

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RADIATION SPECTRA OF THE RUBY AND ND-GLASS LASERS, WORKING UNDER TRAVELING WAVE CONDITIONS, WERE INVESTIGATED. AN ELIMINATION OF BOTH THE SELECTION AND SPACE INHOMOGENEITY OF THE RADIATION FIELD DID NOT REMOVE THE IRREGULAR STRUCTURE OF THE FREE GENERATION SPECTRA. THIS STRUCTURE IS AN INTEGRAL PROPERTY OF SOLID LASERS DURING AN EXCITATION OF A GREAT NO. OF AXIAL MODES AND CONFIRMS THE FLUCTUATING CHARACTER OF THE RADIATION FIELD. THE IRREGULAR STRUCTURE OF THE SPECTRA WAS OBSD. EVEN IN BOTH LASERS WITH PASSIVE SHUTTERS; UNDER CERTAIN CONDITIONS, ALSO THE SMOOTH SPECTRA (WITH AN ACCURACY TO THE INTERMODE DISTANCE), ATTRIBUTED TO THE PRESENCE OF ONLY 1 PULSE ON THE AXIAL PERIOD (I.E. TO A COMPLETE SELF SYNCHRONIZATION OF THE MODES), WERE OBSD. FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

GLEBOV, N. I., DEMENT'YEV, V. T., ~~SYCHEV, A. N.~~

"The Dynamics of Development of Homogeneous Technical Systems"

Sb. tr. In-t mat. Sib. otd. AN SSSR [Collected Works of Institute of Mathematics, Siberian Division Academy of Sciences USSR], No 8, 1971, pp 51-67, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V466).

NO ABSTRACT.

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USSR

UDC: 681.32.001

POPOV, V. A., MOKLYAK, N. G., SKIBENKO, I. T., SYCHEV, A. V., Khar'kov
Aviation Institute

"On a Method of Optimum Synthesis of Universal Logic Modules"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 11, 1973, pp 58-61

Abstract: Previous papers have established a number of properties inherent in Boolean functions with high logical effectiveness, defined as the number of classes or types of subfunctions obtained by adjustments, and have also suggested a method of constructing universal logic modules which maximize the number of subfunctions. This paper proposes a group theory approach to synthesizing optimum universal logic modules which enables purposeful sorting of Boolean functions rather than trial and error and also considerably reduces the number of external adjustments which give identical subfunctions. The proposed method was used to develop an algorithm for synthesizing optimum universal logic modules. The algorithm is written in ALGOL-60 and realized on the BESM-4 computer. The circuit of one of the resultant modules is given. The method can be generalized to L -valued logic functions.

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1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CATALASE ACTIVITY OF COMPLEXES OF TRANSITION METALS WITH SOME
NITROGEN CONTAINING ML SUB2 TYPE LIGANDS, AND CHARGE TRANSFER -U-
AUTHOR--(02)--SYCHEV, A.YA., BUDNIKOV, S.S.
COUNTRY OF INFO--USSR S
SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 106-10
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COMPLEX COMPOUND, TRANSITION METAL, REACTION KINETICS,
HYDROGEN PEROXIDE, CHEMICAL DECOMPOSITION, MANGANESE COMPOUND, IRON
COMPOUND, COBALT COMPLEX, NICKEL COMPLEX, COPPER COMPLEX, CATALASE,
PYRIDINE COMPLEX
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1209 STEP NO--UR/0076/70/044/001/0106/0110
CIRC ACCESSION NO--AP0128627
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128627

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF THE H SUB2 O SUB2 DECOMPN. CATALYZED BY D,PHENANTHROLINE I COMPLEXES OF MN PRIME2 POSITIVE, FE PRIME2 POSITIVE, CO PRIME2 POSITIVE, NI PRIME2 POSITIVE, AND CU PRIME2 POSITIVE WAS STUDIED AT 25DEGREES, PH 6.5 (FOR FE PRIME2 POSITIVE AT PH 8.0), AND METAL TO I RATIO 1:2. THE CATALYTIC ACTIVITY DECREASES IN ORDER MN LARGER THAN FR LARGER THAN CD LARGER THAN CU LARGER THAN NI. QUANTUM CHEM. CALCNS. OF THESE COMPLEXES WITH I AND BIPYRIDINE II TYPE ML SUB2 (D SUB4H SYMMETRY ASSUMED) USING MULLIKAN WOLFSBERG HELMHOLTZ METHOD WERE PERFORMED FOR THE STATES WITH CHARGE 0, 1 PLUS AND 2 PLUS. THE VALUES OF THE REDOX CAPACITIES AND CHARGES TRANSFERRED BY H SUB2 O SUB2, HO SUB2 TIMES, AND HO SUB2 PRIME NEGATIVE SPECIES WERE ESTD. COMPLEX EQUIL. AMONG DIFFERENT TYPES OF COMPLEXES PLAY AN IMPORTANT ROLE IN THE CHANGES OF CATALYTIC ACTIVITY.
FACILITY: KISHINEV. GOS. UNIV., KISHINEV, USSSR.

UNCLASSIFIED

USSR

UDC; 53.07/.08+53.001.5

ZAYTSEV, L. N., KOMOCHKOV, M. M., SYCHEV, B. S.

"Principles of Accelerator Shielding"

Osnovy zashchity uskoriteley (cf. English above), Atomizdat, 1971, 400 pp,
ill. 2 r. 64 k. (from RZh-Fizika, No 4, Apr 72, Abstract No 4A532 K)

Translation: This is a book on the problems of calculating the parameters of designing, and utilizing accelerator shielding. The book consists of ten chapters dealing with interactions between particles and matter, the propagation of radiation in matter, methods of calculating the shielding parameters, the types of radiation in accelerators, experimental studies of processes in shielding, induced radioactivity, composition of shielding and selection of materials, planning of buildings and shielding, and construction of shielding.
V. P.

1/1

Medical
SCIENCE

SYCHEV, F.V.

3-9305

MDK 615-017-31615-5

120

Dr. Dzentz T. I. Salyerov, Candidate of Medical Science, F. V. Sychev, Professor of the common iliac artery.

The patient S., a 37-year-old woman, was admitted to the clinic on August 15, 1966, complaining of a dull pain in the right lumbar area since 1970. The diagnosis was established as follows: embolism of the common iliac artery. On September 14, 1966, a right aorto-femoral bypass was performed. On the third day after the operation, the patient developed a fever in the right leg, with infiltration of the skin and erythema of the common iliac artery. The new diagnosis was thrombosis of the common iliac artery.

On September 21, under anesthesia consisting of nitrous oxide and oxygen, combined with relaxants, the perforators wound from the first to the right common iliac artery were bared as far as the laceration of the artery.

On examination, it developed that, starting with the bifurcation of the artery, on the right side of the iliac artery, there could be palpated a very elastic diverticulum 10 cm. long, and filling the entire lumen of the vessel.

Both above and below the diverticulum, narrow tubes were then attached to the vessel and the lumen of the common iliac artery was opened up. The diverticulum was removed from the artery. By suturing, the diverticulum was closed with nylon, and then with heparin. The opening in the wall of the artery was closed with capten thread, with the use of chromic needles. After the tubes were removed, a healthy pulse corresponded in the peripheral arteries. Nine minutes later, however, palpation in the common iliac artery stopped and palpation easily determined the presence of a new thrombus in the same spot as the old.

The tubes that were attached upon the wound, the sutures removed from the vascular wall, and a porous diverticulum of the arteries as before the removal from the lumen of the artery. The tubes were then closed with a solution of heparin and paracetamol acid, and the blood circulation was restored. To prevent bleeding through the wall of the artery, the area of the vascular wall was removed with the use of electrocoagulation. The wound was closed, sutured, and a drain was placed. During the operation, fibrinolytic (10 units) was introduced. After the operation, the patient was administered a 5-percent solution of calcium gluconate. A 500 mg. dose of streptomycin was administered at the end of the operation. The arterial pulse in the left leg vanished, but it returned well pronounced in the right leg.

In view of the poor general condition of the patient, it was decided to remove the new thrombus with the aid of a rubber catheter. The left femoral artery was not palpable. After a syringe clamp was placed on the artery walls, the lumen was opened up with the aid of a catheter. From the removed and the left common iliac artery, the free circulation of blood through these vessels was thereby restored. Heparin (25,000 units)

J-9505

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People

50. Hillberry Medical Service
W21 R72
W21 R72
W21 R72

Captain of the Medical Service Y. H. Ostrom, Anaphylactic reaction upon taking analgin.

We have observed an anaphylactic reaction in patient T. aged 34, who took, internally, 0.25 gr. of analgin to relieve a headache. Twenty minutes later, he suffered nausea, distress of the mouth, skin itching, asthmatic cough, shortness of breath, and a urticarial rash developed on his hypogastric skin all over the body. The respiration rate increased to 30 per minute and became superficial. Auscultation revealed dry, rattled rales above the heart. The pulse was 110, rhythmic but weak. Blood pressure was 100/60 mm. Hg., and the central tonic sounded depressed.

Oxygen was administered immediately. Adrenalin and cortisone were injected subcutaneously and pinopiphen - intravenously. Fifteen minutes after the beginning of the attack, the manifestations described began to subside. On examination the next day, the patient reported slight nausea, as well as some headache, pain in the middle of the abdomen, in response to palpation. The skin rash vanished. The tongue was dry, with a whitish cast. Pulse was 80, rhythmic, and of satisfactory strength. Blood pressure was 120/80. The temperature was 37.3°C. The blood test showed 90 units of hemoglobin, leukocytes 14,000, p - 5 percent, e - 62 percent, erythrocyte sedimentation rate: 23 mm. per hour.

It developed that one of the patient's close relatives also suffers from oversensitivity to analgin.

Received in November 1965.

1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SYSTEMATIZATION OF BINDERS -U-
AUTHOR--SYCHEV, M.M. S
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 528-33
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ADHESION, HARDNESS, ADHESIVE BINDER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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2/2 016
CIRC ACCESSION NO--AP0128595
ABSTRACT/EXTRACT--(U) GP-O-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. A CORRECT BINDER SYSTEMIZATION WOULD BE THAT BASED ON THE ADHESION MECHANISM. BECAUSE THE PRESENT KNOWLEDGE ON ADHESION MECHANISMS IS POOR, THE NATURE OF THE HARDENING PROCESSES WAS CHOSEN AS THE SYTEMATIZATION CRITERION AND THE BINDERS CLASSIFIED INTO 3 GROUPS, WHERE THE HARDENING IS BASED ON (1) CHEM., (2) PHYS. CHEM., AND (3) PHYS. PROCESSES. VARIOUS HARDENING MECHANISMS WITHIN THESE GROUPS ARE BRIEFLY SURVEYED AND EXAMPLES ARE GIVEN. IN MANY PRACTICAL CASES, MORE HARDENING MECHANISMS ACT SIMULTANEOUSLY.
FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVEYA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 030

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--COATING STABLE IN NONFERROUS METAL MELTS -U-

AUTHOR--(03)--KAGANOV, I.R., SYCHEV, M.M., KOMLEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, (1) 24

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SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL COATING, ZINC, LIQUID METAL

CONTROL MARKING--NO RESTRICTIONS

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PROXY REEL/FRAME--1986/0129

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S

2/2 030

UNCLASSIFIED

PROCESSING DATE--02JCT70

CIRC ACCESSION NO--AP0102217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COATINGS CHEM. STABLE AND NOT
WETTED BY MOLTEN ZN AND AL WERE BASED ON A MIXT. OF H SUB3 PO SUB4: H
SUB2 O: HYDRATED AL SUB2 O SUB3: :2.1:2.3:1 WHICH WAS BOILED FOR 7 TO
12 MIN (38 TO 44PERCENT H SUB2 O) THEN MIXED 1:1 WITH CR BORIDE AS
FILLER FOR CHEM. RESISTANCE AND COEFF. OF EXPANSION CONTROL. THE FE
SURFACE TO BE COATED WAS REOXIDIZED AT 900DEGREES, TO GIVE BETTER
ADHESION, THE THERMAL TREATMENT OF THE COATING BEING CONTROLLED TO GIVE
GOOD RESULTS.

UNCLASSIFIED

Computers: Programming & Applications

USSR

UDC 681.327.54.21.22.003.53

L'VOV, V.A., SYCHEV, N.F.

"Certain Problems in the Construction and Utilization of a System for 2-Way Graphic Conversation with a Computer"

Avtomatiz. Proyektir. v Elektronike. Resp. Mezhved. Nauchno-Tekhn. Sb. [Automation of Planning in Electronics. Republic Interdepartmental Scientific and Technical Collection], No. 1, 1970, pp 26-32 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B525 from the resume).

Translation: The authors present a classification of the problems solved by a digital computer, and the organization of graphic conversation between operator and computer is analyzed. A functional diagram of the interaction of an operator with a computer is described, suggested by the Institute of Mathematics of the Siberian Division of the Academy of Sciences, USSR. 5 Figs, 13 biblio refs.

1/1

Welding

USSR

UDC 621.791.053.002.612:658.386

5 8
BOTINOV, S. N., KAZENNOV, YU. I., AGAPOVA, N. P., ~~PALECHUK, N. YU.~~ (Candidates of Technical Sciences), PROKHOROV, V. I., REVIZNIKOV, L. I., BOBYLEV, A. P., KRASINA, T. A., KRYLOV, YE. A., BALASHOV, V. D. ZINKOVSKIY, V. I., SYCHEV, R. S. (Engineers)

"Effect of Irradiation on the Properties of Welds of High-Alloy Steels and Alloys"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 70, pp 4-6

Abstract: The effect of neutron irradiation on the short-term mechanical properties of basic metals and welds from 00Kh16N15M3B, 0Kh16N15M3B, and 0Kh20N40B austenitic steels and 1Kh132BF ferrite-martensite steel was investigated. The mechanical properties were determined on samples cut in the longitudinal direction from argon-arc welds using an infusible electrode. The samples were irradiated in the active zone of a reactor at about 100°C. The theoretical neutron flux density was 10^{15} neutron/cm². sec. Some samples received a dose of 2.8×10^{21} neutron/cm², while others received a dose of 4.3×10^{21} neutron/cm². The mechanical properties were determined on UMD-5 tensile testing machines at air temperatures of 20, 350, and 650°C.

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USSR

BOTINOV, S. N. et al, Svarochnoye Proizvodstvo, No 3, Mar 70, pp 4-6

Tests conducted at 20°C showed that strength properties of all samples increased after irradiation; plasticity decreased. The tensile and yield strengths of weld metals with an austenitic structure increased to a lesser degree than those of the base metals. The mechanical properties of all samples at 350° did not differ from those of the base metals. A decrease in tensile and yield strength with a simultaneous decrease in plasticity was observed in samples with an austenitic structure in tests conducted at 650°C. These decreases were especially noticeable in irradiated samples made from 40% Ni steel. The possible cause of the sharp decline in the intergrain strength and plasticity observed at 650°C in the irradiated metal with high nickel content is suggested. Orig. art. has: 2 figures, 4 tables, and 5 references.

2/2

USSR

UDC: 537.312.62:621.3.014.1.001.1

SYCHEV, V. V. and AL'TOV, V. A.

"Current Distribution in Combined Superconductors"

Moscow, Izvestiya Akademii nauk SSSR--Energetika i transport, No. 5, 1970, pp 84-91

Abstract: A combined superconductor is here defined as a conductor in which the superconducting element is in the substrate, which is made of a normal metal, usually copper. The model proposed by Stekly in 1965 for explaining the theory of combined superconductors, which are widely used in stable magnetic systems, is discussed in this article. The authors point out a fundamental inaccuracy in the Stekly model which is contained in the latter's initial equation for the leakage current along the superconductor, equal to the critical current of the superconductor for a given equilibrium temperature of the combined conductor. The authors maintain that this leakage current should, in fact, be greater than the critical current, and that Stekly's initial equality should be an inequality. The correction they supply is a function of the ratio of the substrate resistance to the resistance of the superconductive part of the combined conductor. In their analysis, the authors find that the correction is necessary in many practical instances of superconductor design and computations.

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1/2 056

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AUTHOR--SYCHEV, V.V.

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SISTEMY) MOSCOW, ENERGIYA, 1970, 231 PP

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CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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