

USSR

UDC 681.325.65:525

BARYKIN, N. A., ZAYGERMAKHER, D. M., KHOKHLOV, G. N., BALUSHKIN, K. S.,
KOZOBRODOV, V. A.

"Logic Circuits Based on Pneumatic Relay Elements"

Pnevmatich. Privody i Sistemy upr. [Pneumatic Drives and Control Systems
-- Collection of Works], Moscow, Nauka Press, 1971, pp 267-272, (Translated
from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No 11, 1971, Abstract No 11 A74 from the Resume).

Translation: The basic characteristics and nomenclatures of pneumatic relay
automation elements (PERA) are presented, as well as typical logic device
circuits based on these elements. A modular-element method of planning of
devices based on PERA and the experience of the application of the standard
circuits are studied. 6 Figures; 1 Table; 1 Biblio. Ref.

1/1

Corrosion

USSR

UDC 620.194.8:629.7.02

ZAYKA, A. YA. and RADCHENKO, A. I., Kiev Institute of Civil Aviation Engineers

"Statistical Evaluation of the Effect of Prior Uniform Corrosion on the Service Life of Thin-Wall Sheet Designs"

Kiev, Fiziko-Khlmicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 35-40

Abstract: Smooth sections of aircraft panels, made of D16ATV alloy, were studied to determine the criteria on which to base probability-statistical principles with respect to the permissibility or degree of corrosion damage allowable before a panel will lose its static and fatigue strength as a result of this corrosion, as well as the reduction of service life. Corrosion-fatigue tests were conducted on smooth panels and panels with 4-mm-diameter holes using potassium nitrate (3% solution) as the corrosive media. From these tests, data were used to plot distribution curves for fatigue life with respect to corrosion damage and load after a 500 cycle/min-frequency exposure for a time exceeding 10^6 cycles, relationships of service life to corrosion damage, relationship of permissible corrosion to probability of failure, and relationship of corrosion damage to cyclic-load level. No specific conclusions were made except that corrosion-fatigue tests should be conducted for loads very close to actual operating conditions. Six figures, four bibliographic references.

1/1

Miscellaneous

UDC 669:539.43

USSR

KARLASHOV, A.V., RADCHENKO, A. I., ZAYKA, A. YA. and VORONKIN, N. F., Kiev
Institute of Civil Aviation Engineers

"Fatigue Resistance of Corrosion-Damaged Aircraft Covering"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Academy of Sciences
Ukrainian SSR, Vol 7, No 1, 1971, pp 53-56

Abstract: An investigation was made of the effect that a group of corrosion craters, simulating local corrosion of aircraft covering, has on the fatigue longevity of smooth and structural specimens made, respectively, of D16AT (1.85 mm thick) and D16ATV (2.5 mm thick) sheet materials. The fatigue tests of the smooth specimens of two batches were performed with net symmetrical bending ($\sigma = 14$ dynes/mm²) at a frequency of 70 cpm. The corrosion craters on the surface of the first-batch specimens were of constant geometrical dimensions (depth $t = 0.3$ mm and diameter $d = 1.3$ mm), varying only in the number of craters per unit surface. On the specimens of the second batch, in the middle of small craters 0.3 mm deep and 1.3 mm in diameter there was one "general" crater: $t = 1.0$ mm and $d = 3.5$ mm. It was found that the adverse effect of a group of corrosion craters of identical geometrical size covering approximately 10% of the area involved is practically the same as the effect of a single damage area, in the variation of fatigue longevity

1/2

USSR

KARLASHOV, A.V., et al, Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Academy of Sciences Ukrainian SSR, Vol 7, No 1, 1971, pp 53-56

of duralumin D16AT as a function of density of corrosion damage. For the case when the group of corrosion craters included a general crater in the D16AT duralumin specimens, it was found that the added presence of the small craters did not lead to a further reduction in fatigue longevity of the material beyond that induced by the general crater. In contrast to smooth specimens, specimens with rivetted joints were found to be practically unaffected by the presence of groups of corrosion craters.

2/2

- 80 -

UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2 011

TITLE--REDUCTION OF THE EPOXIDE RING DURING THE REACTION OF METHYLMAGNESIUM IODIDE WITH THE 20,ETHYLENE KETAL OF 16 ALPHA, 17

AUTHOR--(04)--PROKOFYEV, YE.P., AKHREM, A.A., ILYUKINA, T.V., ZAYKIN, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. ADAD. NAUK SSSR, SER. KHIM. 1970, (3), 715-6

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STEROL, EPOXIDE, ACETATE, HYDROXYL RADICAL, CHEMICAL REDUCTION, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1884

STEP NO--UR/0062/70/000/003/0715/0726

CIRC ACCESSION NO--AP0123672

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTRARY TO PUBLISHED CLAIMS (SCIANKY, R., 1961; SUVOROV, N. N., ET AL., 1960) IT WAS SHOWN FROM MASS AND NMR SPECTRAL DATA THAT REACTION OF 16 ALPHA, 17 ALPHA, EPOXY PREGN, 5, EN, 3 BETA, OL, 20, ONE ACETATE 20, ETHYLENE KETAL WITH MEMGI PROCEEDS SO THAT ALONG WITH NORMAL OXIDE RING OPENING TO FORM THE 16 BETA, METHYL, 17 ALPHA, HYDROXY DERIV., THERE IS ALSO FORMED THE 16, DEMETHYL ANALOG (I), PROBABLY VIA REDN. OF THE OXIDE RING BY RMGX. THIS YIELDS A DIFFICULTLY SEPARABLE MIXT. OF THE TWO PRODUCTS WHICH HAVE THE SAME CHROMATOGRAPHIC MOBILITY. IF THE REACTION IS RUN IN THF IT IS FURTHER COMPLICATED BY FORMATION OF 20, METHYL PREGN, 5, EN, 3 BETA, 17 ALPHA, 20, TRIOL, WHILE IN ET SUB2 O, C SUB6 H SUB6 THE MAIN REACTION FORMS PRODUCTS OF WAGNER, MEERWEIN REARRANGEMENT, YIELDING 53 PERCENT II.
FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

ZAYKO, N., Corresponding Member Academy of Medical Sciences USSR, Kiev

"Nerve Trophism"

Moscow, Meditsinskaya Gazeta, 9 May 73, p 3

Abstract: Nerves affect the trophism and metabolism of tissues and organs. If the innervation of white skeletal muscles, in which glycolysis predominates, and red skeletal muscles with predominant oxidative respiration is interchanged surgically in animals, the white muscles assume the metabolic, chemical, and physical characteristics of red muscles, while the latter are changed to white muscles. In work carried out by L. P. Zayarnaya at the Chair of Pathophysiology, Kiev Medical Institute, it was shown that on the 10-12th day after birth the metabolism of the cardiac muscle of rats changes under the effect of adrenergic innervation which develops at that time: the activity of lactate dehydrogenase decreases, while that of succinodehydrogenase increases. Cutting of the glossopharyngeal nerve results in degeneration of the sensitive points of the taste buds of the tongue, while regeneration of this nerve brings about structural restoration of these points. The same effects can be obtained by the removal and then reimplantation of taste neurons in animals. On cutting of the sciatic nerve

1/3

USSR

ZAYKO, N., Meditsinskaya Gazeta, 9 May 73, p 3

the structure of muscle glycogen becomes much simpler (L. A. Popova, Kiev Medical Institute). Denervated tissue regresses to the initial state of its development (L. A. Orbeli). V. S. Il'in substantiated this in regard to the tissues of muscles, the liver, and tumors. Tumor cells lose the capacity for differentiation, because they are no longer under nerve control. As far as the mechanism by which nerves control trophism is concerned, there are reasons to believe that the axoplasmic current participates in it. If an amino acid labelled with radioactive carbon is introduced into the nucleus of the glossopharyngeal nerve, the amino acid moves with the liquid in the nerve axon to the tongue and becomes incorporated in the tongue muscle cells, mainly their nuclei. Many scientists believe that substances of the type transferred through nerve axons act as nerve mediators of tissue trophism. Dystrophies of the stomach, liver, and heart tissues are produced when a sensitive region such as that of the aorta is strongly irritated (S. V. Anichkov, et al). The trophic effects that are produced in such cases are transmitted to the periphery over efferent sympathetic nerves from the reticular formation and the hypothalamus. To interrupt the arc of pathological reflexes producing dystrophies, novocain should be applied according to a recommendation by A. V. Vishnevskiy or barbiturates and centrally

2/3

USSR

ZAYKO, N., Meditsinskaya Gazeta, 9 May 73, p 3

acting cholinolytics according to S. V. Anichkov. Organs that have been transplanted are impaired not only because of immunological reactions, but also because of distorted reactions due to the absence of nerves. Cutting of adrenergic nerves produces an increased sensitivity of tissues to adrenalin, while cutting of cholinergic nerves results in an increased reaction to acetylcholine. N. D. Opanasyuk found at the author's laboratory that denervation of blood vessels results in distorted reactions to adrenalin, serotonin, histamine, and other substances. Regeneration of nerves is a problem that is of importance in connection with organ transplantation. A substance that stimulates the growth of sympathetic nerves has been isolated from the salivary glands of rats.

3/3

- 59 -

USSR

UDC 669.891.782.018.9

RYSS, M. A., ZAYKO, V. P

"Calcium-Containing Alloys Produced by the Metallothermal Method"

Metalloterm. Protsessy v Khimii i Metallurgii, [Metallothermal Processes in Chemistry and Metallurgy -- Collection of Works], Novosibirsk, Nauka Press, 1971, p 73-77. (Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract No 3G146 by the authors).

Translation: The Chelyabinsk Electrometallurgical Combine was the first to use a technology for the production of an alloy of Fe with Si and Ca by silicothermal processing from AcO , FeSi , and CaF_2 . The basic technological parameters of the process are presented. As the alloy is produced, it is refined by the highly basic slag, removing P, S, C, and Al. The introduction of dolomite to the composition of the charge allows a Ca-containing modifier to be produced with a content of 2-5% Mg, while the introduction of BaSO_4 produces a complex modifier containing 5.1-5.7% Ba. When the complex modifier is produced with high Mg content, it is expedient to melt the modifier with the Mg in the ladle. 1 table.

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USSR

UDC 669.893.018.9(088.8)

GOLEV, A. K., DELYAYEV, G. S., ZAYKO, V. P., RYSS, M. A.

"Method of Smelting Barium Alloys"

USSR Author's Certificate No. 277001, Filed 9/07/68, Published 20/10/70.
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5
G178P by G.Svodtseva).

Translation: In producing Ba alloy by the silicothermal method, the reduction process is performed with expenditure of quartzite in a quantity of 10-50% of the weight of the $BaSO_4$ in the charge. In order to assure complete separation of metal from slag, CaC_2 is introduced to the slag in a quantity of 20-40% of the slag weight. The method provides for production of an alloy of the following composition (in percent): Ba 3-50, Ca 1-20, Si 40-70, Fe 15-30, S up to 0.080.

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CSO: 1842-W

Acc. Nr. **AA0108167** - Abstracting Service: **6-70** Ref. Code **UR 0482 4**
CHEMICAL ABST.

Z

134782b Briquets for silicocalcium production. Korhevnikov, G. N.; Nefedov, P. Ya.; Vorobiev, V. P.; Rys, M. A.; Getmanchuk, V. M.; Zalko, V. P.; Belvay, G. S.; Mikulinski, A. S. (Ural Institute of Metallurgy, Academy of Sciences, U.S.S.R.) U.S.S.R. 260,653 (Cl. C 21c), 06 Jan 1970, Appl. 25 Feb 1969; From *Otkrytiya, Izobret., Prom. Obrastiy, Tovarnye Znaki* 1970, 47(4), 26. Briquets for silicocalcium production were made from lime 60-70 and a carboniferous reducing agent 30-40 wt. % to reduce the losses of Si and the consumption of charge materials. MSCL

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REEL/FRAME

18

19891833

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REDUCTION OF MAGNESIUM, CALCIUM, STRONTIUM AND BARIUM WITH SILICON
AND ALUMINUM FOR THE PRODUCTION OF COMPLEX MODIFIERS -U-
AUTHOR--(05)--GOLEV, A.K., ZAYKO, V.P., RYSS, M., VOLOSHCHENKO, M.V.,
KOMPANICHENKO, V.M.
COUNTRY OF INFO--USSR

Z

SOURCE--V SB. TEZISY DOKL. VIII KONFERENTSII PO TEORII I PRAKT. PROIZ-VA
REFERENCE--RZH-TEKHNLOGIYA MASHINOSTROYENIYA, NO 3, MAR 70, ABSTRACT E
DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MATERIALS, MECH., IND.,
CIVIL AND MARINE ENGR
TOPIC TAGS--METAL REDUCTION, MAGNESIUM, CALCIUM, STRONTIUM, BARIUM,
SILICON, ALUMINUM, SMELTING FURNACE, NODULAR IRON, CAST IRON,
METALLURGIC CONFERENCE

CCNTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1662

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

CIRC ACCESSION NO--AR0127136

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AR0127136

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS NOTED THAT DURING REDUCTION OF MG FROM MG OXIDE BY 75PERCENT FERROSILICON WITH THE USE OF FLUX (FLUORITE), IT IS POSSIBLE TO OBTAIN 3-4PERCENT MG IN ALLOY. WITH REDUCTION IN THE PRESENCE OF CA OXIDE IT IS POSSIBLE TO OBTAIN UP TO 5-6PERCENT MG IN THE ALLOY. CA WAS REDUCED BY 75PERCENT FERROSILICON UP TO 22-24PERCENT OF ITS CONTENT IN ALLOY. USE OF CALCIUM IN INDUSTRIAL SMELTING IS AS HIGH AS 25-35PERCENT IN THE ABSENCE OF OTHER OXIDES IN CHARGE. COMBINED REDUCTION OF CA, AL AND SI ALLOWS TO BRING RECOVERY OF CA FROM OXIDES UP TO 40PERCENT AND ITS CONCENTRATION IN ALLOY UP TO 24-26PERCENT. REDUCTION OF SR WAS MOST DIFFICULT OF THE ALKALINE EARTH METALS, ITS CONCENTRATION DURING COMPLEX SILICON CALCIUM ALUMINOTHERMIC PROCESS DID NOT EXCEED 15PERCENT. BARIUM WAS MOST EASILY REDUCED. DURING REDUCTION OF BA BY 75PERCENT FERROSILICON, ITS CONCENTRATION REACHED 35PERCENT AND ITS SHIFT TO ALLOY 45PERCENT. DURING COMPLEX CALCIUM SILICON ALUMINOTHERMIC PROCESS THE AMOUNTS WERE 45 AND 80PERCENT RESPECTIVELY.

UNCLASSIFIED

Mechanical Properties

USSR

UDC: 621.771.0

ZAYKOV, M. A., and BLEDNOVA, ZH. M., Krasnodar Polytechnical Institute

"Coefficient of Lateral Strain in Elastic-Plastic Forming"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1,
1971, pp 75-79

Abstract: Most practical problems in the theory of plasticity are solved under the assumption of the incompressibility of the material, basically due to the lack of knowledge of the nature of changes in the lateral deformation factor in the elastic-plastic region as a function of strain and stress. This study describes an attempt to determine the lateral deformation factor in the elastic-plastic region for a group of carbon steels and M1 copper as a function of lateral deformation and the dimensionless parameter σ/σ_s (apparent stress to shear strength) in cases of ordinary

1/2

USSR

ZAYKOV, M. A., and BLEĐNOVA, ZH. M., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1971, pp 75-79

stretching tests. Use was made of a TsDM multi-purpose tensile testing machine and resistance sensors. The experimental data derived in terms of a suggested equation show a slight discrepancy. A significant change in the lateral deformation factor was found to occur in deformations to stresses

$$\frac{\sigma}{\sigma} \approx 2.$$

2/2

- 14 -

1/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70
 TITLE--SPECTRAL REPRESENTATION OF THE TWO POINT FUNCTION FOR THE FIELDS
 DESCRIBING COMPOSITE PARTICLES -U-
 AUTHOR--(02)-BLOKHINTSEV, D.I., ZAYKOV, R.P.
 COUNTRY OF INFO--USSR
 SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2, PP
 166-170
 DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES
 TOPIC TAGS--FUNCTION, LORENTZ TRANSFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3003/0127

STEP NO--UR/0646/70/003/002/0166/0170

CIRC ACCESSION NO--AP0129559

UNCLASSIFIED

PROCESSING DATE--27NOV70

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0129559

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

ABSTRACT. WITH THE AID OF THE SELFAND-GRAEV
 TRANSFORMATION THE EXPANSION IS OBTAINED OF THE FOUR POINT FUNCTION OF
 THE SCALAR FIELD (OR, EQUIVALENTLY, OF THE TWO POINT FUNCTION OF THE
 BILOCAL FIELD) OVER TWO POINT FUNCTIONS OF THE FIELDS TRANSFORMING UNDER
 PRINCIPAL SERIE OF UNITARY REPRESENTATIONS OF THE LORENTZY GROUP AND
 CONVERSELY. IT FOLLOWS FROM THIS RESULT THAT THE INFINITE COMPONENT
 FIELDS CAN BE CONSIDERED AS COMPOSITE ONES. FACILITY:
 OB'YEDINENYY INSTITUT YADERKYYKH ISSLEDOVANIY.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--PRINCIPLES UNDERLYING THE CHOICE OF THE BLEPHAROPLASTY METHOD -U-
 AUTHOR--(02)-ZAYKOVA, M.V., ZUS, G.S.
 COUNTRY OF INFO--USSR
 SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 2, PP 68-72
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--EYE DISEASE, PLASTIC SURGERY, PEDIATRICS
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1986/0676 STEP NO--UR/03577/70/000/002/0068/0072
 CIRC ACCESSION NO--A90102660
 UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--0200Y70

CIRC ACCESSION NO--AP0102660

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYSIS OF LATE OUTCOMES FOLLOWING APPLICATION OF DIFFERENT METHODS OF BLEPHAROPLASTY IN 186 PATIENTS, WHO UNDERWENT 690 OPERATIONS OF STAGE WISE PLASTIC REPAIR, FURNISHED THE NECESSARY GROUNDS FOR CONSIDERING BASIC PRINCIPLES. . . . GOVERNING THE CHOICE OF THE PROPER METHOD. REMOTE OUTCOMES WERE VERIFIED OVER PERIODS FROM 6 MONTHS TO 20 YEARS. REASONS FOR UNSATISFACTORY OUTCOMES OF THE OPERATIONS, RELATED TO THE METHOD OF BLEPHAROPLASTY CHOSEN, ARE DESCRIBED. THE AUTHORS ARRIVE AT A CONCLUSION THAT IN CHOOSING THE METHOD OF BLEPHAROPLASTY OF PRIME IMPORTANCE IS INDIVIDUAL APPROACH, WITH DUE ACCOUNT FOR THE PECULIARITIES OF THE EYELID DEFECT AND FOR THE STATE OF THE PERIOULAR REGION. EACH ONE OF THE BLEPHAROPLASTY METHODS SHOULD BE ADOPTED IN CONFORMITY WITH DEFINITE INDICATIONS. THE ARTICLE CITES INDICATIONS FOR THE USE OF BASIC METHODS OF BLEPHAROPLASTY.

UNCLASSIFIED

USSR

UDC 669.1:548.0:538

SHUR, YA. S., ZAYKOVA, V. A. and KHAN, YE. B., Institute of Metal Physics,
Academy of Sciences USSR

"Domain Structure in Single Crystals of Silicon Iron in a Variable Magnetic Field"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 770-776

Abstract: A study was made to investigate the behavior of the domain structure in a variable magnetic field in relation to the induction amplitude. Samples were strips of silicon iron (3% Si) measuring 50 x 5 x 0.3 mm whose surfaces were close to the (011) crystal plane. Silicon iron was used because there is a more complete change in the domain structure in quasistatic fields, which significantly simplified the study. The surfaces of the samples were mechanically polished and vacuum annealed at 1100°C for two hours.

Observations of the single crystals showed that domain structure behavior in variable fields depends on the magnitude of magnetic induction (B_{max}). At $B_{max} = 50$ Hz, six domains were observed. The width of the domains remained fairly constant until a B_{max} of 11,500 Hz was induced. At $B_{max} = 12,800$ Hz the number of domains increased to eight, and at 15,000 there were nine domains. The new domains formed along the edge of the surfaces, parallel to the [100] axis. Upon approaching the saturation point the domain structure again changed, so that at $B_{max} = 1/2$

USSR

SHUR, YA. S., et al., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 770-776

17,000 Hz only three domains were noted.

According to the authors, magnetic (polarity) reversal in a dynamic mode differs substantially from magnetic reversal in the quasi-static mode and, in relation to the magnitude of B_{max} , can proceed by three methods. At small values of B_{max} , one observes a fluctuation of 180° domain boundaries near their equilibrium position (Method I). At higher values of B_{max} , along with the boundary fluctuations, the number of domains increases (Method II). At the saturation point there is a shifting of domain boundaries from the side surfaces to the center (Method III).

2/2

Semiconductors and Transistors

UDC 621.315.592

USSR

ZAYKOVSKAYA, M. A., KLIMKOVA, O. A., NIYAZOVA, O. R.

"Low-Temperature Alloying of Semiconductors"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 5, May 1971, pp 911-914

Abstract: The experimental results of radiation-accelerated introduction of gold and lithium into silicon are presented in this article. The experimental conditions under which low-temperature (150-350°K) diffusion of lithium and gold occurs in silicon are indicated. Under optimal conditions, the low-temperature diffusion rates can be the same as in the case of thermal diffusion or close to them. The electrical properties of the crystals vary identically in the case of both low temperature and high temperature alloying. The low temperature alloying method has definite advantages over thermal diffusion methods, ion bombardment, and so on: the formation of thermal donors and thermal acceptors and radiation disarrangement of the structure are excluded, comparatively simple experimental conditions are required, new possibilities for local alloying arise, and so on.

1/2

USSR

ZAYKOVSKAYA, M. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 5, No 5, May 1971, pp 911-914

The experimental data on gold diffusion and lithium drift in silicon under radiation effects show that radiation accelerated diffusion (in contrast to high-temperature diffusion) is characterized by temperature relations leading to reduced effective migration energy.

2/2

USSR

UDC 66.099.2:661.635.213

KARMYSHOV, V. F., BURYAK, K. A., ZAYKOVSKIY, A. V., (DECEASED), BAYEV, A. YA.,
SAVCHENKO, V. A., and PERMINOVA, L. YA.

"Granulation of Ammophos by the Pressing Method"

Moscow, Khimicheskaya Promyshlennost', Vol 48, No 6, Jun 72, pp 434-436

Abstract: A method for the granulation of multipurpose fertilizers by the pressing method was developed at the Scientific Research Institute of Fertilizers and Insectofungicides imeni Ya. V. Samoylov. This method is being applied for the production of granulated ammophos/ammonium phosphate fertilizer/ at the Dzhambulsk Superphosphate Plant. Ammophos pulp with a 50% water content is subjected to spray drying. The dry powder is classified and then compressed to form plates. In the pressing stage 6.56 t/hr of powder (fresh + recycled material) yielded 4.08 t/hr plates and 2.48 t/hr of fine material that had the same granulometric composition as the initial ammophos and was fully recycled. Crushing of the plates resulted in a commercial granulated product with a grain size of 1-3 mm (2.27 t/hr from 4.08 t/hr plates), fine powder with a grain size < 1 mm, that was recycled, and an oversize grain fraction that was reground. One of the principal problems in connection with the process is formation of a large amount of fine material that has to be recycled. Formation of fine material in the amount of 37.8%

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USSR

KARMYSHOV, V. F., et al., Khimicheskaya Promyshlennost', Vol 48, No 6,
Jun 72, pp 434-436

in the pressing stage is due principally to the porous structure of the powder being compressed, which contains only 30% of solids, and its high air content. The air contained in the powder interferes with feeding of the powder into the space between the rollers, producing spraying of the powder. It also reduces the adhesion between powder particles. To obtain a lower ratio of fine material that has to be recycled, methods must be developed for reducing the amount of air in the powder.

2/2

USSR

UDC 669.15 539.67

LAPTEV, D. V., BERNSHTEYN, M. L., BASINA, N. Z., and ZAYMOVSKIY, V. A.,
Moscow Institute of Steel and Alloys

"The Change of the Amplitude Dependence of Internal Friction of Nickel
Steels After Thermomechanical Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp
408-410

Abstract: A study was made of the amplitude dependence of internal friction of 40N25, 60N20, and 80N18 steels after thermomechanical treatment. Wire specimens, 250 mm long and 0.9 mm in diameter, were subjected to thermomechanical treatment and hardening. The specimens were drawn at 550 and 950°C. Martensite was produced by deep cooling in liquid nitrogen; its quantity comprised 86-90%. The amplitude dependence of internal friction (ADIF), investigated at room temperature, is characterized by the tangent of the angle of slope α of a straight line in $\epsilon-Q^{-1}$ coordinates. The austenite ADIF shows an increase of t_{ga} with decreasing deformation temperature and increasing carbon content in the steel. The change of t_{ga} of martensite of 60N20 steel and the change of the level of its internal friction, depending on the tempering temperature, are discussed by reference to diagrams. Four figures, one table, four bibliographic references.

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USSR

UDC 62-977:669.15-194.2

BERNSHTEYN, M. L., ZAYMOVSKIY, V. A., and MATEVOS'YAN, A. P., Moscow
Institute of Steels and Alloys

"Thermal Stability of Thermomechanical Hardening of Type 40 Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1970,
pp 26-28

Abstract: A study was made of the effect of the unusually high thermal stability of the hardening produced by high-temperature heat and mechanical working performed under plant conditions on standard rolled products of type 40 steel (diameter 19 mm). Mechanical, metallographic, X-ray structural, and electron microscope studies were performed. It was established that a high combination of mechanical properties is retained after intermediate holding in the α and γ areas (for various lengths of time) and subsequent hardening plus tempering. It is concluded that the effect results from austenite phase separation (partial bainite conversion) and the deformation involved in rolling. Elimination of the hardening effect requires quadruple annealing at 900°C for four hours. Intermediate tempering at 600°C or normalization at 840°C with holding times of up to ten hours do not decrease the mechanical properties.

1/1

- 56 -

USSR

ZAYMOVSKIY, V. A. (Reviewer)

"Preliminary Thermomechanical Treatment of D6AS Steel"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972,
pp 38-42

Abstract: Reviewed is a study of a newly developed hardening system called preliminary thermomechanical treatment (PTMT). The system specifies deformation before austenization or "preaustenization" heating followed by rapid heating for austenization to preclude recrystallization in the ferritic region. The objective of the study was the effect of certain PTMT parameters on the properties of D6AS steel as well as the factors responsible for the hardening effect. The experimental results provide a qualitative description of the hardening mechanism with PTMT. On rapid heating after deformation, the ferrite transformation occurs in such a manner that the strain hardening is imparted to the austenite; the elongated grains become equiaxial. Intermediate heating at 260-330°C will either increase the cold work or promote its complete transfer to the austenite. Prolonged holding in the austenitic region eliminates the cold work. Thus the mechanism of hardening with PTMT

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ZAYMOVSKIY, V. A., Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 38-42

is based on the transfer of cold working with phase transformations. Unlike other hardening procedures, such as ausforming or marforming, the cold work in PFM is performed prior to the austenitic transformation. (9 illustrations, 2 tables, 14 bibliographic references).

2/2

- 56 -

UDC: 669.15:621.785

USSR

BERNSHTEYN, M. L., BRUN, L. YA., ZAYTSEV, V. A., SAVARI, P. and
SAMEDOV, O. V., Moscow Institute of Steel and Alloys

"Inheriting the Thermomechanical Strengthening of 30Kh2GMT Steel"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71,
pp 813-818

Abstract: Described is a study of the mechanical properties of 30Kh2GMT steel quenched and tempered following preliminary high-temperature strain hardening with heating the deformed austenite as supercooled. It is shown that repeated quenching following high-temperature mechanical treatment facilitates the inheritance of high mechanical properties. The restoration of the higher properties is the more complete the longer the heating duration of the hot-deformed austenite in the bainite region. The maximum effect is observed when the high-temperature thermomechanical treatment is followed by isothermal decay. The effect of "inheritance" is also observed during repeated quenching following low-temperature thermomechanical treatment with isothermal decay of austenite. The nature of this phenomenon is discussed with regard to the metallographic analysis of the initial austenite grain

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USSR

BERSHTEYN, M. L., et al, Fizika metallov i metallovedeniye, Vol 32, No 4,
Oct 71, pp 813-818

in which picric acid has failed to produce an unambiguous etching pattern
and has most likely revealed, in addition to large-angle grain boundaries,
the boundaries of a substructure. (6 illustrations, 5 bibliographic references)

2/2

- 29 -

USSR

UDC: 621.376.5

ZAYMOVSKIY, Ye. A.

"Calculating the Transient Thermal Resistance of a Power Thyristor"

Tr. Radiotekhn. In-ta. AN SSSR (Works of the Radio Engineering Institute, Academy of Sciences of the USSR), 1970, No 1, pp 148-160 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D460)

Translation: Thyristors have recently found application as pulse dischargers in pulse power modulators. The use of thyristors has made it possible to improve many of the technical characteristics of modulators, especially their reliability. The pulse mode of modulator operation has a number of peculiarities which apply as well to the thermal state of the thyristors. The transient thermal resistance of a power thyristor is calculated. V. P.

1/1

- 55 -

USSR

UDC: 632.95

SIMONOV, V. D., IVANOV, A. V., ~~ZAYNAGABUTDINOV~~, S. A., KRASHE-
NINNOKOVA, O. S., Ufa Affiliate of the All-Union Scientific
Research Institute of Chemical Agents for Plant Protection

"A Method of Making Tetrachloroglutaconic Acid and Tetrachloro-
-4-Cyclopentene-1,3-Dione"

USSR Author's Certificate No 345125, filed 14 Sep 70, published
9 Aug 72 (from RZh-Khimiya, No 10, May 73, abstract No 10N583P
by N. V. Lebedeva)

Translation: Tetrachloroglutaconic acid (I) and tetrachloro-4-cyclopentadione-
-1,3 (II) are synthesized by reacting octachlorocyclopentene (III) or hexa-
chlorocyclopentene with Cl_2 in HSO_3Cl at 100-150°C. Example: Cl_2 is bubbled
through a mixture of 1 mole of III and 4 moles of HSO_3Cl at a rate of 30
1/hr with the application 1 of heat at 145°C for 10 hours; after cooling the
reaction mass is poured over ice and filtered, giving 0.455 mole of I,
melting point 107-8°C (chloroform). An organic layer (127 g) is treated with
200 g or 100% H_2SO_4 , the mixture is held for 7 hours at 105°C, poured over
1/2

USSR

SIMONOV, V. D., et al., USSR Author's Certificate No 345125, filed 14 Sep 70,
published 9 Aug 72

ice and filtered, yielding 0.4 mole of II, melting point 64-5°C (heptane).
Compounds I and II can be used as fungicides, herbicides, and also in the
synthesis of unsaturated self-quenching polyester resins.

2/2

- 37 -

UDC: 8.74

USSR

ZAYNASHEV, N. K., KUZNETSOV, M. M.

"Some Problems in Determining the Readiness of Periodically Monitored Technical Devices"

V sb. Osnovn. vopr. teorii i praktiki nadezhnosti (Basic Problems in the Theory and Practice of Reliability--collection of works), Moscow, "Sov. radio", 1971, pp 81-102 (from RZh-Kibernetika, No 1, Jan 72, Abstract no 1V1026)

Translation: Methods are outlined for determining the readiness of periodically monitored recoverable technical devices assuming various properties of the restored elements and causes for failures. It is assumed that elements which have failed may be replaced either by new or old elements, which have been used for a certain length of time. The authors consider the case where failure of the device in the period between checks and during inspections is due to breakdown of various component parts, and the case where the same parts of the device fail both under storage conditions and during inspections.

1/1

- 45 -

UDC 54-162.2:546.824'26'21

USSR

ALYAMOVSKIY, S. I., ZAYNULIN, YU. G., SHEVEYKIN, G. P., and GEL'D, P. V.,
Institute of Chemistry UNTs, Academy of Sciences USSR

"Concentration Relationship of the Degree of Filling the Unit Cell in Cubic
Titanium Oxycarbide"

Moscow, Neorganicheskiye Materialy, Vol 9, No 4, Apr 73, pp 596-599

Abstract: Results are reported on a study of the effect of composition on the completeness of the TiC_xO_y lattice for $x + y = 0.7$ to $x + y = 1.2$, which practically encompasses the entire region of homogeneity for titanium oxycarbide. The characteristics of 39 samples of TiC_xO_y were used (13 from this work and 26 from previous works) to determine the equations for oxycarbides with $x + y$ equal to 0.70-1.20 using the relationship $n_{Ti} = f(x)$ and components A, B, and C yielding $n_{Ti} = Ax^2 + Bx + C$. It is noted that twinning defects exist in the lattices of oxygen-containing cubic tricomponent phases of transition metal-base oxycarbides and nitrocarbides. 1 figure, 3 tables, 22 bibliographic references.

1/1

USSR

UDC 546.831.171.1-21

ZAYNULIN, YU. G., ALYAMOVSKIY, S. I., SHVEYKIN, G. P., GEL'D, P. V.

"Domain of Homogeneity of Zirconium Oxynitride With NaCl Structure, at 1,500°C"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 2, 1971, pp 315-317

Abstract: The binary systems Zr-N and Zr-O have been studied in detail; however, there is no information on the ternary system, and especially its cubical component (of NaCl type). Only a few papers have appeared dealing with certain characteristics of ZrN_xO_y with low oxygen content, and those dealing with partial ZrO_2 -ZrN systems.

Using 99.9 percent pure ZrO_2 and oxynitrides of composition $ZrN_{0.76}O_{0.12}$ and $ZrN_{0.87}O_{0.12}$, and also 99.9 percent pure Zr powder as starting materials, the authors prepared samples for X-ray analysis and determination of Zr and N content.

1/2

- 26 -

USSR

ZAYKULIN, YU. G., et al, Zhurnal Neorganicheskoy Khimii, Vol 16,
No 2, 1971, pp 315-317

It was found that at 1,500°C and 10^{-5} mm pressure, the domain of homogeneity of zirconium oxynitride with NaCl structure is limited ($y_{\max} \approx 0.3$, while the lattice periods, within these limits, vary only very slightly (from 4.574 to 4.575 Å). For ZrN_xO_y , vacant points are a distinctive feature, both in the sublattice of the metal and in that of the nonmetal.

2/2

1/2 037 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INVESTIGATION OF THE ANTIFERROMAGNETISM FERROMAGNETISM TRANSITION
IN THE COMPOUND MN SUB1,88 CR SUB0,12 SB -U-
AUTHOR--(05)-GRAZHDANKINA, N.P., BURKHANOV, A.M., BERSENEV, YU.S.,
ZAYNULLINA, R.I., MATVEYEV, G.A.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 4, PP 1178-1185
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--MAGNETIC TRANSFORMATION, TRANSITION TEMPERATURE, FERROMAGNETIC
MATERIAL, ANTIFERROMAGNETIC MATERIAL, STRONG MAGNETIC FIELD, HIGH
PRESSURE EFFECT, CRYSTAL ORIENTATION, CRYSTAL DEFORMATION, ANTIMONIDE,
MANGANESE COMPOUND, CHROMIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1502

STEP NO--UR/0056/70/058/004/1178/1185

CIRC ACCESSION NO--AP0106258

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106258

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF HIGH PRESSURE (UP TO P EQUALS 11000 ATM.) AND A STRONG MAGNETIC FIELD (UP TO 300 KOE) ON THE ANTIFERROMAGNETISM FERROMAGNETISM TRANSITION TEMPERATURE T OF THE MN SUB1,88 CR SUB0,12 SB COMPOUND IS INVESTIGATED AND THE VALUES OF DT SUBS-DP AND DT SUBS-DH ARE DETERMINED. THE MEASUREMENTS ARE PERFORMED WITH SINGLE CRYSTAL SAMPLES. THE ELASTIC PROPERTIES OF THE COMPOUND ARE INVESTIGATED AND DILATOMETRIC MEASUREMENTS IN VARIOUS CRYSTALLOGRAPHIC DIRECTIONS ARE CARRIED OUT. THE RESULTS OBTAINED ARE DISCUSSED IN LIGHT OF THE KITTEL EXCHANGE INVERSION THEORY OF MAGNETIC PHASE TRANSITION OF THE FIRST KIND.

FACILITY: INST. FIZIKI METALLOV AN SSSR.

UNCLASSIFIED

USSR

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UDG: 547.944.954

ISLAMOY, KH. A., ZAKHIDENOV, U. N., KUSHMURADOV, YU. K. and SADIYKOV, A. S.,
Tashkent State University Imeni V. I. Lenin, Tashkent, Ministry of Higher and
Secondary Specialized Education UzSSR

"New Didehydro-Derivatives of Matrine [Isolupanine] Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1970, p 381

Abstract: From matrine via 5-hydroxy-6,7-dehydromatrin, a matrine series didehydro-
compound where double bonds encompass three or four optical centers was synthesized.
Dehydration of 5-hydroxy-6,7-dehydromatrine with P_2O_5 by the Fol'man method led to
a complex mixture of compounds, while dehydration in an n-xytol solution led to the
matrine didehydroderivative with a 40% yield. This study suggests that in selecting
conditions for hydrogenation of the didehydro product several new stereoisomers of
matrine can be obtained.

1/1

USSR

MATVIYEV, YU. M., ZAYONCHIK, L. I., SITNIKOV, L. L., OSTRYAKOV, V. V.

"Strain Study of Mechanically Inhomogeneous Bodies Using Optically Sensitive Coatings"

Moscow, Zavodskaya Laboratoriya, Vol XXXVII, No 4, 1971, pp 468-471

Abstract: A study is made of the stress-strain state of mechanically inhomogeneous bodies using optically sensitive coatings. The effect of mechanical inhomogeneity of the medium on the stress-strain state and the nature of development of the zones of plastic flow are estimated. The layer of coatings is applied to the reflecting surface of a bimetal sample, and the optical effect is established in the form of a Moray pattern and the isochrome pattern. The penetration of the zone of plastic flow as a function of the degree of relative reduction during the process of reducing homogeneous discs made of soft and hard lead-antimony alloys and bimetal discs is plotted, and the kinetics of development of the normal stresses in the center of a disc are illustrated for two inhomogeneity diagrams.

1/1

1/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--MECHANICAL PROPERTIES OF INNER FOOTWEAR COMPONENTS MADE FROM
PLASTICS -U-
AUTHOR--(02)-LEYNOV, YA.N., ZAYONCHKOVSKIY, A.D.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. LEGK. PROM. 1970, (1), 98-101
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MILITARY SCIENCES
TOPIC TAGS--MATERIAL DEFORMATION, FOOTGEAR, POLYISOBUTYLENE, POLYETHYLENE,
TEST METHOD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1109 STEP NO--UR/0323/70/000/001/0098/0101
CIRC ACCESSION NO--AT0134795
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 032

CIRC ACCESSION NO--AT0134795

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE DEFORMATION OF FOOTWEAR COMPONENTS MADE FROM POLYISOBUTYLENE, POLYETHYLENE MIXTURES (1) ON THEIR THICKNESS, CHEM. COMPN., LOAD VALUE, AND OTHER FACTORS WAS STUDIED. THE TEST BARS HAD THE FOLLOWING DIMENSIONS: LENGTH 55 MM, WIDTH 6 MM, THICKNESS 1-7 MM. THE FLEXIBILITY OF SAMPLES OF THICKNESS 1.5-3 MM MADE FROM I, LEATHER, OR CARDBOARD WAS IDENTICAL. THIS SHOWS THE POSSIBILITIES FOR THE APPLICATION OF I FOR FOOTWEAR COMPONENTS PRODUCTION.

FACILITY: VSES. ZAACH. INST. TEKST. LEGK. PRDN.,

MOSCOW, USSR.

UNCLASSIFIED

Hydraulic and Pneumatic

USSR

UDC 629.78.062.2

POGODAYEV, F. G., ZAYONCHKOVSKIY, G. I.

"Application of Integral Criteria to Analyze the Quality of Transfer Processes in a System With a Hydraulic Amplifier"

Sb. nauch. tr. Kiev. in-t inzh. grazhd. aviatsii (Collection of Scientific Works of Kiev Institute of Civil Aviation Engineers), 1970, No. 6, pp 16-22 (from RZh-Raketostroyeniye, No 9, Sep 71, Abstract 9.41.189)

Translation: Analytical relationships are obtained for determining in the linear formulation the combination of parameters of a hydraulic servosystem to produce the most favorable transfer process. Since the optimal combination of values of the parameters of the hydraulic servosystem corresponds to the minimum value of the integral square error or is close to this value, an integral of the type

$\int_0^{\infty} e^2 dt$ can serve as a criterion for selecting optimal parameters of a hydraulic

amplifier of a control system (as a first approximation). The results obtained in considering the linear problem can be the basis for a further study of problems in the dynamics of hydraulic amplifier systems considering nonlinearities.

6 ill. Resume.

1/1

USSR

UDC 536.421.4+536.421.1

GERDELEV, S. Sh., SAYONCHONSKIY, Ya. A., and LYUSHIN, V. V.

"Effect of Crystallization Conditions on the Smoothness of Manganese Ferrite Film Surfaces"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 86-90 (from RZh-Fizika, No. 9, 1971, Abstract No. 93399)

Translation: The effect of temperature and rate of crystallization on the dimensions and form of the bumps in the growth of manganese ferrite films is investigated. The films were grown by the method of chemical transport reactions in a small gap. With increasing temperature, there were at first many and very small growing bumps; these reached a maximum and then degenerated. The size of the truncated bumps increased continuously. With an increase in the rate of growth, the height of the bumps increased, and their shape changed from pyramidal to conical. Author's abstract

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--USE OF A NEW LUBRICATING ADDITIVE FOR DRILLING MUDS DURING DIAMOND
DRILLING OF GEOLOGICAL BOREHOLES -U-
AUTHOR-(051)-ZAYONTS, O.L., KOMAR, V.YA., PUKAS, A.I., YARDV, A.N., KENDIS,
M.SH.
COUNTRY OF INFO--USSR

SOURCE--RAZVED. OKHR. NEDR 1970, 36(3), 37-40

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, EARTH SCIENCES AND
OCEANOGRAPHY, MATERIALS
TOPIC TAGS--LUBRICANT ADDITIVE, VEGETABLE OIL, LUBRICATING OIL, DRILLING
MUD, DIAMOND, GEOLOGY, DRILLING MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/2068

STEP NO--UR/9083/70/036/003/0037/0040

CIRC ACCESSION NO--AP0127441

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 026

CIRC ACCESSION NO--AP0127441

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TARS FROM SOAPSTOCKS OF BLACK
COTTONSEED OIL AND TECH. FATS (ACID NO. 130-200 MG KOH, MOL. WT.
475-522, D. 0.872) WERE USED IN AMTS. OF 2PERCENT AS LUBRICATING
ADDITIVES TO MUDS DURING DIAMOND DRILLING. THE RESULT WAS SIMILIAR TO
50PERCENT DECREASE IN SURFACE TENSION OF MUDS, SIMILIAR TO
100-200PERCENT INCREASE IN DRILLING RATE, AND SIMILIAR TO 35PERCENT
REDN. OF WEAR OF DIAMOND CROWNS. FACILITY: TREST,
KIEVGEOLOGIYA, KIEV, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--A METHOD OF RELATIVE SEMIQUANTITATIVE SPECTRAL INVESTIGATION OF THE
SEMINAL FLUID -U-
AUTHOR--(03)-SMOLYANINOV, V.M., PASHINYAN, G.A., ZAYSEV, V.V.
COUNTRY OF INFO--USSR
SOURCE--UROLOGIYA I NEFROLOGIYA, 1970, NR 3, PP 36-38
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--REPRODUCTIVE SYSTEM, SPECTRUM ANALYSIS, SPERMATOGENESIS,
PHOSPHORUS, IRON, CALCIUM, COPPER, SODIUM, ALUMINUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0170 STEP NO--UR/0606/70/000/003/0036/0038
CIRC ACCESSION NO--AP0120870
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 023

CIRC ACCESSION NO--AP0120670

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

ABSTRACT. THE AUTHORS REPORT A METHOD OF SPECTRAL EMISSION ANALYSIS AS APPLIED TO THE STUDY OF INORGANIC COMPOSITION OF NORMAL AND PATHOLOGICALLY CHANGED HUMAN SEMINAL FLUID. DETERMINATION OF 6 MACRO AND TRACE ELEMENTS OF THE EJACULATE (PHOSPHORUS, IRON, CALCIUM, COPPER, SODIUM AND ALUMINIUM) IS PRESENTED AS AN EXAMPLE. THE RESULTS OF THESE INVESTIGATIONS WERE TREATED STATISTICALLY. THE METHOD IS RECOMMENDED FOR DIAGNOSIS OF SOME CONDITIONS OF THE EJACULATE IN CLINICAL PRACTICE. FACILITY: KAFEDRA SUDEBNOY MEDITSINY II MOSKOKSKOGO MEDITSINSKOGO INSTITUTA IM. N. I. PIRGGOVA.

UNCLASSIFIED

173 021 UNCLASSIFIED PROCESSING DATE--16OCT70
 TITLE--SELF DIFFUSION OF MERCURY, SULFUR, AND SELENIUM IN HGSE SUBI-X S
 SUBX AND HGTE SUBI-X S SUBX SOLID SOLUTIONS -U-
 AUTHDR--(04)-KHARAKHORIN, F.F., GAMBAROVA, D.A., ZAYTOV, F.A., LUTSIV, R.V.
 COUNTRY OF INFO--USSR
 SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 564-5
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--MERCURY COMPOUND, SELENIUM COMPOUND, SULFUR COMPOUND, SOLID
 SOLUTION, SINGLE CRYSTAL, ACTIVATION ENERGY, RADIOACTIVE ISOTOPE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0363/70/006/003/0564/0565
 PROXY REEL/FRAME--1996/0865
 CIRC ACCESSION NO--AP0118041
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/3 . . 021

CIRC ACCESSION NO--AP0118041

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

ABSTRACT. TEMP. DEPENDENCES OF SELF DIFFUSION COEFFS. OF S, SE, AND HG IN SINGLE CRYSTALS OF HGSE SUB1-X S SUBX AND HGTE SUB1-X S SUBX (X EQUALS 0.1-0.4) OF THE ELECTRONIC TYPE WITH A CURRENT CARRIER CONC. OF SIMILAR TO 5 TIMES 10¹⁸ CM³ PRIME NEGATIVE3 WERE STUDIED. THE STUDY OF THE SELF DIFFUSION WAS DONE WITH THE AID OF RADIOACTIVE ISOTOPES PRIME203 HG, PRIME75 SE, AND PRIME35 S BY THE METHOD OF REMOVING SUCCESS LAYERS. DIFFUSION ANNEALING OF THE SAMPLES WAS DONE IN EVACUATED QUARTZ AMPULS AT 200, 300, 350, AND 400DEGREES FOR 30-80HR. THE DIFFUSION PROCEEDED FROM THE GAS PHASE. WITH INCREASING S CONC. IN THE HGSE SUB1-X S SUBX SYSTEM FROM 1 TO 36PERCENT, THE SELF DIFFUSION COEFF. OF S AT 300DEGREES DECREASES FROM 5 TIMES 10¹⁸ CM³ PRIME NEGATIVE13 TO 1.1 TIMES 10¹⁸ CM³ PRIME NEGATIVE13 CM³ PRIME2-SEC. THE DECREASED IN THE SELF DIFFUSION COEFF. WITH ITS INCREASED CONC. IN THE SOLID SOLNS. INDICATES PREFERENTIAL DIFFUSION OF S ALONG THE HG VACANCIES. IN THE HGTE SUB1 NEGATIVEX S SUBX SYSTEM THE SELF DIFFUSION OF S PROCEEDS PRIMARILY ALONG THE S AND THE TE VACANCIES. UPON ANNEALING OF THE LATTER SOLID SOLNS. IN S VAPORS THE CARRIER CONC. DECREASES FROM 10¹⁸ CM³ PRIME NEGATIVE3 TO 2 TIMES 10¹⁷ CM³ PRIME NEGATIVE3. WITH INCREASING CONC. OF S IN HGSE SUB1 NEGATIVEX S SUBX FROM 10 TO 30PERCENT, THE SELF DIFFUSION COEFF. OF SE AND HG INCREASES AND THE MAX. VALUES ARE AT X EQUALS 0.2. THE ACTIVATION ENERGY OF THE DIFFUSION OF HG IS 0.3 EV, AND THAT OF SE IS 0.67 EV. AFTER DIFFUSION ANNEALING IN HG VAPOR THE CARRIER CONC. INCREASES FROM 1 TIMES 10¹⁸ CM³ PRIME NEGATIVE3 TO 6 TIMES 10¹⁸ CM³ PRIME NEGATIVE3, WHEREAS THE MOBILITY DECREASES BY A FACTOR OF 2.

UNCLASSIFIED

3/3 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118041

ABSTRACT/EXTRACT--WITH INCREASING ANNEALING TEMP. SE VAPORS (10 PRIME
NEGATIVE4 TORR), THE CURRENT CARRIER CONC. DECREASES FROM 1 TIMES 10
PRIME18 TO 2 TIMES 10 PRIME17 CM PRIME NEGATIVE3.

UNCLASSIFIED

ACC. NR:

AP0044402

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskii Zhurnal, 1970, Vol 56,
Nr 1, pp 55-63
«SLOW» AND «FAST» MOTONEURONS DIFFERENTIATED BY EFFECTS OF POST-
TETANIC POTENTIATION AND ISCHAEMIC DEAFFERENTATION IN
MAN

Kots, Ya. M.; Zaytsev, A. A.

From the Central Institute of Physical Culture, Moscow

Post-tetanic potentiation (PTP) of the H-reflex is revealed after tetanisation of m. tibialis at the 40/sec frequency but is lacking at the 40/sec or 60/sec frequency. PTP of the H-response of the «fast» medial gastrocnemius motor units (increase of the amplitude of the 1st early component of the H-response of m. gastrocnemius medialis) appears only following relatively strong tetanisation and is essentially less evident than PTP of the H-response of the «slow» soleus and medial gastrocnemius motor units (increase of the amplitude of the H-response of m. soleus and the 2nd late component of the H-response of m. gastrocnemius medialis). Ischaemic blocking the low threshold afferents causes earlier and stronger changes in the H-response of «slow» soleus and medial-gastrocnemius motor units than those in the H-response of «fast» medial gastrocnemius motor units. These facts lead us to conclusions that in man the H-response of the «fast» medial gastrocnemius motor units is evoked by the activation of the more higher threshold afferents than the H-response of «slow» soleus and medial gastrocnemius motor units.

REEL/FRA
19771020

USSR

UDO 621.375.126

VANKE, V.A., ZAYTSEV, A.A., KRYUKOV, S.P., LOPUKHIN, V.M. [Moscow State University]

"Problems Of Designing A Narrow-Band Tunable DC-Pumped Amplifier"

Izv.VUZ:Radiofizika, Vol XV, No 2, Feb 1972, pp 291-299

Abstract: The possibility is discussed of designing a narrow-band tunable amplifier-filter on the basis of a diptron [diftron]. The scheme of this unit contains a ferromagnetic tip, an electron gun, an input distribution coupler, an amplification zone, an output distribution coupler, and a coupler. The dispersion characteristics of waves of the electron flow and delay system are presented. The advisability is shown of using a single-row comb as an input coupler of the amplifier. The parameters are numerically calculated. A graph is shown of the dispersion characteristics of a zero-order space harmonic and the distribution of high-frequency electrical fields of a single-row plane comb. The schema is presented of an amplifier-filter with a combined delay system and one of the variants of such a system. The physical processes during interaction between the electron beam with a delay system and the dc-pumped field are considered. Numerical estimates are given. 5 fig. 9 ref. Received by editors, 26 Apr 1971.

1/1

- 3 -

ZAYTSEV, A. A.

UDC 532.593.4
WAVES AT THE SURFACE OF A FLUID OF FINITE DEPTH
EXCITED BY AN UNDERWATER SOURCE
Article by A.A. Zaytsev, Moscow Physico-Engineering Institute, Dolgoprudnyy,
Moscow Oblast, ~~Donetsk~~ ~~Ukrainy~~ ~~Academi~~ ~~Nauk~~ ~~SSSR~~, Russian, Vol 201, No 5,
1971, submitted 14 May 1971, pp 1070-1073

JPRS 55584
30 March 1972

In the article, the author examines the established wave motion at the surface of a flow of ideal heavy liquid of constant depth H , moving at velocity c in direction of the positive x -axis. A rectangular system of coordinates is chosen in such a way that plane xOz coincides with the undisturbed liquid level while the Oz -axis is directed vertically upward. The waves are excited by a periodically acting point source located at depth $h < H$. The frequency of the source's oscillations is ω . The established regime is considered in the limit of the steady regime as $t \rightarrow \infty$.

A wave pattern in the case of a fluid of infinite depth has been investigated by L.K. Spetsenskiy [1], B.G. Buzov [2], Semon [3], and Tikhonov [4]. If no consideration is given to the source in constant through time, the problem under having finite depths a solution to this last problem was found by Havelock [5] and then by L.V. Cherkosov [6].

Assume that output of source q varies according to the law
 $q = H(t) \exp(i\omega t)$,
where $H(t)$ is the Heaviside function. Assume that there exists a velocity potential of perturbed motion $\Phi(x, y, z, t)$. Then Φ satisfies the Poisson equation

$$\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} + \frac{\partial^2}{\partial z^2}\right)\Phi = -H(t) \exp(i\omega t) \delta(z-h), \quad (1)$$

$$\left(\frac{\partial^2}{\partial x^2} + 2c \frac{\partial^2}{\partial x \partial t} + \frac{\partial^2}{\partial t^2}\right)\Phi = 0 \quad \text{at } z=0, \quad (2)$$

$$\frac{\partial \Phi}{\partial z} = 0 \quad \text{at } z=H. \quad (3)$$

USSR

UDC 621.375.126

VANKE, V. A., ZAYTSEV, A. A., KRYUKOV, S. P., LOPUKHIN, V. M., Moscow State University

"Problems of Designing a Narrow Band Tunable Electrostatic Amplifier"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 2, 1972, pp 291-299

Abstract: The possibility of building a narrow band tunable filter amplifier based on a diffron was analyzed. The expediency of using a single-row comb as the input and output couplers of the amplifier was demonstrated, and numerical calculations of the parameters were performed. A study was made of the physical processes in the presence of combined interaction of an electron flux with a decelerating system and an electrostatic pumping field. The possibility of partial or complete combination of individual sections of the amplifier into a single system was demonstrated, and numerical estimates are presented. The pass band of the investigated amplifier with a single combined system for $\lambda = 8$ cm, $\Delta f \approx 120$ megahertz with a separate input coupler was 60 megahertz. The ordinary filter amplifier with separate input and output couplers has a band of $\Delta f \approx 40$ megahertz.

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USSR

UDC: 538.4

ZAYTSEV, A. A. and MISKINVA, N. A.

"Investigating Some Processes in Discharges in Binary Mixtures"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas -- collection of works) Minsk, "Nauka i tekhn." 1970, pp 490-495 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B61)

Translation: An investigation is conducted into discharges in binary mixtures of Ne-Hg and Ne-H₂ both with and without electrophoresis. Data is given concerning the electric field, the concentration and temperature of the electrons along the length of the axially nonuniform positive column. These parameters are compared with the parameters of the movable strata. The obtained data indicates that the ion mechanism of separating mixture components is to be preferred. The electron energy losses in axially homogeneous mixtures of inert gases and mercury vapor are measured and computed. Bibliography of 14. Author's abstract

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USSR.

UDC: 536.4+532.51

GUKHMAN, A. A. and ZAYTSEV, A. A.

"Self-Modeling Variables, II"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 8, No. 4, 1970, pp 847-855

Abstract: This article is the second part of a series begun in Vol. 8, No. 1, 1970, of the journal named above and deals with several problems which can be transformed only into partially self-modeling form. As an example, the authors consider the problem of heat exchange during boiling in a large space, a situation for which there is as yet no sufficiently developed physical model for use in its analysis. They examine several approaches to the solution of this problem which, they assert, is widely being considered in the Soviet Union. They also deal with the problem of viscous, incompressible liquid flow along a tube of circular cross section on the rim of a disc and show how the method of characteristic scales can be used to simplify the initial system of equations.

1/1

USSR

UDC: 541.49:546.799.3

YELESIN, A. A., ~~ZAYTSEV, A. A.~~, KARASEVA, V. A., NAZAROVA, I. I.,
PETUKHOVA, I. V.

"Synthesis of (Methyl Phenyl Phosphonyl) Methyl Phenyl Phosphonic Acid, and
an Investigation of Complexing With Trivalent Ions of Americium, Curium and
Promethium"

Leningrad, Radiokhimiya, Vol 14, No 3, 1972, pp 374-377

Abstract: The authors studied complexing of trivalent Am, Cm and Pm ions with
an organophosphorus compound containing two P=O groups joined by a methyl
bridge. This compound, (methylphenylphosphonyl)methylphenylphosphonic acid,
was synthesized. The thermodynamic value of its dissociation constant was
determined ($pK^0 = 2.04$). Complexing was studied by the ion-exchange method on
KU-2 cation-exchange resin. The logarithms of the constants of stability for
complexes of Am^{3+} , Cm^{3+} and Pm^{3+} in solutions with constant ionic strength of
0.2 ($HClO_4$) were 3.35, 3.35 and 3.40 respectively, which is appreciably
higher than the corresponding values with phosphoric and methylphosphonic
acids, and approaches the value of the constants with trimetaphosphoric acid.
The additional stabilization of these complexes was attributed to the chelate
effect associated with ring closure.

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UDC 541.183+541.49

USSR

YELESIN, A. A., and ZAYTSEV, A. A.

"Ion-Exchange Behavior of Trivalent Am, Cm, Cf and Other Elements in the System with Nitrilotriacetic Acid"

Leningrad, Radiokhimiya, Vol XIV, No 5, 1972, pp 731-738

Abstract: Direct experiments were performed to separate americium and curium in order to evaluate the real difference in the stability constants and, in addition, to try to evaluate the relative position of the americium and curium and rare earth metals for which promethium was also added to the separated mixture. Subsequent experiments were performed in which the class of elements was expanded and californium, europium and other elements were also used in the experiments. The ion exchange behavior of Am^{3+} , Cm^{3+} , Cf^{3+} , Pm^{3+} and the other elements in a system with nitrilotriacetic acid was investigated and on the basis of the separation data corrections were introduced into the values of the stability constants of the complexes for matching with the results of potentiometric measurements.

The separation factor of the curium-americium pair is 1:3, and that of the curium-promethium pair, 2.2. For the ratio of concentrations of nitrilotriacetic acid and α -oxyisobutyric acid used in the experiments, 1/2

USSR

YELESIN, A. A., and ZAYTSEV, A. A., Radiokhimiya, Vol XIV, No 5, 1972,
pp 731-738

the process is determined by the complexation, and the role of the α -oxyisobutyrate reduces to creating the necessary buffering of the solutions. In an

α -oxyisobutyrate environment, europium is washed out between californium and curium, but in the presence of nitrolotriactic acid it follows with curium which indicates the closeness of the complex-formation constants. In accordance with the stability constant yttrium should wash out together with or close to europium, but in practice it precedes europium. This is explained by the fact that the yttrium exchange constant between the resonance solution is less than that of europium.

The following values of the stability constants of the complexes are used to explain the results of the ion exchange separations:

$$\text{Eu} \quad -\lg \beta_1 = 11.51, \quad \lg \beta_2 = 20.76;$$

$$\text{Cm} \quad -\lg \beta_1 = 11.6, \quad \lg \beta_2 = 20.76;$$

$$\text{Am} \quad -\lg \beta_1 = 11.5, \quad \lg \beta_2 = 20.65;$$

$$\text{Pm} \quad -\lg \beta_1 = 11.4, \quad \lg \beta_2 = 20.42.$$

2/2

USSR

UDO 621.314.58

ZAYTSEV, A.I., KUVSHINOV, A.A.

"To A Computation Of The Electromagnetic Processes In A Six-Phase Compensation Converter With Equalizer Reactor"

Izv. Tomsk. politekhn. in-ta (Bulletin Of Tomsk Polytechnical Institute), 1970, 211, pp 3-9 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B441)

Translation: In the circuit under consideration, a compensating reactor is connected between the terminals of an equalizer reactor across two anti-parallel controllable rectifiers [BENTRAB]. For analysis, the method of piecewise linear approximation is used, during which the volt-ampere characteristic of the rectifiers is replaced by forward segments. In the computation there is not taken into account: magnetizing current and effective resistance of the magnetic elements, and reduction of voltage in the rectifiers in the forward direction. An analysis is conducted and the dependences are obtained for currents and voltage at the capacitor for the following two regimes, during which the compensation converter can operate without disruption: with two simultaneously switched-on power rectifiers, and with one switched-on power rectifier (when loading of the commutating capacitor by d-c takes place). Farther, for simplification of the solution,

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USSR

ZAYTSEV, A. I., KUVSHINOV, A. A., Izv. Tomsk. politekhn. in-ta, 1970, 211, pp 3-9 (from RZh--Elektronika i yeye primeneniye, No 1, Jan 1971, Abstract No 1B441)

during investigation of electromagnetic processes in the circuit of the capacitor the assumption is accepted that the phase electromotive forces of the transformer in the intervals of operation of the unit for artificial commutation remain constant. Test computations on a digital computer showed that with such an assumption the precision of computation is found within the limits of 15%.
2 ill. 3 ref. I. R.

2/2

- 37 -

USSR

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UDC 621.791:621.315.66:62 - 462

ZAYTSEV, A. L., Engineer, RUD', S. V., Engineer (Zhdanov Metallic Construction Plant), SHILKAREV, B. M. Candidate of Technical Sciences (Minmontazhspestroy UkrSSR)

"Manufacturing Welded Radio Antenna Masts of Tubular Profiles"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 70, pp 17-19

Abstract: A study was made of a welding method using 2.1-2.2-mm PP-AN4 iron powder wire with supplementary carbon dioxide arc protection for the production of radio antenna masts of rectangular or tubular cross section. The presence of slag-forming components in the core, in combination with the carbon dioxide protection, makes it possible to effectively deoxidize the molten bath, and to reduce its gas content (0.010% nitrogen, 0.040% oxygen). The impact ductility of such welds on low-carbon and particularly on low-alloy construction steels (S 35-S 40), remains high at temperatures of -60°C and lower. Welding with PP-AN4 wire with carbon dioxide protection is recommended for structures made from low-carbon and low-alloy steels. Photographs and descriptions of various production setups and welding rigs are included. Orig. art. has: 4 figures and 2 tables.

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USSR

UDC 621.396.677:523.164

ZAYTSEV, A. P., ZOTOV, V. V., and SEVHYUKOV, B. N.

"One Extremal Problem of Radiotelescope Control"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp.116, pp 148-154 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B21)

Translation: The authors study the particularities of systems for the control of radio telescopes. Problems are also studied which are related to the development of radio telescopes in conjunction with large antennas with a single, fixed emitter where the antennas form a single-beam radiation pattern. An algorithm is set up for optimizing the system of control. Original article: three illustrations and seven bibliographic entries. N.S.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ENERGETICS OF THE FERROUS METALLURGY, 1970 YEAR -U-
AUTHOR--(02)--YEGORICHEV, A.P., ZAYTSEV, A.P.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, PROMYSHLENNAYA ENERGETIKA, NO 2, FEB 70, PP 5-7
DATE PUBLISHED----FEB70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--FERROUS METAL, BLAST FURNACE, AIR POLLUTION, INDUSTRIAL
AUTOMATIC CONTROL, OXYGEN, STEEL INDUSTRY, ELECTRIC INDUSTRY, INDUSTRIAL
WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1654 STEP NO--UR/0094/70/000/002/0005/0007
CIRC ACCESSION NO--AP0109652
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0109652
ABSTRACT/EXTRACT--(U) GP-0--

UNCLASSIFIED

PROCESSING DATE--020CT70

ABSTRACT. THIS ARTICLE PRESENTS A CONCISE HISTORICAL SUMMARY OF THE DEVELOPMENT AND ACHIEVEMENTS OF THE POWER INDUSTRY FOR FERROUS METALLURGY IN SSSR SINCE THE REVOLUTION. IT PRESENTS DATA ON THE EARLY DEVELOPMENT STAGES AND THE CHARACTERISTICS OF ELECTRIC POWER INSTALLATIONS AND SHOWS THE SUCCESSIVE STEPS TAKEN FOR THEIR DEVELOPMENT IN VIEW OF THE PLANNED GROWTH OF FERROUS METALLURGY. IT EMPHASIZES THE EFFORTS TOWARD THE CONTINUOUS DEVELOPMENT AND IMPROVEMENT OF ELECTRIC POWER INSTALLATIONS AND EQUIPMENT FOR STEEL INDUSTRY. DATA ARE PRESENTED ON THE POWER CHARACTERISTICS OF VARIOUS TEMPORARY EQUIPMENT, SUCH AS OXYGEN CONVERTERS, HIGH POWER AIR COMPRESSORS FOR BLAST FURNACES, BOILERS, COOLING SYSTEMS ETC. IT PRESENTS AN INSIGHT ON THE CURRENT RESEARCH ON THE REDUCTION OF FUEL CONSUMPTION, ON BETTER UTILIZATION OF WATER RESOURCES FOR COOLING SYSTEMS, ON WATER AND ABSTRACT: AIR POLLUTION, ON AUTOMATION, ON AUTOMATIC CONTROL OF INDUSTRIAL PROCESSES ETC. THE SIGNIFICANCE OF GOOD ORGANIZATION OF THE OVERHAUL AND MAINTENANCE SERVICES FOR RELIABLE AND ECONOMICAL OPERATION OF INSTALLATIONS IS EMPHASIZED. STEPS ALREADY TAKEN FOR SMOOTH OPERATIONS OF SERVICES ARE DESCRIBED. IN PARTICULAR, EFFORTS ARE DESCRIBED FOR THE TRAINING OF SCIENTIFIC, TECHNICAL AND SKILLED PERSONNEL, AS WELL AS THE ORGANIZATION OF SPECIAL INSTITUTES FOR THE PURPOSE OF CONDUCTING RESEARCH IN DIFFERENT FIELDS RELATED TO FURTHER DEVELOPMENT OF THE POWER INDUSTRY IN VIEW OF THE CONTINUOUS GROWTH OF THE FERROUS INDUSTRY.

UNCLASSIFIED

1/2 017
UNCLASSIFIED
TITLE--ENERGETICS OF THE FERROUS METALLURGY, 1970 YEAR -U- PROCESSING DATE--02OCT70
AUTHOR--(02)-YEGORICHEV, A.P., ZAYTSEV, A.P.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, PROMYSHLENNAYA ENERGETIKA, NO 2, FEB 70, PP 5-7
DATE PUBLISHED---FEB70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--FERROUS METAL, BLAST FURNACE, AIR POLLUTION, INDUSTRIAL
AUTOMATIC CONTROL, OXYGEN, STEEL INDUSTRY, ELECTRIC INDUSTRY, INDUSTRIAL
WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1654
CIRC ACCESSION NO--AP0109652
STEP NO--UR/0094/70/000/002/0005/0007
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE PRESENTS A CONCISE HISTORICAL SUMMARY OF THE DEVELOPMENT AND ACHIEVEMENTS OF THE POWER INDUSTRY FOR FERROUS METALLURGY IN SSSR SINCE THE REVOLUTION. IT PRESENTS DATA ON THE EARLY DEVELOPMENT STAGES AND THE CHARACTERISTICS OF ELECTRIC POWER INSTALLATIONS AND SHOWS THE SUCCESSIVE STEPS TAKEN FOR THEIR DEVELOPMENT IN VIEW OF THE PLANNED GROWTH OF FERROUS METALLURGY. IT EMPHASIZES THE EFFORTS TOWARD THE CONTINUOUS DEVELOPMENT AND IMPROVEMENT OF ELECTRIC POWER INSTALLATIONS AND EQUIPMENT FOR STEEL INDUSTRY. DATA ARE PRESENTED ON THE POWER CHARACTERISTICS OF VARIOUS CONTEMPORARY EQUIPMENT, SUCH AS OXYGEN CONVERTERS, HIGH POWER AIR COMPRESSORS FOR BLAST FURNACES, BOILERS, COOLING SYSTEMS ETC. IT PRESENTS AN INSIGHT ON THE CURRENT RESEARCH ON THE REDUCTION OF FUEL CONSUMPTION, ON BETTER UTILIZATION OF WATER RESOURCES FOR COOLING SYSTEMS, ON WATER AND ABSTRACT: AIR POLLUTION, ON AUTOMATION, ON ORGANIZATION OF THE OVERHAUL AND MAINTENANCE SERVICES FOR RELIABLE AND ECONOMICAL OPERATION OF INSTALLATIONS IS EMPHASIZED. STEPS ALREADY TAKEN FOR SMOOTH OPERATIONS OF SERVICES ARE DESCRIBED. IN PARTICULAR, EFFORTS ARE DESCRIBED FOR THE TRAINING OF SCIENTIFIC, TECHNICAL AND SKILLED PERSONNEL, AS WELL AS THE ORGANIZATION OF SPECIAL INSTITUTES FOR THE PURPOSE OF CONDUCTING RESEARCH IN DIFFERENT FIELDS RELATED TO FURTHER DEVELOPMENT OF THE POWER INDUSTRY IN VIEW OF THE CONTINUOUS GROWTH OF THE FERROUS INDUSTRY.

UNCLASSIFIED

USSR

UDC 669.1:658.26

~~SECRET~~
YEGORICHEV, A. P., ZAYTSEV, A. P. (Engineers) (Ministry of
Ferrous Metallurgy USSR)

"Energetics of the Ferrous Metallurgy, 1970 Year"

Moscow, Promyshlennaya Energetika, No 2, Feb 70, pp 5-7

Abstract: This article presents a concise historical summary of the development and achievements of the power industry for ferrous metallurgy in SSSR since the revolution. It presents data on the early development stages and the characteristics of electric power installations and shows the successive steps taken for their development in view of the planned growth of ferrous metallurgy. It emphasizes the efforts toward the continuous development and improvement of electric power installations and equipment for steel industry. Data are presented on the power characteristics of various contemporary equipment, such as oxygen converters, high power air compressors for blast furnaces, boilers, cooling systems etc. It presents an insight on the current research on the reduction of fuel consumption, on better utilization of water resources for cooling systems, on water and
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USSR

YEGORICHEV, A. P., et al, Promyshlennaya Energetika, No 2,
Feb 70, pp 5-7

Abstract: air pollution, on automation, on automatic control of industrial processes etc. The significance of good organization of the overhaul and maintenance services for reliable and economical operation of installations is emphasized. Steps already taken for smooth operations of services are described. In particular, efforts are described for the training of scientific, technical and skilled personnel, as well as the organization of special institutes for the purpose of conducting research in different fields related to further development of the power industry in view of the continuous growth of the ferrous industry.

2/2

- 157 -

USSR

ZAYTSEV, A. N.

"Effect of Paramagnetic Resonance on the Electrical Conductivity of Semiconductors in Strong Electric Fields"

Leningrad, Fizika Tverdogo Tela, vol 15, No 3, 1973, pp 733-739

Abstract: The present paper is the continuation of an earlier article by the author named above (3, 1969, p 485) in which the phenomenon of the resonance change in conductivity of hot electrons in semiconductors under the effects of electron paramagnetic resonance of small impurities was investigated. Following this theoretical investigation, the phenomenon was experimentally observed. The present paper is designed to explain why the experimental measurement turned out to be much greater than that given by the theory for the material in question, which was silicon alloyed with phosphorus. The mechanism which, in the presence of strong electric fields, causes this disparity is explained. It is asserted that the analysis of this paper is justified if photoelectrons or injected electrons rather than electrons produced by thermal ionization are the carriers involved in the phenomenon. The author thanks A. K. Zvezdin for his comments.

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1/2 010 UNCLASSIFIED PROCESSING DATE--230C170
TITLE--HYGIENIC STUDY OF PIREF DIETHYL PYROCARBONIC ETHER AND ITS POSSIBLE
USE IN THE FOOD INDUSTRY -U-
AUTHOR-(03)-ZAYTSEV, A.N., RAKHMANINA, N.L., DYUBYUK, N.YE.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 14-17
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FOOD PRESERVATION, ALIPHATIC ETHER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/2045 STEP NO--UR/0244/70/000/003/0014/0017
CIRC ACCESSION NO--AP0122274
UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AP0122274

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

ABSTRACT, DIETHYL PYROCARBONIC ETHER (DPE) IS UTILIZED IN MANY COUNTRIES AS A CONSERVING AGENT FOR WINES AND JUICES. PERTINENT CALCULATIONS SHOW DPE IN A DOSE OF 3.6 MG-KG BODY WEIGHT PER DAY CAPABLE OF AFFECTING THE HUMAN ORGANISM. IN THE PRESENT WORK EXPERIMENTAL EVIDENCE IS PRODUCED SHOWING THAT THE DOSE OF 3.6 MG-KG OF DPE PROPOSED BY THE CHEMICAL INSTITUTE OF THE ACADEMY OF SCIENCES OF THE MOLDAV SSR WITH THE TRADE NAME OF "PIREF", SHOULD BE REGARDED AS LIMINAL TOXICOLOGICALLY. PROCEEDING FROM THIS FACT, AND ALSO CONSIDERING THE RATE OF THE PREPARATIONS HYDROLYSIS IN BEVERAGES MAY DECREASE CONSIDERABLY, "PIREF", ACCORDING TO THE AUTHORS, CANNOT BE RECOMMENDED AS A PRESERVATIVE FOR WINES AND WINE PRODUCTS.

INSTITUT PITANIYA AMN SSSR, MOSCOW.

FACILITY:

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--MECHANISM OF FORMATION OF NEGATIVE RESISTANCE IN SEMICONDUCTORS
DURING IMPURITY BREAKDOWN -U-
AUTHOR--(03)-ZAYTSEV, A.N., ZVEZDIN, A.K., OSIPOV, U.U.
COUNTRY OF INFO--USSR
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(5), 25T-60
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRON TEMPERATURE, ELECTRON DENSITY, SEMICONDUCTOR
CONDUCTIVITY, PHONON EQUILIBRIUM, ELECTRON RECOMBINATION, SEMICONDUCTOR
IMPURITY
CENTRCL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0996 STEP NO--UR/0386/T0/011/005/025T/0260
CIRC ACCESSION NO--AP0115017
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115017

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

ABSTRACT. SOME OF THE MECHANISMS ARE CONSIDERED WHICH RESULT IN THE LACK OF A ONE VALUED DEPENDENCE OF THE TEMP. OF THE HOT ELECTRONS OR OF THEIR CONC. ON THE ELEC. FIELD AND, THEREBY, IN THE EXISTENCE OF NEG. RESISTANCE. THE FOLLOWING MECHANISMS WERE CONSIDERED: THE NEG. DIFFERENTIAL RESISTANCE IS DUE TO A LACK OF EQUIL. FOR THE PHONONS, IT IS DUE TO THE RELAXATION OF THE ENERGY IN THE IONIZATION AND RECOMBINATION PROCESSES, IT IS DUE TO THE SCREENING OF THE IMPURITY POTENTIAL BY THE NONEQUIL. ELECTRONS. FACILITY:
MOSK. INST. RADIOTEKH. ELEKTRON AVTOMAT., MOSCOW, USSR.

UNCLASSIFIED

173 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--S SUBD VARIATION OF THEMAGNETIC FIELD IN HIGH LATITUDES AT
DIFFERENT INTENSITY OF THE MAGNETIC DISTURBANCES -U-
AUTHOR-(02)-ZAYTSEV, A.N., FELDSHTEYN, YA.I.

COUNTRY OF INFO--USSR

SOURCE--KAZDEL IV, POLYARNYYE SIYANIYA, 1970, NR 19, PP 51-60

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--POLAR AREA, GEOMAGNETIC FIELD, GEOMAGNETIC DISTURBANCE,
GEOGRAPHIC LATITUDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0245

STEP NO--UR/3307/70/000/019/0051/0060

CIRC ACCESSION NO--AP0119241

UNCLASSIFIED

2/3 010

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0119241

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

ABSTRACT. THE PAPER ELABORATES THE CONCEPTION THAT THE S SUBD VARIATION, WHICH DESCRIBES THE FIELD OF POLAR DISTURBANCES, CONSISTS OF THREE PARTS: S SUBD EQUALS S SUBD PRIMEW PLUS S SUBD PRIMEE PLUS S SUBD PRIMEP, WHERE S SUBD PRIMEW AND S SUBD PRIMEE ARE POLAR ELECTROJETS, AND S SUBD PRIMEP IS THE CURRENT VORTEX IN THE POLAR CAP. THE ANALYSIS HAS BEEN CONDUCTED ON THE BASIS OF THE STUDY OF THE EQUIVALENT CURRENT SYSTEMS COMPILED ACCORDING TO THE IGY MATERIALS. IT HAS BEEN FOUND THAT: 1. S SUBD PRIMEW ELECTROJET, WHICH CAUSES INTENSIVE NEGATIVE BAYS DP ALWAYS RUNS IN THE WESTERN DIRECTION FORMING AN OVAL. THE DENSITY OF THE S SUBD PRIMEW ELECTROJET IS NOT REGULAR ALONG THE OVAL AND HAS THE MAXIMAL VALUE ON THE MORNING SIDE ON PHI IS SIMILAR TO 67DEGREES AND THE MINIMAL VALUE ON THE DAY SIDE ON PHI IS SIMILAR TO 75DEGREES. PART OF THE S SUBD PRIMEW CURRENTS IS CLOSED THROUGH THE POLAR CAP, AND A PART THROUGH THE MIDDLE AND LOW LATITUDES. WITH THE INCREASE OF K SUBP FROM 0-1 TO 5 THE INTENSITY OF THE ELECTROJET INCREASES FROM 20,000-30,000 TO 270,000-280,000A. 2. S SUBD PRIMEE ELECTROJET, WHICH CAUSES POSITIVE BAYS ON THE EVENING SIDE DP SUBPOSITIVE ON PHI IS SIMILAR TO 65DEGREES, ALWAYS RUNS IN THE EASTERN DIRECTION AND IS CLOSED MAINLY THROUGH THE MIDDLE AND LOW LATITUDES. WITH THE INCREASE OF K SUBP FROM 0-1 TO 5 THE S SUBD PRIMEE INTENSITY INCREASES FROM 10,000 TO 110,000-120,000 A. 3.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

3/3 010

CIRC ACCESSION NO--AP0119241

ABSTRACT/EXTRACT--S SUBD PRIMEP CURRENT VORTEX, WHICH IS RESPONSIBLE FOR THE MAGNETIC FIELD DISTURBANCES IN THE POLAR CAP DPC, IS LOCATED ON THE DAY SIDE ON THE AFTER MIDDAY MERIDIANS AND HAS THE CONCENTRATION OF THE CURRENT LINES ON THE LATITUDE IS SIMILAR TO 70DEGREES ON THE 15 H MERIDIAN, AND IS CLOSED THROUGH THE POLAR CAP. THE DIRECTION OF THE CURRENTS IS COUNTER CLOCKWISE. WITH THE INCREASE OF K SUBP FROM 0-1 TO 5 THE INTENSITY OF S SUBD PRIMEP INCREASES FROM 40,000-50,000 TO 150,000 TO 150,000-170,000A. 4. THE INTENSITY AND FORM OF S SUBD PRIMEW AND S SUBD PRIMEE ELECTROJETS INCONSIDERABLY CHANGE WITH SEASON. S SUBD PRIMEP VORTEX OCCURS EXCLUSIVELY IN SUMMER: IN WINTER ITS INFLUENCE ON THE FORM OF THE EQUIVALENT S SUBD CURRENT SYSTEM IS INFINITELY SMALL.

UNCLASSIFIED

USSR

UDC 621.396.677

ZAYTSEV, A. S., SEREGINA, A. R., and KHODATAYEV, YU. V.

"Experimental Study of the Near Field of Wire Antennas"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp.119, pp 128-135 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B5)

Translation: The authors study the near field of vibration type and gamma type, folded dipole antennas. The method of direct field measurement and the method of modulated reemission were used. The measurement equipment is described. An analysis of the obtained results shows that from the point of view of breakdown, the dangerous region is the one adjoining to the face of the vibrator. Original article: five illustrations and three bibliographic entries. N.S.

1/1

- 4 -

USSR

UDC: 621.382.3

KAKOVKIN, V. V., ZAYTSEV, ~~B. D.~~, and SHVEDOV, Ye. Ye.

"Measuring Infrared Noise of MOS Transistors by the Frequency Transformation Method"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 14, No 1, 1971, pp 67-71

Abstract: An important characteristic of MOS transistor amplifiers is the inherent noise which limits the sensitivity of the device and, most typical of the noise in the infrared spectrum, causes drift of the zero point. Discussing the various methods of measuring the noise spectral density, the authors conclude that the most promising is the frequency transformation method, which involves the use of a tape recorder. According to this method, the noise voltages are recorded at low speed and are played back at a speed providing the required change in time scale for investigating the noise spectral density with ordinary equipment. This article gives the results of experiments performed in the measurement of infrared noise in the 0.005-1 Hz range, using the MAG-1 and MAG-2 recorders. The recordings were made at speeds of 0.14, 0.07, and 0.035 mm/s, and the playbacks at 361 and 762 mm/s. The distortions in the spectra, computed theoretically for this process, were experimentally checked. For their experimental specimens, the authors used MOS transistors with induced p-channel and an insulating SiO₂ film 0.17 μ thick. Curves are plotted for the noise factor as a function of the frequency.

1/1

USSR

UDC: 621.382.3

DUDNIKOV, V. P., ZAYTSEV, R. D., PEREL'MAN, A. A., and SHVEDOV, Ye. Ye.

"Drift Time of MOS Transistors"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 13, No 11, 1970, pp 1358-1361

Abstract: it is asserted that data regarding the drift time of MOS (metal oxide semiconductor) transistors is rather exiguous although such data is important since the stability requirements of linear circuits involving such components are much stricter than present-day integrated digital circuits. This paper gives the results of measurements made of 40 MOS transistors, with induced p-channel, of either SiO_2 or Si_3N_4 films. Both these films were 0.17 μ thick. The parameter chosen for the drift time criterion was the increase in voltage applied to the gate corresponding to the ratio of the measured increase in the drain current to the transconductance of the transistor under measurement for a given drain current. A block diagram of the measuring equipment is shown. It was found, in the course of the measurements, that the drift time of the MOS with SiO_2 is fully reproduced even after the gate is deprived of its voltage. The results of an experiment performed on the basis of that fact indicated that the drift of the MOS transistor is basically caused by the migration of ions and the charge of the surface states.

1/1

USSR

UDC 534.382.3.033

Z
ZAYTSEV, B. D., STEPANENKO, I. P., SHVEDOV, YE. YE.

"Methods of Measuring Low-Frequency Noise"

Moscow, Izmeritel'naya Tekhnika, No 6, Jun 1970, pp 43-46

Abstract: This article contains a review of the existing methods and means of measuring low-frequency noise in electronic instruments (the hertz and subhertz ranges). The review is based on an analysis of Soviet and foreign literature. Low-frequency noise and null drift, methods of measuring low-frequency noise, low-frequency noise generators, low-frequency band filters, and low-frequency voltmeters are considered. It is concluded that measuring noise in semiconductor devices in the infrasonic frequency range is of great scientific and practical interest. Various methods and equipment have been developed at this time for measuring the characteristics of noise at frequencies up to $5 \cdot 10^{-5}$ hertz. Measuring low-frequency noise by the method of frequency spectrum conversion (the magnetophonic technique) has not at this time been sufficiently tested. The comparative measurement techniques using analog RC-filters and an indicating voltmeter are most prospective. These methods can be used to measure noise in the frequency range from a few hertz to frequencies on the order of 10^{-5} hertz. Descriptive diagrams, graphs and mathematical descriptions are used to illustrate and explain the various techniques and equipment.

1/1

USSR

UDC 681.2:621.391.822.029.33

ZAYTSEV, B. D., SHVEDOV, YE. YE.

"A Device for Measuring Very Low Frequency Noises"Moscow, Izmeritel'naya Tekhnika, No 8, Aug 70, pp 74-76

Abstract: The authors describe an instrument which they have developed for measuring the spectral density of noises in the 0.1-100 Hz frequency range by comparing the noises with those from a standard low frequency noise source. The standard industrial U4-1 wide-band amplifier was used with variable gain from 0 to 5×10^4 . An 15-M oscillograph was used as the recording instrument. The circuitry of the master low frequency noise generator, narrow-band tunable filter and computer voltmeter used in the instrument is described. The instrument was used to measure the noise factor of MDS transistors with induced P-channel. The effective passband of the filter varies over a range of 10-100 percent of the resonance frequency. The sensitivity of the installation was determined by the sensitivity of the wide-band amplifier which was used, and in these experiments was $0.1 \mu V^2/Hz$. The measurement error determined by the error of each of the modules in the device is no more than 15 percent.

1/1

- 117 -

USSR

UDC 541.62,547.819,543.422.4.6

ZAYTSEV, B. YE., SHEBAN, G. V., DYUMAYEV, K. N., and SHIRNOV, L. D.,
Scientific Research Institute of Organic Intermediates and Dyes, Moscow

"The Structure of 2-Methoxy-3-hydroxy-6-phenylazopyridine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 224-229

Abstract: On the basis of IR and electron spectroscopy it was established that 2-methoxy-3-hydroxy-6-phenylazopyridine exists in azo and hydrazo forms. Switching from aprotic solvents to the protonated ones results in a shift in the equilibrium of tautomers toward the hydrazone form. The relationship of the tautomeric forms in different solvents was studied. The stability of both form was established by the MO method, the azo form appearing to be more stable.

1/1

- 67 -

USSR

UDC 669.187.2.083

GOTIN, V. N., ZAYTSEV, B. YE., SHCHERBAKOV, A. I., ZHITKOV, N. K., OKOROKOV, G. N., BOYARASHINOV, V. A., VOYNOVSKIY, YE. B., TOPILIN, V. V., SHALIMOV, AL. G., OSIPOVA, L. M., CHERNOV, YU. V., ROZANOVA, T. S., and LAKTIONOV, V. S.

"Influence of Wall Thickness of Crystallizer and Consumption of Cooling Water on Conditions of Formation of Ingot During Vacuum Arc Remelting"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 178-180

Translation: In a vacuum arc furnace in a crystallizer (C) 160 mm in diameter with a current of 2.0-3.7 ka, the influence of wall thickness of C and temperature of cooling water on conditions of formation of ingot of complexly alloyed nickel-based alloys is studied. C with wall thicknesses of 30 and 18 mm were studied, the temperature on the outer surface of the C reaching 75°C in the first case, 105°C in the second. The temperature of the internal surface of the C was identical, 140-150°C. Neither a change in C thickness nor a change in water consumption from 11 to 22 m³/hr influenced the depth of the liquid metal bath, i.e., both repeated rolling of the C and reduced water consumption were permissible. 2 figures.

1/1

- 16 -

UDC:669.187.5

USSR

ZAYTSEV, B. Ye., GOTIN, V. N., SHCHERBAKOV, A. I., SERGYEV, A. B., ZHITKOV, N. K., OKOROKOV, G. N., BOYARSHINOV, V. A., TULIN, N. A., VOYNOVSKIY, Ye. V., TOPILIN, V. V., POZDEYEV, N. P., SHALIMOV, A. G., OSIPOVA, L. A., CHERNOV, Yu. V., and RAZANOV, T. S.

"Specifics of Vacuum Arc Remelting of Nickel-Based Alloys and Stainless Steels With Reverse Arc Polarity"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 181-183

Translation: Results are presented from a study of vacuum arc remelting of nickel alloys in a crystallizer 380-480 mm in diameter with thermocouples calked in length and height. The rate of melting with reverse polarity is 20% higher with identical bath depth of liquid metal. This is a result of more intensive heat transfer from the walls of the crystallizer during melting with reverse polarity. The macrostructure, chemical composition N, O, H and mechanical properties of the metal produced by melting with forward and reverse polarity are identical. The ingot produced with reverse polarity had no corona. 2 figures; 1 table; 1 biblio. ref.

1/1

- 15 -

1/3 011 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PERRHENATES OF ANTIPYRINE AND ITS DERIVATIVES. GRAVIMETRIC AND
TITRIMETRIC DETERMINATION OF RHENIUM BY MEANS OF
AUTHOR--(05)-AKIMOV, V.K., BUSEV, A.I., ZAYTSEV, B.YE., YEMELYANOVA, I.A.,
GELFER, S.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 518-25
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--RHENIUM, MINERAL, METAL CHEMICAL ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0161 STEP NO--UR/0075/70/025/003/0518/0525
CIRC ACCESSION NO--AT0132442
UNCLASSIFIED

2/3 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132442

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERRHENATES OF ANTIPYRINE (I), DIANTIPYRYLMETHANE (II), DIANTIPYRYLMETHYLMETHANE (III), DIANTIPYRYLPROPYLMETHANE (IV), AND DIANTIPYRYLPHENYLMETHANE (V) WERE OBTAINED BY ADDN. OF 2PERCENT 1:1 PYRYLMETHANES, ACOH TO AN ACID (0.1-0.5N H SUB2 SO SUB4) SOLN. OF KREO SUB4. ALL THE PERRHENATES ARE DIFFICULTLY SOL. IN H SUB2 O WITH THE EXCEPTION OF THAT WITH I. THEIR COMPN. AND STRUCTURE WERE STUDIED. THE PERRHENATE OF I IS A WHITE POWDER SOL. IN H SUB2 O AND IN MOST OF THE ORG. SOLVENTS AND DECOMPS. ON MELTING. THE PERRHENATE OF II DISSOLVES IN MINERAL ACIDS AND ORG. SOLVENTS, DECOMPS. ON MELTING AT 190DEGREES; THE PERRHENATE OF III BEHAVES ANALOGOUSLY TO THAT OF II, M. 116DEGREES; THE PERRHENATE OF IV MELTS AT 198DEGREES AND THAT OF V AT 202DEGREES. PERRHENATES BEHAVE IN NONAQ. MEDIA AS MONOBASIC ACIDS AND CAN BE TITRATED BY ALKALIS. THE TITRN. CURVE HAS 1 JUMP, REPRESENTING THE NEUTRALIZATION OF THE CATION. THE PERRHENATE OF I IS THE MOST ACID, THOSE OF IV AND V THE WEAKEST ACIDS. THE SOLY. OF THE PERRHENATES DECREASES IN THE ORDER I GREATER THAN II GREATER THAN III GREATER THAN IV GREATER THAN V. THE BEST PRECIPITANT HOWEVER IS IV. THE SOLY. OF THE PERRHENATE OF IV INCREASES SOMEWHAT AFTER INCREASING THE ACIDITY OF SOLNS. A GRAVIMETRIC AND A TITRIMETRIC METHOD WAS DEVELOPED FOR RE DETN. BY USING IV AS PRECIPITANT. ALKALI AND ALK. EARTH METALS, ZN(II), AL(III), CO(II), FE(II), CU(II), CL PRIME NEGATIVE AND SO SUB4 PRIME NEGATIVE NEGATIVE DO NOT INTERFERE; MO(VI), W(VI), NO SUB3 PRIME NEGATIVE DO.

UNCLASSIFIED

3/3 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132442

ABSTRACT/EXTRACT--THE GRAVIMETRIC METHOD PERMITS THE DETN. OF 15-60 MG RE AS (C SUB26 H SUB30 N SUB4 D SUB2 .H)REO SUB4 WITH A MAX. ERROR OF 0.52PERCENT RELATIVE. IN THE TITRN. METHOD, THE PPT. OF THE PERRHENATE OF IV FROM THE GRAVIMETRIC METHOD IS DISSOLVED IN 50-60 ML ME SUB2 CO AND TITRATED POTENTIOMETRICALLY WITH 0.1N NAOH OR ET SUB4 NOH IN A 3:1 C SUB6 H SUB6 DOUBLE BOND MEOH MIXT. BY USING A GLASS AND A CALOMEL ELECTRODE. THE METHOD ALLOWS THE DETN. OF 24-25 MG RE WITH A PLUS OR MINUS 3.1PERCENT ERROR. FACILITY: SCI.-RES. INST. ORG. INTERMED. DYES, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--PHENOL GERMANATES -U-
AUTHOR--(04)-AKIMOV, V.K., BUSEV, A.I., DZOTSENIDZE, N.YE., ZAYTSEV, B.YE.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 329-35
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHENOL, ORGANOGermanium COMPOUND, PYROCATECHOL, DYE, COMPLEX
COMPOUND, IR SPECTRUM, ORGANIC ARSENIC COMPOUND, HYDROXYL RADICAL,
QUINOLINE, CRYSTAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FILE/FRAME--1992/1567 STEP NO--UR/0079/70/040/002/0329/0335
CIRC ACCESSION NO--AP0112561
UNCLASSIFIED

272 022

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112561

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING AQ. SOLNS. OF ESTERS OF GERMANIC ACID (WITH PYROGATECHOL, PYROGALLOL, GALLIC AND PYROGALLIC CARBOXYLIC ACIDS) WITH ORG. BASES (DIANTIPYRYLMETHANE, DIANTIPYRYLMETHYLMETHANE, DIPHENYLGUANIDINE, PH SUB4 ASCL, 3, PHENANTHROLINE, 8, HYDROXYQUINOLINE, BRILLIANT GREEN, METHYLENE BLUE, METHYLENE VIOLET AND CRYSTAL VIOLET) GAVE THE FOLLOWING COMPLEXES, WHICH WERE ANALYZED AND CHARACTERIZED BY IR SPECTRA (CURVES AND TABLES OF DATA SHOWN): TRICATECHYLGERMANATES OF: KIPHENYLGUANIDINE, O, PHENANTHROLINE, 8, HYDROXYQUINOLINE, TETRAPHENYLARSONIUM; SAME FOR TRIPYROGALLYL GERMANATE; SAME FOR TRIS(5, CARBOXYPYROGALLYL) GERMANATE ALONG WITH ANALOGS: DIANTIPYRYLMETHANE, DIANTIPYRYLMETHYLMETHANE, BRILLIANT GREEN, CRYSTAL VIOLET, METHYLENE BLUE, METHYLENE VIOLET; SAME FOR TRIS(4, CARBOXYPYROGALLYL) GERMANATE. ALL WERE COLORED CRYST. SOLIDS SPARINGLY SOL. IN H SUB2 O AND READILY SOL. IN AQ. ACIDS AND ME SUB2-NCHO.

UNCLASSIFIED

I/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SODIUM AND POTASSIUM HYDROXYTITRATES -U-

AUTHOR--(04)-IVANOVEMIN, B.N., BORZOVA, L.D., MALYUGINA, S.G., ZAYTSEV,
B.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 666-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, THERMAL DECOMPOSITION, IR SPECTRUM,
SPECTROSCOPIC ANALYSIS, SODIUM COMPOUND, POTASSIUM COMPOUND, YTTRIUM
COMPOUND, HYDROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1882

STEP NO--UR/0038/70/D15/003/0666/0669

CIRC ACCESSION NO--AP0115701

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115701

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. M SUB3 (Y(OH) SUB6) (M EQUALS NA OR K) WERE SYNTHESIZED IN MEQH SOLNS. THERMAL DECOMP. OF M SUB3(Y(OH) SUB6) PROCEEDED VIA 2 ENDOTHERMAL EFFECTS, CORRESPONDING TO A CONVERSION OF (Y(OH) SUB6) PRIME3 NEGATIVE TO (Y(OH) SUB4) PRIME NEGATIVE AND TO A SUBSEQUENT DEHYDRATION AND FORMATION OF YO SUB2 PRIME NEGATIVE. THE IR SPECTRUM OF NA SUB3 (Y(OH) SUB6) IS GIVEN. FACILITY: UNIV. DRUZHBY NAR. IM. LUMUMBY, MOSCOW, USSR.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPLEXES OF SCANDIUM OXALATE WITH O PHENANTHROLINE -U-
AUTHOR--(05)--IVANOVEMIN, B.N., GRIDASOVA, R.K., ZAYTSEV, B.YE., VALKARSEL,
G., EZHOV, A.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 674-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--METAL COMPLEX COMPOUND, CRYSTAL STRUCTURE, ORGANOMETALLIC
COMPOUND, ORGANIC COMPLEX COMPOUND, IR SPECTRUM, BENZENE DERIVATIVE,
OXALATE, SCANDIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0678 STEP NO--UR/0078/70/015/003/0674/0677
CIRC ACCESSION NO--AP0113549
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 1:1 MOLE RATIO OF
NASC(C SUB2 O SUB4) SUB2.2-H SUB2 O WITH PHEN (O PHENANTHROLINE) IN AQ.
SOLN. GAVE CRYST. SC SUB2 (C SUB2 O SUB4)SUB3 2PHEN (I) AS PPT., WITH
ALPHA 1.514 AND GAMMA 1.616. THE IR SPECTRUM OF I REVEALS THAT C SUB2 O
SUB4 PRIME2 NEGATIVE AS WELL AS PHEN ARE COORDINATED TO SC. A STRUCTURE
IS PROPOSED FOR I.

UNCLASSIFIED

172 018 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--A MIGHTY ACCELERATOR OF THE SCIENTIFIC TECHNICAL PROGRESS -U-
AUTHOR--(05)--ANDRUNAKIYEVICH, V., GONTSA, M., ZAYTSEV, G., GAMETSKIY, A.,
CHEBOTARU, A.
COUNTRY OF INFO--USSR
SOURCE--SOVETSKAYA MOLDAVIYA, JULY 2, 1970, P 2
DATE PUBLISHED--02JUL70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--COMPUTER R AND D, COMPUTER CENTER, ELECTRONIC COMPUTER/(U)BESM
4 DIGITAL COMPUTER, (U)M20 COMPUTER, (U)M20 COMPUTER, (U)BESM 3M
COMPUTER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0812 STEP NO--UR/9021/70/000/000/0002/0002
CIRC ACCESSION NO--AN0111995
UNCLASSIFIED