"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: None

15

PLAKHOV, A. M., CHERNENKO, O. D., MALKOV, A. I., KOSTYUCHENKO, V. I., LYSENKO, V. S., SURKOV, N. I., KIRPICHNIKOV, V. A., ~~SMIRNOV, I. A.,~~ and SAVCHENKO, L. I.

"A Device for Ultrasonic Defectoscopy"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastsy, tovarnye znaki, No 4, 1973, p 98, No 363912

Abstract: The distinctive system in this device is one in which the sensor searching for the defects is mounted between rollers fixed to the lower side of the transmitting device, and is thus free to move around the workbench. A diagram of the mechanical arrangement, which improves the productivity of the device and its control, is given.

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SMIRNOV, I. A.

STUDY OF TRANSFER EFFECTS IN ELECTRONIC FUSIONS

JPRS 54742
28 Sep 71

(Conference in Leningrad)

[Article by Doctor of Physical and Mathematical Sciences I. A. Smirnov and Candidate of Physical and Mathematical Sciences A. A. Andreyev; Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 41, No 7, July 1971, pp 119-121]

The first Conference on Transfer Effects in Electronic Fusions (Metals and Semiconductors) was held in the Institute of Semiconductors of the AS USSR on 16-18 March. Its 80 participants represented scientific institutions of twelve cities of the country.

The work of the conference proceeded in four sections: the theory of transfer effects in disordered systems, of galvanomagnetic properties of electronic fusions, their thermal and thermoelectrical properties, and investigations of the physical properties of fusions. Each section (excepting the last) was opened with a survey report.

In the first section Yu. A. Firsov presented a survey report entitled "The contemporary state of the question of transfer effect in disordered systems." V. L. Bonch-Bruyevich examined the electronic theory of disordered systems on the behavior of charge carriers in a random field and formulated the condition of existence, in a forbidden band of a disordered semiconductor, of discrete levels in the presence of any degree of disordering. A. I. Gubanov discussed the application by him of a new method of quantum mechanical calculation of the electron spectrum in an amorphous body (modification of the Kohn variational method for crystals) and its application to liquid alkali metals. P. K. Melnichenko and co-workers, on the basis of joint examination of the electrical resistance of fusions and the effective charges of components during electron transfer, determined for a number of metals the g factor, introduced

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USSR

UDC 666.1/.2.074.4

NAGULEVICH, K. V., SMIRNOV, I. K., and KOLESOV, Yu. I.

"Installations for the Determination of the Gas Content in Glass"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp 108-110

Abstract: A method and the installation for the analysis of dissolved gases in glass are reported which are free from deficiencies of the at first discussed vacuum smelting method. The installation and the extractor are described by reference to schemata. The extraction of water, carbon dioxide, sulfur dioxide, oxygen, and nitrogen is discussed. The ending gas extraction was determined visually and from the reading of LT-2 lamp, the total gas volume was resolved from the sum of constituent components. Three figures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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

SMIRNOV, I. K.

"Study of Reflection by Heavily Doped n-Type Lead Telluride Specimens in the Infrared Region of the Spectrum"

Tr. Leningr. politekhn. in-t (Works of Leningrad Polytechnic Institute), 1971, No 325, pp 16-19 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1549 by author)

Translation: A study is made of the reflection by single-crystal and pressed n-PbTe specimens with electron concentrations of $2.9 \cdot 10^{18}$-$2 \cdot 10^{20}$ cm^{-3} in the 0.5-25 micron wavelength range at temperatures of 293 and 77° K. In the $7.7 \cdot 10^{18}$-$2 \cdot 10^{20}$ cm^{-3} electron concentration range at T=293° K, the position of the plasma minimum shifts, with an increase in concentration, from 24.7 to 8.5 microns, while the conductivity effective mass m_c^* increases from 0.15 to 0.49 m_0. The positions of plasma minima do not vary essentially with a temperature decline. All the investigated specimens reveal a reflectivity maximum in the wavelength region immediately preceding the plasma minimum.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR UDC: 621.791:62-415.62-42

KOCHUKOV, N. S. (Candidate of Technical Sciences), SMIRNOV, I. V. (Technician), BOGDANOV, YE. M., BABUNIN, I. V. and SEMERIKOV, N. V. (Engineers)

"Welding of Tee and Multi-Tee Sections From Sheet Metal"

Moscow, Svarochnoye proizvodstvo, No 12, Dec 71, pp 29-31

Abstract: Thin-walled tee shapes are finding ever-increasing application on account of lighter weight and greater rigidity. The recent trends and techniques of producing tee structures include automatic argon arc welding. Discussed here is the method of full-penetration welding to produce a convex (reinforced) weld (over 2 mm thick) successfully tested on various sheet materials (0.6-2 mm thick), including steels and alloys 1Kh18N9T, VZh-102, VNS-16, EI435, OT4-1, VT-5. The weld strength is rated on the basis of tensile and tear tests of the welded flange. In tensile tests the failures occurred along the transition zone; the tear-induced failures were in the parent metal indicating the significance of the reinforced weld.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR
KOCHUKOV, N. S. (Candidate of Technical Sciences), et al, Svarochnoye proizvodstvo, No 12, Dec 71, pp 29-31

Complete adherence of parts to be welded is facilitated by the use of rolls enabling greater productivity at lower expenditures for assembly and welding jigs. (7 illustrations, 1 table).

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR UDC 621.791.856.3.037

KOCHUKOV, N. S., and SMIRNOV, I. V., Rybinsk

"Device for Argon Arc Welding of Thick Sheet Materials"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 37-40

Abstract: A description is given of a device based on the principle of obtaining welds between rotating rollers and a fixed tungsten electrode. The device is analogous to a seam contact machine in which the rollers perform the identical process at each point of the seam, and simultaneously provide continuous assembly and welding operations. A diagram of the machine is given together with a description of its operation. Photographs of welds are also reproduced. The results of tests performed on these welds are given in tabular form. The machine is inexpensive, is economical to operate, occupies little space, and improves production output.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THE INFLUENCE OF ELECTRIC STIMULATION OF STRUCTURES OF THE MEDULLA OBLONGATA ON THE CARDIOVASCULAR, RESPIRATORY AND MOTOR SYSTEMS IN

AUTHOR--SMIRNOV, K.A.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49, NR 6, PP 3-5

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDULLA, ELECTRIC DISCHARGE, CARDIOVASCULAR SYSTEM, RESPIRATORY SYSTEM, MEDICAL EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0710 STEP NO--UR/0219/70/049/006/0003/0005

CIRC ACCESSION NO--AP0131309

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131309

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IRRITATION OF STRUCTURES OF THE MEDULLA OBLONGATA IN ACUTE AND CHRONIC EXPERIMENTS CAUSES THE DEVELOPMENT OF COMPLEX REACTIONS CONTAINING THE CARDIOVASCULAR, RESPIRATORY AND MOTOR COMPONENTS. IN IRRITATION OF ALL THE STUDIED STRUCTURES THE ARTERIAL PRESSURE INCREASED IN NONANESTHETIZED DOGS. THE INJECTION OF HEXANAL IN A NUMBER OF CASES LEAD TO ALTERATION OF PRESSOR REACTIONS INTO DEPRESSOR ONES. A DECREASE OF THE FREQUENCY OF STIMULATION FROM 100 TO 10 AND 2 IMP PER SEC WAS ACCOMPANIED BY DISAPPEARANCE OF REACTIONS OR THEIR PRONOUNCED REDUCTION.

FACILITY: I. P. PAVLOV INSTITUTE OF PHYSIOLOGY OF THE ACADEMY OF SCIENCES OF THE USSR, LENINGRAD.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ON RELATION OF DIFFERENT BULBAR STRUCTURES TO VASOMOTOR CENTER -U-

AUTHOR--SMIRNOV, K.A.

S.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHENOVA, 1970, VOL 56, NR 3, PP 359-365

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARDIOVASCULAR SYSTEM, MEDULLA, CARNIAL NERVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/1604 STEP NO--UR/0239/70/056/003/0359/0365

CIRC ACCESSION NO--AP0052799

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 014

UNCLASSIFIED

CIRC ACCESSION NO--AP0052799 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOST MARKED PRESSOR RESPONSES WERE OBTAINED TO LOW THRESHOLD STIMULATION OF DORSOLATERAL AND DORSOMEDIAL PARTS OF THE MEDULLA BOLONGATA, AND DEPRESSOR RESPONSES, FROM THE MEDIAL PARTS OF THE MEDULLA OBLONGATA. ANALYSIS OF THE ROLE OF DIFFERENT BULBAR STRUCTURES IN CARDIOVASCULAR REGULATION SHOWED THAT TWO PARTS COULD BE DISTINGUISHED IN THE VASOMOTOR CENTER: REFLEX CENTER OF THE VAGUS AND THE GLOSS PHARYNGEAL NERVES AND CARDIOVASCULAR NERVOUS ELEMENTS OF THE BRAIN STEM RETICULAR FORMATION. RESULTS OF THE EXPERIMENTS GAVE GROUND TO SUGGEST THAT THE CARDIOACCELERATING CENTER WAS LOCALIZED IN THE VENTRAL NUCLEUS OF THE RETICULAR FORMATION.

FACILITY: I. P. PAVLOV'S INSTITUTE OF PHYSIOLOGY ACAD. SCI. USSR, LENINGRAD.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

Acc. Nr: AP0037011 Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56, Nr 2, pp 218 - 225

INFLUENCE OF THE BRAIN STEM TRANSECTIONS AND ABLATION OF THE CEREBELLUM ON THE CARDIO-VASCULAR SYSTEM

K. A. Smirnov

I. P. Pavlov's Institute of Physiology, Acad. Sci. USSR, Leningrad

The data obtained did not confirm the hypothesis of the tonic influence of the brain stem depressor zone on the spinal vasomotor centers and gave ground to suggest localization of one of the cardiac centers in the caudal part of the medulla oblongata.

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USSR

UDC 612.766.1+745

SMIRNOV, K. M., Institute of Physiology, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Hypokinesia"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 3, No 1, Jan/Feb/Mar 72, pp 3-20

Abstract: The article reviews 169 publications dealing with man's normal motor activity, circumstances restricting this activity, degrees of hypokinesia observed, detrimental physiological effects of hypokinesia, compounded effects of hypokinesia and emotional stress, and the results of local muscle work (involving less than one-third of the body). Proposals concerning future research include a more analytical investigation of the changes occurring not only in the quantity of physical work done, but also in the quality of physical movements performed at work, at home, and during rest and recreation, determinations of the maxima, optima (especially those promoting man's intellectual development), and minima of physical activity for various ages, states of health, and occupational groups, as well as long-term followups on physical fitness. All measurements of energy expenditure should be supplemented with data on heat exchange, food intake, and other pertinent factors. To call everybody's attention to the importance of maintaining good physical

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USSR

SMIRNOV, K. M., Uspekhi Fiziologicheskikh Nauk, Vol 3, No 1, Jan/Feb/Mar 72, pp 3-20

fitness not only in youth but also in adulthood, it is suggested to popularize the concept that man is an integral part of the natural environment currently endangered by scientific and technological progress.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 631.547:634.8

SMIRNOV, K. V., and PEREPELITSINA, YE. P., Samarkand Section of the Horticulture, Viticulture, and Viniculture Scientific-Research Institute Imeni R. R. Shreder

"The Action and Aftereffect of Gibberellin on Grape Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 12, Dec 70, pp 53-55

Abstract: Treatment of grape plants with gibberellin in concentration of 100 mg/l increased by 1.5-2 times the weight of the berries and of clusters; optimal schedule called for treating the plants towards the end of their blooming or 3-5 days after the termination of blooming. It was also found that the fewer clusters treated with gibberellin, the greater was the weight of individual berries: treatment of 5% of the bloom increased the cluster weight by 202.4%, while a 100% treatment gave only a 125.3% increase. The weight increase was accompanied by a drop in the content of sugar. It was found that gibberellin treatment has no detrimental effect on the yield in subsequent years following the treatment; the plants were not weakened.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

Physiology

USSR

UDC: 612.386-06:612.273.37-087.45

SMIRNOV, K. V., and BABKINA, O. I.

"Shift in the Rate of Absorption and Incorporation of C^{14}-Labeled Glucose in Organs and Tissues During Exposure to Hypoxia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 12, Dec 70, pp 29-31

Abstract: Rats were exposed to acute hypoxia for 15 to 20 min and then injected with 2 ml of C^{14}-labelled glucose with an activity of 25 microcuries. Up to 3 hours later, the glucose concentration in the gastric contents was appreciably higher than in controls. The temporary inhibition of evacuation of glucose from the stomach was ascribed to vagopyloric spasm. C^{14} activity in the liver, brain, stomach, and intestinal walls was higher in experimental animals than in controls, while the specific radioactivity of the lungs, kidneys, spleen, and muscles was the same as in controls. Exposure to hypoxia slowed the excretion of the isotope in the urine but increased its excretion in the feces.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--KINETICS OF THE REDUCTION OF IRON AND VANADIUM OXIDES FROM OXIDE SYSTEMS BY IRON,CARBON MELTS -U-

AUTHOR-(02)-SHANTARIN, V.D., SMIRNOV, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 344-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL REDUCTION, VANADIUM OXIDE, IRON ALLOY, FERROUS LIQUID METAL, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1105 STEP NO--UR/0076/70/044/002/0344/0349

CIRC ACCESSION NO--AP0123097

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123097

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NORMALLY, RATES OF INTERACTION OF SLAG WITH FE-C MELTS ARE MEASURED BY PERIODIC WITHDRAWAL OF SMAPLES AND THEIR CHEM. ANAL.; THIS PROCEDURE HAS SEVERAL DISADVANTAGES. IN THIS WORK, THE KINETICS OF REDN. OF V SLAGS WITH C IN FE-C MELTS WAS STUDIED BY CONTINUOUS, AUTOMATIC ELECTROCHEMICAL MEASUREMENTS OF EMF. EXPTL. VALUES OF POTENTIALS AND OF CONCNS. OF (FEO PLUS FE SUB2 O SUB3) AND V SUB2 O SUB5 ARE TABULATED AND ANALYZED. DETN. OF V SUB2 O SUB5 CONCN. WAS COMPLICATED BY 2 PROCESSES: REDN. OF FE OXIDES AND CATHODIC DEPOSITION OF V FROM SLAG; SOME OXIDN. OF V ELECTRODE BY FE OXIDES WAS POSSIBLE AS TWO FIFTHS V PLUS FEO EQUALS FE PLUS ONE FIFTH V SUB2 O SUB5. THE ORDER OF THE REACTION OF FE REDN. WAS EXAMD. BY GRAPHICAL INTEGRATION; IT VARIED FROM 1.0 AT THE START TO 2.6 AT THE END OF EXPTL., THIS BEHAVIOR AGREEING WITH OTHER LITERATURE REPORTS. TEMP. DEPENDENCE OF THE REDN. OF FE AND V OXIDES WAS EXAMD. IN THE 1350-1450DEGREES RANGE. THE APPARENT ACTIVATION ENERGIES FROM ARRHENIUS CURVES WERE 60 KCAL-MOLE FOR REDN. OF FE OXIDES, AND SIMILAR TO 90 KCAL-MOLE FOR V OXIDES. DUE TO THIS LARGE DIFFERENCE, THE SELECTIVITY OF REDN. OF METAL OXIDES INCREASES WITH TEMP. LOWERING. THUS, AT LOWER TEMPS., THE SLAG WILL BE RICHER IN V. ANOTHER CONCLUSION FROM THE LARGE DIFFERENCE IN ACTIVATION ENERGIES IS THAT THE MECHANISMS OF REDN. OF FE AND V OXIDES ARE, PROBABLY, DIFFERENT. FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 027 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--WORKING LOW MANGANESE IRON IN 100 TON OXYGEN CONVERTERS -U-

AUTHOR--SMIRNOV, L.A.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(3), 218-21

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--REFINING FURNACE, PIG IRON, STEEL PRODUCTION, MANGANESE CONTAINING ALLOY, CALCIUM FLUORIDE, LIMESTONE, GAS JET, OXYGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1272 STEP NO--UR/0133/70/030/003/0218/0221

CIRC ACCESSION NO--AP0136678

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 027 UNCLASSIFIED

CIRC ACCESSION NO--AP0136678 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARISON OF INDUSTRIAL BLOWS MADE WITH IRONS AVERAGING MN 0.27, SI 0.56, P 0.26, S 0.032 AND MN 0.74, SI 0.68, P 0.23, S 0.029PERCENT SHOWED THAT ON INCREASING CAF SUB2 BY 0.9 KG PER TON OF CHARGE AND REDUCING LIME ADDN. BY 12.5PERCENT TO ACCOUNT FOR LOWER SI, CHANGING BLOWING PRACTICE AND THE ORDER OF SLAG FORMER ADDN., THE SAME STEELS CAN BE MADE WITH THE LOW MN IRON AS WITH HIGHER MN ONES. WITH THE USE OF THE FORMER THE YIELD IS 0.5-0.6PERCENT GREATER WHILE LINING WEAR REMAINS THE SAME. FACILITY: URAL. NAUCH.-ISSLED. INST. CHERN. MET., SVERDLOVSK, USSR.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 541.62:547.819:543.422.4.6

ZAYTSEV, B. YE., SHEBAN, G. V., DYUMAYEV, K. M., and SMIRNOV, 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.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 019 UNCLASSIFIED

TITLE--DERMATITIS DUE TO EUPHORBIDA RIGIDA M.B -U- PROCESSING DATE--13NOV70

AUTHOR-(02)-SMIRNOV, L.D., YEFREMOV, A.I.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 6, PP 67-69

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DERMATITIS, PROCESSED PLANT PRODUCT, PLANT TOXIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1345 STEP NO--UR/0206/70/000/006/0067/0069

CIRC ACCESSION NO--AP0133301

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 019

UNCLASSIFIED

CIRC ACCESSION NO--AP0133301 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS OBSERVED IN 12 PATIENTS CONTACT DERMATITES DUE TO SAP OF EUPHORBIA RIGIDA M. B. THE ACTIVE PRINCIPLE OF WHICH WAS EUPHORBIN (C SUB15 H SUB24 O SUB4). FOR THE PURPOSE OF INVESTIGATION OF THE CLINICAL PICTURE AND PROPHYLAXIS AND FOR DETERMINATION TO WHICH GROUPS DERMATITES DUE TO E. RIGIDA BELONG, ONE OF THE AUTHORS CARRIED OUR ON HIMSELF A SERIES OF EXPERIMENTS WITH THE SAP OF EUPHORBIA RIGIDA AND PLANTS OF SOME OTHER SPECIES OF THE SAME FAMILY. CLINICAL OBSERVATIONS OF DERMATITES AND THE EXPERIMENTS PERFORMED LED THE AUTHORS TO THE FOLLOWING CONCLUSIONS: (1) DERMATITES DUE TO SAP OF PLANTS BELONGING TO EUPHORNIA FAMILY ARE PRIMARY CONTACT DERMATITES; (2) THEY PRODUCE NO ECZEMATOUS OR ALLERGIC REACTIONS; (3) THE SAP OF MILKWORT HAS NO PHOTOSENSITIZING PROPERTIES. ONE CASE IS DESCRIBED IN WHICH THE PATIENT DEVELOPED DERMATITIS IN THE AREA OF THE GENITALIA BECAUSE OF ACCIDENTAL TRANSMISSION OF MILKWORT SAP ON THE SKIN OF THE GENITALIA. FACILITY: KAFEDRA KOZHNYKH I VENERICHESKIKH BOLEZNEY KRYMSKOGO MEDITSINSKOGO INSTITUTA I KRYMSKIY OBLASTNOY KOZHNO-VENEROLOGICHESKIY DISPANSER, SIMFEROPOL'.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

Acc. Nr: AP0100357 Abstracting Service: CHEMICAL ABST. 6/70 Ref. Code: UR 0062

116523p Effect of the pH of the medium on chemical shifts in the PMR of 3-hydroxypyridine derivatives. Lezina, V. P.; Smirnov, L. D.; Dyumaev, K. M.; Bystrov, V. F. (Inst. Khim. Fiz., Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 25-31 (Russ). The NMR chem. shifts were tabulated for 3-methoxy-2-methylpyridine, 3-hydroxy analog, its 2-nitro and 2-dimethylaminomethyl analogs, as well as 2-methyl-6-diethylaminomethyl-3-hydroxypyridine, its 6-nitro analog and 4-nitro analog as well as selected methiodides. From the chem. shift data the electron distribution in such compds. was estd. for acid, basic and neutral media. The spectra of 2-methyl-3-hydroxypyridine and its *N*-Me deriv. showed the presence of the bipolar structure component in aq. soln. The Hueckel method of LCAO MO calcn. gave satisfactory values for the bipolar form in comparison with the results of NMR study. Passing from acid to basic medium causes a change in the sequential position of proton signals from 4- and 5-positions of the ring. The internal H bond in 2-dimethylaminomethyl-3-hydroxypyridine affects the chem. shift relation to pH and the dependence of this shift on pH indicates that distinct protonation at the ring N and the sidechain N occurs in such compds.

G. M. Kosolapoff

REEL/FRAME 19841777

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 010

UNCLASSIFIED

TITLE--MINIMUM WORK OF DESALINATING SALT WATER -U-

PROCESSING DATE--04DEC70

AUTHOR--SMIRNOV, L.F.

COUNTRY OF INFO--USSR

SOURCE--VODOSNABZH. SANIT. TEKH. 1970, (2), 1-4

DATE PUBLISHED--------70

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

TOPIC TAGS--DESALINATION, SALT WATER, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1335

STEP NO--UR/0327/70/000/002/0001/0004

CIRC ACCESSION NO--AP0138345

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

CIRC ACCESSION NO--AP0138345 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MIN. WORK OF DESALINATION OF KW HR-M PRIME3, CALCD. FROM THE FORMULA MINUS W SUBMIN. EQUALS 0.1489 RI SUB0 THE INTEGRAL TAKEN BETWEEN THE VALUE OF N SUB1 OR VARIABLE AND ITS VALUE N SUB2 LOG ADN, WHERE N SUB1 EQUALS 100 (INITIAL NO. OF MOLES), N SUB2 EQUALS FINAL NO. OF MOLES OF SALINE SOLN., A EQUALS ACTIVITY OF H SUB2 O. THE VALUES FOR 0.5, 1, 2, AND 3.5PERCENT NACL FOR 15, 20, ADN 25DEGREES ARE GIVEN. W SUBMIN FOR 25DEGREES, 3.5PERCENT NACL, AND 50PERCENT EXTN IS 1.109 KW HR-M PRIME3. THE BEST EXTN. COEFFS. ARE IN HE 20-70PERCENT RANGE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: 542.48

SMIRNOV, L.F., Candidate of Technical Sciences, Odessa

"Minimum Work of Desalinating Salt Water"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 2, 1970, pp 1-4

Abstract: In the reversible separation of a salt water solution into freshwater and salt, the minimum thermodynamic work involved can be usefully compared with the actual work expended in a functioning still. The thermodynamic efficiency of the desalination unit is defined by the ratio of minimum work to all the actually involved usable energy:

$$\eta = \frac{W_{min}}{\Sigma W_g} \qquad (1)$$

Values of minimum work with change in concentration of solution are necessary for exergetic analysis of unit elements and evaluation of its technical improvements. A determination is made of the minimum work in desalinating salt solutions in the concentration range 0.5-3.5 percent NaCl, with fresh water extraction coefficients of 0-90 percent, and in the ambient temperature range 15-25°C.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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UNCLASSIFIED

TITLE--STABILIZATION OF POLYCAPROLACTAM -U-

PROCESSING DATE--20NOV70

AUTHOR-(05)-SHIRNOV, L.N., KHARITONOV, V.M., KLYUYEV, V.N., SNEGIREVA, F.P., KRAVCHENKO, M.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,136

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

DATE PUBLISHED--04FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL STABILIZER, CAPROLACTAM, CHEMICAL PATENT, POLYNUCLEAR HYDROCARBON, HETEROCYCLIC NITROGEN COMPOUND, HETEROCYCLIC SULFUR COMPOUND, ORGANOMETALLIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1844

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

CIRC ACCESSION NO--AA0132109

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

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2/2 011

CIRC ACCESSION NO--AA0132109 UNCLASSIFIED

PROCESSING DATE--20NOV70

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

ABSTRACT. EPSILON CAPROLACTAM IS POLYMD. IN THE PRESENCE OF 0.001-1 WT. PERCENT STABILIZER, SUCH AS A MACROCYCLIC COMPD. OF THE FORMULA I OR II, WHERE M IS A GROUP II OR III METAL OF VARIABLE VALENCE TO GIVE STABLE POLYCAPROLACTAMS. THESE MACROCYCLIC COMPDS. ARE MIXED WITH METAL HALIDES.

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USSR
CHEMISTRY
Aerosols

USSR

UDC 541.182.2/3

DERYAGIN, B. V., PAVLIKHINA, M. A., and SMIRNOV, L. P., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Flow Method for Determining the Capture Coefficient for the Adherence of Aerosol Particles to a Sphere in a Flow"

Moscow, Kolloidnyy Zhurnal, Vol 34, Vyp 5, Oct/Nov 72, pp 762-765

Abstract: Aerosol jets were directed at spheres and the streamlines were determined for both symmetrical and unsymmetrical stationary turbulent flow around the object. Particles were observed to settle on the back side of the sphere at the beginning of this stationary turbulence. A critical trajectory, e.g., the longest possible path for which the particle could still be captured, was measured. A capture coefficient was determined from the difference in the direction of the jet at the two positions producing the critical trajectories. The capture coefficient can be calculated from the equation

$$\xi = \frac{M}{\pi a^2 vnmt}$$

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

DERYAGIN, B. V., et al., Kolloidnyy Zhurnal, Vol 34, Vyp 5, Oct/Nov 72, pp 762-765

where M is the total mass of the particles on the sphere, a is the radius of the sphere, π is the constant, v,n, and m are the velocity, mass, and concentration in the gas of the particles, respectively, and t is the time. Values determined from the aerosol method agreed well with gravimetric data.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

GERASIMENKO, N. N., DVURECHENSKIY, A. V., ROMANOV, S. I., and SMIRNOV, L. S.

UDC: 621.315.592

"Interaction of Defects and Impurities in the Introduction of Ions into Silicon"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1978-1981

Abstract: The experiments described in this paper were designed for examination of the interaction involving the defects appearing with the introduction of ions into crystals by ion bombardment, and implanted as well as diffusion-generated impurities. Specimens for the experiments were Si doped with boron, with a resistivity of about 1 ohm·cm, bombarded by Ar^+, B^+, E = 40, and P^+, E = 40 kev. The methods of electron paramagnetic resonance and the diffraction of fast electrons by reflection were used for the investigation. Anode oxidation controlled removal of the Si layers. A curve giving the number of paramagnetic defects as a function of the ion irradiation dosage shows that the process of defect accumulation under Ar^+ bombardment is subject to laws found earlier by these same authors (e.g., FTP, 5, 1971, p 1700) but that

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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GERASIMENKO, N. N., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1978-1981

UDC: 621.315.592

irradiation by B+ and P+ produce different results, with a reduction in the number of VV centers as a result of higher dosage. This anomaly is explained by the disappearance of the VV centers at a definite concentration of the introduced impurity, while further bombardment leads to restoration of the crystal structure.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: 621.315.592

GERASIMENKO, N. N., DONINA, V. I., LEZHEYKO, L. V., SIROCHINSKIY, S. E. and SMIRNOV, L. S., Institute of Semiconductor Physics, Novosibirsk

"Irradiation of Diamond Crystals by Protons"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1489-1494

Abstract: An investigation is made of the effects of irradiating diamond crystals with protons, plus subsequent annealing, on the characteristics of the crystal, and an explanation is given of the reactions of the specimens by considering the peculiarities of the disorder region and the consequent compensation of conductivity. Changes in the electrical conductivity and cathode luminescence spectra of the diamonds when proton-irradiated and annealed were recorded. The problem of finding the laws governing the behavior of the diamonds under such treatment was solved by comparing the data obtained after irradiation by both protons and electrons since irradiation by electrons permits definite assumptions regarding defects resulting in electrical conduction and cathode luminescence spectrum changes. Three types of crystal were investigated; Natural, types Ia and IIa; synthetic nonconducting crystals;

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

GERASIMENKO, N. N., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1489-1494

synthetic p-type semiconductor crystals alloyed with B, Al, and Ti during growth. The authors acknowledge the assistance of V. V. Bolotov for his useful comments, Ye. V. Sobolev for offering the natural diamond crystals, and of V. I. Abramenko, S. A. Sokolov, V. A. Patrenin, and Yu. M. Limasov for irradiating the crystals.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

GERASIMENKO, N. N., DVURECHENSKIY, A. V., KACHURIN, G. A., PRIDACHIN, N. B., SMIRNOV, L. S., Institute of Physics of Semiconductors, Siberian Department of the Academy of Sciences, Novosibirsk

UDC: 621.315.592

"Radiation Annealing of Defects Formed During Ion Bombardment of Crystals"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1834-1835

Abstract: The authors investigate the recovery of gallium arsenide and silicon structures amorphized by bombardment with 40 keV argon ions. The annealing was accompanied by irradiation with 3.5 MeV electrons or 10 keV protons. The three procedures used for checking structural transformations are described. It was found that defects induced by argon ion bombardment were not removed by heating at 200-250°C without proton irradiation. A temperature of 500°C is required without the proton treatment. When proton bombardment is used, the lower temperature is sufficient for recovery of the nondefective structure. The authors thank S. I. Romanov for taking the electron-diffraction patterns of the surface of the specimens, and B. I. Vikhrev for measuring the electron paramagnetic resonance.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

Semiconductors and Transistors

USSR

GERASIMENKO, N. N., DVURECHENSKIY, A. V., PANOV, V. I., and SMIRNOV, L. S.

UDC 621.315.592

"Threshold Energy of the Formation of Radiation Defects in Semiconductors"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1644-1646

Abstract: The authors set themselves the problem of determining the threshold for the initial formation of a defect of the Frärkel type in semiconductor radiation under electron bombardment in this brief communication. For their experiments, they chose the A center in silicon (the association of a vacancy with oxygen) of the n type with a resistivity of 2 ohm·cm and an oxygen concentration of 2·1017 per cc. The specimens were irradiated in a van de Graaf accelerator at room temperature. The measurements were made by the electron paramagnetic resonance method at a temperature of 77°C with a spectrometer having a sensitivity of 1011 spins/gauss. The irradiation dosage was kept small to maintain constant the rate of A-center accumulation.
Gratitude is expressed to R. R. Sevast'yanenko and M. P. Shadrina for preparing the specimens and to V. A. Abramenko and S. A. Sokolov for performing

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

GERASIMENKO, N. N., et al., Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1644-1646

the irradiation procedure. The authors are connected with the Novosibirsk Semiconductor Physics Institute.

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USSR

S

UDC 621.315.592

BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.V., LITVIN, Yu.A., and SMIRNOV, L.S.

"Electrical and Optical Characteristics of Artificial Semiconductor Boron-Doped Diamonds"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

Abstract: The artificial diamond specimens were doped by boron in their growth process, and had a carrier concentration, determined by the Hall effect at room temperature, within the limits of $5 \cdot 10^{16}$ to 10^{18} cm^{-3}, corresponding to a boron content of 0.25 to 0.25% by weight. With the variation in concentration of the boron the color of the crystals changed from blue to black. The crystals used in the measurements were cubic, with an edge of 0.5 to 1.5 mm, or in octahedral form. The following characteristics were investigated: type of conductivity, from thermoelectrical measurements; the resistance as a function of the temperature in the interval of 300-800° K, in which the two-contact method of

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

BEZRUKOV, G.N., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

electrical measurement was used, with the electrodes made of silver or graphite; radiation recombination spectrum at temperatures of 300 and 90° K with electron pulse excitation, and its dependence on the excitation density. In this latter, the electron energy was 200 kev with a pulse duration of $0.3 \cdot 10^{-6}$ seconds. Also investigated was the duration of the afterglow after the excitation pulse stopped, and its dependence on the wavelength. The authors found these diamond semiconductors to be of the p type.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 042 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--LOW RESISTIVITY FILMS OBTAINED BY ION BOMBARDMENT ON SEMIINSULATING GALLIUM ARSENIDE -U-

AUTHOR--ZELEVINSKAYA, V.M., KACHURIN, G.A., PRIDACHIN, N.B., SMIRNOV, L.S.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, FEB. 1970, P. 317-320

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--POLYCRYSTALLINE FILM, ION BOMBARDMENT, GALLIUM ARSENIDE, CARRIER DENSITY, ELECTRIC CONDUCTIVITY, NEUTRON IRRADIATION, ELECTRON BOMBARDMENT, XENON, SELENIUM, KRYPTON, ZINC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1346 STEP NO--UR/0449/70/004/000/0317/0320

CIRC ACCESSION NO--AP0107819

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 042 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107819

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY IN WHICH CONDUCTING FILMS WERE SYNTHESIZED ON SEMIINSULATING GALLIUM ARSENIDE BY BOMBARDMENT WITH XENON, KRYPTON, SELENIUM, AND ZINC IONS. THE CARRIER CONCENTRATION IN THE FILM IS 5 TIMES 10 TO THE 16TH PER CU CM, THE MOBILITY IS 10 SQ CM-V SEC, AND THE THERMAL ACTIVATION ENERGY IS 0.07 EV. THE EFFECT OF THE DOSE RATE, THE ION ENERGY, AND THE SUBSTRATE TEMPERATURE ON THE FORMATION OF THE CONDUCTING FILM IS INVESTIGATED. WITH THE AID OF AN ETCHANT ACTING AT A RATE OF 5 TO 8 A-SEC, THE DISTRIBUTION OF THE FILM CONDUCTIVITY WITH DEPTH IS RECORDED. ON THE BASIS OF EXPERIMENTS ON ION BOMBARDMENT AND IRRADIATION OF SEMIINSULATING GAAS WITH REACTOR NEUTRONS AND ELECTRONS WITH AN ENERGY OF 3.5 MEV, IT IS CONCLUDED THAT AN INCREASE IN CONDUCTIVITY IS ATTRIBUTABLE MAINLY TO A MERGING OF THE BIAS PEAKS INTO A SINGLE FILM WHERE THE COMPENSATION CONDITIONS ARE NOT FULFILLED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF RADIAL AND LINEAR COMPRESSION ON SOME PROPERTIES OF HIGH BULK CRIMPED YARN -U-

AUTHOR-(05)-SMIRNOV, L.S., ZAGORODNYAYA, S.S., POZDNIKINA, L.A., TSYBENKO, L.I., NOSOVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--LEGKA PROM. 1970, (1), 19-22

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAPRONE, BREAKING STRENGTH, ELONGATION, COMPRESSIVE STRESS/(U)GOFRON CAPRONE YARN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0880 STEP NO--UR/0518/70/000/001/0019/0022

CIRC ACCESSION NO--AP0124543

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124543

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE WAS STUDIED OF THE TITLE COMPRESSIONS, OCCURRING DURING THE YARN MANUF., UPON THE PROPERTIES OF THE HIGH BULK CRIMPED GOFRON, MADE FROM A SMOOTH KAPRON YARN (10 TEX) COMPRISING 12-39 ELEMENTAL FIBERS. THE COMPRESSION INDUCED FIBER DEFECTS AND CHANGES WERE CLASSIFIED, CHARACTERIZED, AND DISCUSSED. WITH AN INCREASE OF BOTH COMPRESSIONS THE LENGTH OF THE DEFECTIVE FIBER PART INCREASED AND ITS TOTAL MOL. ORIENTATION DECREASED. THE DEPENDENCE OF THE BREAKING STRENGTH OF A DEFECTIVE FIBER ON ITS ELONGATION WAS DETD. THE BREAKING STRENGTH INCREASED WITH INCREASING RADIAL AND LINEAR COMPRESSIONS, AND THE BREAKING ELONGATION OF GOFRON (CONTG. DEFECTIVE FIBERS), AS COMPARED WITH THAT OF THE PARENT YARN, INCREASED BY 2.6PERCENT.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 048 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--IRRADIATION AND ANNEALING OF P TYPE GERMANIUM -U-

AUTHOR-(02)-STAS, V.F., SMIRNOV, L.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 276-81

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SILICON SINGLE CRYSTAL, GERMANIUM, CRYSTAL DEFECT, CRYSTAL VACANCY, PLASTIC DEFORMATION, IRRADIATION EFFECT, ANNEALING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1866 STEP NO--UR/0449/70/004/002/0276/0281

CIRC ACCESSION NO--AP0118830

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 048 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0118830

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GA DOPED P SI CRYSTALS (5 AND 25 OHM CM) WITH A GROWTH DISLOCATION D. SIMILAR TO 10 PRIME3-CM PRIME2 AS WELL AS WITH DISLOCATIONS INTRODUCED BY PLASTIC DEFORMATION WERE INVESTIGATED. THE SAMPLES WERE IRRADIATED IN A PULSE ACCELERATOR BY 3.5 MEV ELECTRONS THEN ANNEALED ISOTHERMALLY OR ISOCHRONOUSLY. THE TEMP. DEPENDENCES OF THE HALL COEFF. AND OF COND. WERE MEASURED AT VARIOUS STAGES OF ANNEALING AND 80-400DEGREESK. THE TEMP. DEPENDENCE OF HOLE CONCN. IN THE 5 OHM CM SAMPLES INDICATES THAT A CENTER WITH A DONOR LEVEL E SUBV PLUS 0.07 EV IS INTRODUCED DURING ANNEALING AT 170DEGREESK. THE 0.07 EV LEVEL IN THE 5 OHM CM SAMPLES CANNOT FULLY DISAPPEAR DURING ANNEALING EVEN AT 400DEGREESK. THE ISOCHRONOUS, ANNEALING OF HIGH PURITY GE AT 340DEGREESK RESULTS IN A CONSIDERABLE REDN. OF HOLE CONCN. DOWN TO 10 PRIME11-CM PRIME3, WHICH IS ASSOCD. WITH A DEEPER LEVEL E SUBV PLUS 0.15 EV APPEARING IN CRYSTALS IRRADIATED AT 78DEGREESK AND ANNEALED AT 300DEGREESK. THE RATE OF DONOR INJECTION WAS 1.6 CM PRIME NEGATIVE1. THE ACTIVAITON ENERGIES OF THE ANNEALING AND THE RECOVERY PROCESSES ARE 1.0 AND 1.4 EV, RESP. THE RESULTS ARE INTERPRETED IN TERMS OF SELF ADJUSTING CENTERS CONSISTING OF INTRINSIC DEFECTS: VACANCIES AND INTERSTITIALS. IT IS ASSUMED THAT THE CENTER ASSOCD. WITH THE E SUBV PLUS 0.15 EV LEVEL IS A VACANCY LEVEL, WHICH ALTERS THE SIGN OF ITS CHARGE AT LOWER TEMPS. FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: 621.315.592

GEYTSI, I.I., NESTEROV, A.A., SMIRNOV, L.S.

"Thin Structure of the 'Red' Band of Cathodoluminescence of β-SiC Irradiated by Fast Electrons"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 879-885

Abstract: This article contains an investigation of the cathodoluminescence of β-SiC caused by lattice defects. Irradiation by fast electrons and also heating to high-temperatures (above 1,100° C) lead to the occurrence of luminescence in the 6,250-10,000 Å range. At temperatures below 150° K on the short-wave side of this band, there is a thin structure in the form of narrow lines with a halfwidth less than kT and their phonon recurrence. It is demonstrated that the "red" band with its fine structure is most likely caused by radiation annihilation of excitons captured on the ionized centers formed as a result of irradiation or high-temperature heating. It is proposed that the centers are of the acceptor type. The depths of these levels are estimated from the fine cathodoluminescence structure: $E_V + 0.42$, $E_V + 0.44$, $E_V + 0.48$, $E_V + 0.5$ electron volts. The final solution of the problem of the charge state of the centers requires additional investigation.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

GEYTSI, I.I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 879-885

In order to explain the mechanism of radiative recombination in the red band and also the relation between the fine structure and the continuous spectrum, the intensities were measures as functions of the excitation flux density, the radiation kinetics during pulse excitation were studied, and spectra were taken for defined time intervals after the end of the excitation pulse. The results indicate that the fine structure is not connected with the donor-acceptor mechanism of radiative recombination.

It is pointed out that the green band of the cathodoluminescence is connected with radiative hole capture in the nitrogen level. Radiation by fast electrons leads to the occurrence of additional recombination channels of the nonequilibrium carriers of both radiated and nonradiated types. The presence of narrow lines (with a halfwidth less than kT) within the limits of the red band indicate localization of the charge carriers before recombination. The difference in the form of the red band for different temperatures is determined by whether

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USSR

GEYTSI, I.I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 879-885

phononless transitions take place or not. It is also pointed out that the model of the exciton located on the ionized center is more suitable to t explain the data obtained in this experiment than the model of the exciton located on the neutral center.

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USSR

UDC: 621.315.592

ZELEVINSKAYA, V. M., KACHURIN, G. A., and SMIRNOV, L. S., Institute of Semiconductor Physics, Novosibirsk

"Interaction of Impurities and Defects in GaAs Doped with Tellurium Ions"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1385-1387

Abstract: This brief communication is the follow-up to an earlier paper (V. M. Zelevinskaya, et al, FTP, 5, 1971, p 1969) in which it was found that the behavior of impurities of atoms in the VI group used for doping GaAs is radically different from the behavior of doping atoms of the II and IV group. In that earlier paper, it was assumed that heavy selenium and tellurium ions amorphize the doped layer and that sulphur ions could not be used for doping. The purpose of the present paper is to check the validity of this assumption with an experiment involving the irradiation of the GaAs by Te ions with an energy of 40 kev and a dose of $10^{15}/cm^2$ at various target temperatures. The method of irradiation as well as of the annealing and measurement procedures that followed it is given in another earlier article in the same journal (V. M.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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ZELEVINSKAYA, V. M., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1385-1387

Zelevinskaya, et al, FTP, 4, 1970, p 1784). Curves are plotted for the layer concentration and mobility of electrons as functions of the irradiation temperature, and for the change in layer resistance after irradiation as a function of isochronous annealing temperatures. It is concluded that the assumption noted above is correct. The authors express their gratitude to S. I. Romanov for the electronographic work.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: 669.24

KRALINA, A. A., SMIRNOV, I. V., SAZONOVA, V. A. and ZAYTSEV, G. I.,
Institute of Physics of Metals, Ural Scientific Center, Academy of Sciences
SSSR

"Substructure of Nickel Monocrystals Grown by the Czochralski Process"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72,
pp 113-120

Abstract: The study concerns the substracture of nickel single crystals grown by the Czochralski method at 0.5-3.2 mm/min growth rates using seed crystals of various crystallographic orientations. X-ray diffraction analysis indicates three basic types of substructures: a) striped substructures with inclined boundaries along the direction of growth; b) branched substructures without explicit boundaties; c) substructures with boundaries twisted around the specimen's axis. It is shown that the formation of structures of one type or another depends on growth conditions, the basic factor being the crystallographic orientation of the direction of growth. The three types of substructures and their occurrence in crystals with specific types of crystal axis orientations are discussed. Analysis of

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

KRALINA, A. A., et al, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72, pp 113-120

the etching patterns on both longitudinal and transverse cross sections of the monocrystals indicates the marked effect of the thermal conditions at the crystallization boundaries on the type of substructure formation in the process of growth. (8 illustrations, 10 bibliographic references).

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

Acc. Nr: AP0106260 Ref. Code: UR 0307

PRIMARY SOURCE: Vestnik Leningradskogo Universiteta, No 6, Geologiya, Geografiya, 1970, Nr 1, pp 126-139

L. Ye. Smirnov, A. G. Chimshidova

The elements of mathematical logic as apllied to interpretation of airphotos

The paper is dedicated to the logic problems in the interpretation of airphotos and to do logic sums with an algebraic logic. An example of automat-trainer for programmed instruction in interpret of aerial photos are given.

MK

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USSR

VORONIN, L., Corresponding Member, Academy of Sciences USSR, Head, Chair of Higher Nervous Activity, Soil Biology Faculty, Moscow State University; Chairman of the Commission, SMIRNOV, M., Candidate of Physicomathematical Sciences, Senior Scientific Associate, Institute of Problems of Information Transmission, Academy of Sciences USSR, RATANOVA, T., Candidate Pedagogical Sciences, Senior Scientific Associate, Laboratory of Perception and Sensation, Institute of Psychology, Academy of Pedagogical Sciences, DASHEVSKIY, I., Doctor-Psychiatrist, Psycho-Neurological Dispensary No 2, Moscow, and KNORRE, V., Candidate of Technical Sciences

"Mysterious Phenomenon: Discovery or Error" -- Once More on the Rosa Kuleshova Effect"

Moscow, Literaturnaya Gazeta, No 31, 29 Jul, p 12

Abstract: Optical perception through touch has been discussed and disputed by scientists during the last ten years. The authenticity of the claim of R. A. Kuleshova to be able to distinguish between the colors of objects by touching them has been established. However, it has been impossible to establish experimentally more data on this phenomenon, because it is impossible to obtain a high percentage of correct answers, since simple random selection is also involved. A commission set out to reexamine the case of R. A. Kuleshova.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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VORONIN, L., et al, Literaturnaya Gazeta, No 31, 29 Jul 70, p 12

Another series of tests was run to overcome this disadvantage by excluding the ordinary sense of touch. In the first set of tests a plywood baffle of 1.5 x 1.5 m with openings and sewn-in sleeves for the hands of the person to be tested was used. Seven correct color identifications out of a possible 23 were achieved in the first round, involving pencils and studs of the five prime colors. Subsequent rounds were even less favorable.

In a second test series, the person to be tested had his face covered with opaque material. The objects to be tested were reproductions of paintings. In all experiments in which the sense of sight was carefully excluded, R. A. Kuleshova did not exhibit any unusual faculty.

In a third series of tests, R. A. Kuleshova was blindfolded. In this case, she felt capable of sensing colors and gave correct and accurate answers. She described in detail the subjects on pictures, with accurate indication of colors, and fluently read printed text.

The spectro-anomaloscopic tests run in 1963 and 1964 were repeated. This device is capable of producing monochromatic light of four different colors. In 10

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

VORONIN, L., et al, Literaturnaya Gazeta, No 31, 29 Jul 70, p 12

tests, only twice did the test subject arrive at the correct answer. Such a result can be expected from anyone. To examine the discrepancy in the results obtained previously and those obtained now, the commission decided to check into the 1963-1964 tests. It was found that when the device switched from one color to the next, a certain noise from the mechanical movement of parts of the device could provide the test person with information about the color shown. In the new test run, all such movements had been eliminated. The commission came to the conclusion that R. A. Kuleshova uses the same methods used by artists who claim that they see "without the help of eyes," using a narrow slit between the lower edge of the band covering the eyes and the nose. The commission believes that, at least today, no special optical sense is exhibited by R. A. Kuleshova. Of the thousands of other such cases claimed, the commission considers it unlikely that any of these do in fact possess the ability of an optical sense activated by touch.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

Thermomechanical Treatment

UDC: 621.789-977:669.14.018.254

SMIRNOV, M. A., SHTEYNBERG, M. M., GUREVICH, L. G., FILATOV, V. I., SHILKOVA, T. S., Chelyabinsk Polytechnic Institute

"Hardening of Stamp Steels During High Temperature Thermomechanical Treatment"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 29-31.

Abstract: The use of high temperature heat treatment and mechanical working can increase the mechanical properties of many tool steels. This article studies the influence of this treatment on stamp steels for hot deformation. Steels studied included types 5KhNV, 4Kh5MFS, 4Kh4M2VFS (DI22) and 3Kh2V8F, the latter three of which show a tendency toward dispersion hardening. Billets 19 x 19 mm, after austenitizing, were rolled in two passes at different temperatures with reductions of 37%, then quenched in oil. The heating temperature for the high temperature heat treatment and mechanical working was 850° C for type 5KhNV, 1040° C for type 4Kh5MFS, 1070° C for type 4Kh4M2VFS and 1100° C for type 3Kh2V8F. All steels were then tempered at 450-650° C. The tensile strength, impact toughness and thermal stability were determined. It was found that high temperature plastic deformation accelerates the

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

Smirnov, M. A., Shteynberg, M. M., Gurevich, L. G., Filatov, V. I., Shilkova, T. S., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 29-31.

breakdown of austenite in all the steels tested, manifested as a decrease in the incubation period and an increase in the breakdown rate. However, the incubation period of the intermediate conversion is increased, the rate and completeness of conversion decrease. Thus, the hardenability of the steels is increased overall. Only the steels with tendencies to dispersion hardening show high stability of thermomechanical hardening during tempering. A significant increase in strength properties of these steels at room temperature and elevated temperatures is observed after deformation below the Ac_3 point. High temperature heat treatment and mechanical working decrease the brittle-rupture tendency of 4Kh5MFS and 4Kh4M2VFS steels only after deformation at 1000° C.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: 621.787

BURNAKOV, K. K., SMIRNOV, M. A AZGIN, I. A., BYPRYAZHKIN, V. P., NABIULLIN, N. M., TOLSTOV, A. M., Kurgan

"High Temperature Thermomechanical Treatment of EI 811 Stainless Steel"

Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 129-131.

Abstract: This work studied the possibility of increasing the strength of EI 811 steel by high temperature heat and mechanical treatment. The studies were performed using a steel of the following composition: 0.13% C, 0.33% Mn, 0.37% Si, 0.023% P, 0.077% S, 5.7% Ni, 21.1% Cr, 0.43% Ti, Fe -- remainder. The material was plastically deformed by rolling at 1100-900° C, 30% compression, velocity 4.3 m/min. Specimens 20 mm in diameter and 150 mm long were heated to 1000 or 1100° C, held 30 minutes, then deformed at these temperatures with subsequent immediate quenching in water. Specimens heated to 1000° C were allowed to cool in air to 900° C, then rolled at that temperature and held 5 minutes at that temperature before quenching. It was found that the selection of the temperature mode for plastic deformation must be based on consideration of the different tendencies of the ferritic and austenitic components toward softening. The strength characteristics of this steel were increased significantly only after deformation at 900° C, which causes

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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Burnakov, K. K., Smirnov, M. A., Brazgin, I. A., Bypryazhkin, V. P., Nabiullin, N. M., Tolstov, A. M., Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 129-131.

hardening of both the γ and α phases. The $\gamma \rightarrow \alpha$ conversion occurring during aging at 650-700° C has no significant influence on the hardening effect achieved by high temperature heat and mechanical treatment.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR UDC 669.715.018.29:[539.4+539.214]:539.374

SMIRNOV, M. A., KAREVA, N. T., AGOSHKIN, N. G., and TOLSTOV, A. M.

"Investigation of the Relation of the Hardening of Aluminum Alloy D16 to Temperature of Plastic Deformation During Thermomechanical Treatments"

V. sb. Materialy XXIII Nauch. - Tekhn. konferentsii Chelyabinsk. politekhn. in-ta. Sekts. Metallurg. Fak. Chelyabinsk (23rd Scientific-technological Materials Conference of Chelyabinsk Polytechnical Institute, Metallurgical Practice Section Chelyabinsk -- Collection of Works), 1970, p 74 (from Referativnyy Zhurnal -- Metallurgiya, No 6, Jun 71, Abstract No 61631 by V. Bochkareva)

Translation of Abstract: Deformation is realized by rolling in the interval of 20-500°. The greatest increase in the stability properties is provided when the plastic deformation occurs at 150° and lower. The best combination of stability and plasticity is achieved by combining plastic deformation at 150° with 12-15% shrinkage with subsequent age hardening.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 669.15.018.8:621.785.74

SHTEYNBERG, M. M., SMIRNOV, M. A., TOLSTOV, A. M., and BULANOV, YU. P.

"Effect of the Type of Thermomechanical Treatment on the Structure, Phase Composition and Strengthening of Kh18N10T Steel"

V sb. Povysh. konstruktivn. prochnosti staley i splavov (Increasing the Structural Strength of Steels and Alloys -- Collection of Works), No 2, Moscow, 1970, pp 202-207 (from RZh-Metallurgiya, No 3 Mar 71, Abstract No 3I599 by N. Kalinkina)

Translation: The effect of low-temperature thermomechanical treatment (LTMT), high-temperature thermomechanical treatment (HTMT), and thermomechanical treatment (TMT) on the structure and mechanical properties of Kh18N10T steel was studied. HTMT was performed at 1000°, LTMT at room temperature and 600°, and TMT at room temperature and 600° with subsequent heating at 600° for 100 hrs. In all cases deformation was effected by 12-15 and 25-28% rolling. X-ray diffraction analysis and electron microscope study by transillumination showed that with increased degree of deformation the dislocation density (DD) increases at all deformation temperatures. There is a slight decline in DD with a change from room temperature to 600°; there is a significant reduction in DDafter deformation at 1000°. Cold and thermal deformation gives

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USSR

SHTEYNBERG, M. M., et al., Povysh. konstruktivn. prochnosti staley i splavov, No 2, Moscow, 1970, pp 202-207

rise to a cellular disloaction structure, which is more pronounced the higher the deformation degree. Deformation at 600° causes precipitation of finely dispersed TiC particles along the dislocations. Annealing of deformed specimens at 600° causes additional precipitation of the carbides TiC and $Cr_{23}C_6$, mainly on the dislocations. Cold 25-28% deformation increases $\sigma_{0.2}$ from 21 to 77 kg/mm^2, σ_B from 59 to 81.7 kg/mm^2. The same deformation at 600° increases $\sigma_{0.2}$ to 64 kg/mm^2 and σ_B to 75.5 kg/mm^2. Heating at 600° in THT leads to a slight increase in steel strength. THT increases the time to rupture at 650° and a stress of 18 kg/mm^2 sixfold as compared with hardening. This difference disappears at stresses of 14 kg/mm^2 or below. Two illustrations. One table. Bibliography with two titles.

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1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF ADRENAL GLANDS FUNCTIONAL STATE ON OXIDATIVE METABOLISM OF VITAMIN A AND ITS CONTENT IN ADRENAL GLANDS, LIVER AND BLOOD PLASMA

AUTHOR-(04)-GRIGORYEVA, L.V., NATANSON, A.O., SMIRNOV, M.I., SHIPITSYNA, L.P.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 300-306

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL GLAND, OXIDATION, METABOLISM, VITAMIN, LIVER, BLOOD PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0144 STEP NO--UR/0301/70/016/003/0300/0306

CIRC ACCESSION NO--AP0120844

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120844

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF VARIOUS VITAMIN A FORMS (ALCOHOL, PALMITATE; ALDEHYDE) IN ADRENAL GLANDS OF RATS AT THEIR ACTIVATION BY MEANS OF UNILATERAL ADRENALECTOMIA OR ACTH ADMINISTRATION AFTER INHIBITION OF THEIR FUNCTION BY PROLONGED HYDROCORTISOL INJECTION AND AFTER CANCELLATION OF HYDROCORTISOL WAS STUDIED. SIMULTANEOUSLY ALL THREE FROMS OF VITAMIN A CONTENT IN LIVER AND BLOOD PLASMA WAS DETERMINED. ACTIVATION OF ADRENAL GLANDS FUNCTION LEADS TO DECREASE IN THEIR VITAMIN A CONTENT. INHIBITION OF THEIR FUNCTION DID NOT CHANGE SIGNIFICANTLY VITAMIN A CONCENTRATION. THE DECREASE IN VITAMIN A CONTENT IN LIVER OF RATS INJECTED WITH HYDROCORTISOL WAS NORMALIZED AFTER THE CANCELLATION OF THE DRUG. THE CONSTANCY IN VITAMIN A ALDEHYDE CONTENT IN ADRENAL GLANDS, LIVER AND BLOOD SHOWS THAT ACTIVATION AS WELL AS INHIBITION OF ADRENAL CORTEX FUNCTION DOES NOT LEAD TO THE INCREASE IN OXIDATIVE VITAMIN A TRANSFORMATION IN ADRENAL GLANDS AND LIVER OF EXPERIMENTAL ANIMALS. FACILITY: ALL UNION RESEARCH VITAMINOLOGY INSTITUTE USSR MINISTRY OF HEALTH, MOSCOW.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CHANGES IN THE LEVEL AND METABOLISM OF ASCORBIC ACID IN TISSUES OF GUINEA PIGS UNDER THE EFFECT OF HYDROCORTISONE -U-

AUTHOR-(02)-SMIRNOV, M.I., SHUVALOVA, T.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 43-45

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ASCORBIC ACID, METABOLISM, HYDROCORTISONE, ADRENAL GLAND, HEART, URINE, KIDNEY, LIVER, GUINEA PIG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0007 STEP NO--UR/0244/70/000/003/0043/0045

CIRC ACCESSION NO--AP0120707

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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UNCLASSIFIED

CIRC ACCESSION NO--AP0120707 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OBJECT OF SUTDIES WAS THE ASCORBIC ACID CONTENT AND ITS METABOLISM IN THE TISSUES OF GUINEA PIGS RECEIVING HYDROCORTISONE INTRAMUSCULARLY, 15 MG PER DAY FOR THE DURATION OF 10 DAYS. UNDER THE EFFECT OF PROTRACTED INTRODUCTION OF HYDROCORTISONE THE ASCORBIC ACID CONTENT DECLINED IN THE SUPRARENALS, HEART AND URINE, BUT REMAINED STABLE IN THE KIDNEYS AND LIVER. HYDROCORTISONE ALSO FAILED TO AFFECT THE LEVEL OF DEHYDROASCORBIC AND DIKETOGULONIC ACIDS IN THE TISSUES AND URINE. FACILITY: LABORATORIYA BIOKHIMII VITAMINOV VSES. N-I INSTITUTA VITAMINOLOGII MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ON A BOUNDARY PROBLEM FOR THE EQUATION OF A MIXED TYPE IN AN UNBOUNDED DOMAIN -U-

AUTHOR--SMIRNOV, M.M.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 7, MATEMATIKA, MEKHANIKA, ASTRONOMIYA, 1970, NR 2, PP 153-156

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--MATHEMATIC EXPRESSION, BOUNDARY LAYER CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1392 STEP NO--UR/0043/70/000/002/0153/0156

CIRC ACCESSION NO--AP0133344

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UNCLASSIFIED

CIRC ACCESSION NO--AP0133344 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER DEALS WITH THE PROBLEM OF FINDING THE SOLUTION U(X, Y) OF THE EQUATION SHOWN ON MICROFICHE AT THE DOMAIN D (X IS GREATER THAN 0), BOUNDED BY SEMI AXIS OY (Y GREATER THAN OR EQUALS TO 0) AND BY CHARACTERISTIC OF X PLUS Y EQUALS 0 SATISFYING THE BOUNDARY CONDITIONS SHOWN ON MICROFICHE. THE EXISTENCE AND THE UNIQUENESS OF THE SOLUTION FO THE BOUNDARY PROBLEM (1)-(2) ARE PROVED.

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1/2 021 UNCLASSIFIED

TITLE--MIXED TYPE EQUATIONS -U- PROCESSING DATE--30OCT70

AUTHOR--SMIRNOV, M.M.

COUNTRY OF INFO--USSR

SOURCE--MIXED TYPE EQUATIONS (URAVNENIYA SMECHANNOGO TIPA) MOSCOW, NAUKA, 195 PP

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAS DYNAMICS, MATHEMATIC EXPRESSION, DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0333 STEP NO--UR/0000/70/000/000/0001/0295

CIRC ACCESSION NO--AM0116014

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

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UNCLASSIFIED

CIRC ACCESSION NO--AM0116014 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: CHAPTER I INTRODUCTION 5. II "TRIKOMI" PROBLEM 26. III GENERALIZED "TRIKOMI" PROBLEM 170. IV "FRANKL'" PROBLEMS 235. V MODIFIED "TRIKOMI" PROBLEMS FOR A MIXED TYPE EQUATIONS 253. BIBLIOGRAPHY 285.

THE BOOK DEALS WITH THE THEORY OF DIFFERENTIAL MIXED TYPE EQUATIONS WITH PARTIAL DERIVATIVES. THE AUTHOR INTRODUCES THE READER INTO THE PRESENT STATE OF MATHEMATICAL PROBLEMS CLOSELY CONNECTED WITH PROBLEMS OF TRANSSONIC GAS DYNAMICS.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 669.71.053.4.094

SMIRNOV, M. N., VYAZOVOVA, A. A., and ZAYTSEVA, M. A.

"Interaction of Potassium-Calcium Silicate $Na_2O \cdot CaO \cdot SiO_2$ with Aluminate-Alkaline Solutions"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 103-108 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G138)

Translation: A study was made of the interaction of $Na_2O \cdot CaO \cdot SiO_2$ with aluminate-alkaline solutions containing 45-86 percent Al_2O_3 and having a causticity of 1.47-1.6 at temperatures of 50 and 75°. The Na-Ca-silicate of the indicated composition interacts comparatively actively with aluminate-alkaline solutions and leads to the corresponding losses of Al_2O_3 in the form of sodium hydroalumosilicate and $3CaO \cdot Al_2O_3 \cdot nSiO_2 \cdot (6-2\ n)\ H_2O$. The losses increase with time with an increase in the Al_2O_3 concentration and the solution

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

SMIRNOV, M. N., et al., Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 103-108 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G138)

temperature, and they reach 6-8 percent in two hours. There is no strict relation between the degree of decomposition of the Na-Ca-silicate and the Al_2O_3 losses. This is connected with complexity of the process of decomposition of this compound. The point of view of the authors with regard to the schematic of the given process is discussed. There are 2 tables and a 6-entry bibliography.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 669.71.046.44

ARLYUK, B. I., KIRILLOVA, T. A., YERMOLAYEVA, E. M., SMIRNOV, M. N., FIRFAROVA, I. B.

"Analysis of the Phase Composition of Aluminate Cakes and Slurry by the Chemical Method"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institue of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 43-50 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G126)

Translation: On the basis of investigation of the solubility of compounds contained in the cakes and slurries of alumina production, a procedure is proposed for successive leaching out of them in alkaline and acid solutions for quantitative phase analysis. The correspondence of the analysis results by the given procedure and also the results from x-ray micrography and crystal-optical methods is demonstrated. The basic causes of incompleteness of extraction of the Al_2O_3 and Na_2O from the cakes is the formation of Ca-aluminates and Na-Ca-silicates during the sintering process and also the occurrence of secondary reactions when leaching out the crushed cake leading to the formation of hydrogranates and tricalcium hydroaluminate. 1 illustration and 5 tables.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 669.71.053.4

PANASKI, G. A., and SMIRNOV, M. N.

"Obtaining Sodium Caustic Soda from Mixed Aluminate Solutions"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 126-135 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G135)

Translation: A study was made of the basic principles and results of experimental testing of a procedure for obtaining NaOH from Na-K-aluminate solutions by crystallization of Na hydroaluminate. An analytical expression is found which relates the amount of NaOH separated out to the depth of the preliminary decomposition of the mixed solution and the K_2O content in the ore. It is demonstrated experimentally that realization of the technological process is possible if the Na hydroaluminate precipitates contaminated by the extracted mixed solution are washed by the NaOH return solution. The optimal washing conditions are established. The KOH content in the caustic soda is analyzed. There are 2 illustrations and 5 tables.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 015

UNCLASSIFIED

TITLE--THERMODYNAMIC ANALYSIS OF THE REASONS FOR ALUMINA LOSSES DURING THE LEACHING OF A SINTERED MASS -U-

PROCESSING DATE--04DEC70

AUTHOR-(04)-ARLYUK, B.I., SMIRNOV, M.N., KOLOTUSHKINA, S.P., KIRILLOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(3), 37-42

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINA, THERMAL ANALYSIS, CALCIUM OXIDE, SILICON DIOXIDE, SODIUM OXIDE, GARNET, SULFATE, SINTERING FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605109/B05 STEP NO--UR/0136/70/043/003/0037/0042

CIRC ACCESSION NO--AP0140898

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140898

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCREASE OF SIO SUB2 CONCN. IN THE ALUMINATE LEACHING SOLN., CAUSED BY DISSOLVING BETA 2CAO.SIO SUB2, PROMOTES THE FORMATION OF THE SOLID PHASE, CONTG. AL SUB2 O SUB3. TO INVESTIGATE THE SOLY. OF 2CAO.SIO SUB2 THE FINE GROUND SINTERED MASS WAS TREATED WITH AN ALUMINATE SOLN. AT 40, 55, 65, 75, AND 90DEGREES UP TO 6 HR. THE SOLN. CONTAINED 25, 85, 140, 250, AND 300 G AL SUB2 O SUB3-L.; THE OTHER COMPONENTS WERE PRESENT IN THE RATIO AL SUB2 O SUB3:NA SUB2 O:SO SUB4 PRIME2 NEGATIVE EQUALS 80:10:5:0.2. THE SOLN. WAS ANALYZED AFTER THAT TREATMENT BY DETN. OF AL SUB2 O SUB3, NA SUB2 O, AND SIO SUB2. THE DECOMPN. OF 2CAO.SIO SUB2 IS RETARDED AND THE SIO SUB2 AMT. IN THE SOLN. LIMITED BY THE FORMATION OF A FILM OF TOBERMORITE AND HYDROGARNET, WHICH COATED THE SOLID 2CAO.SIO SUB2. AFTER A COMPLETE DISSOLN. OF 2CAO.SIO SUB2, THE SIO SUB2 CONCN. DEPENDS ON THE SOLY. OF NA ALUMINOSILICATE HYDRATE. IF THE SOLN. IS SATD. WITH SIO SUB2, 2CAO.SIO SUB2 IS DECOMP. VERY SLOWLY AND THE SECONDARY LOSSES OF AL SUB2 O SUB3 ARE REDUCED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CONTINUOUS EXTRACTION OF COPPER FROM LEAD AT THE CHIMKENT LEAD PLANT -U-

AUTHOR-(02)-SMIRNOV, M.P., KHOBDABERGENOV, R.ZH.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(5), 31-4

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER, LEAD, BISMUTH, SILVER, GOLD, ANTIMONY, METAL SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1899 STEP NO--UR/0136/70/043/005/0031/0034

CIRC ACCESSION NO--AP0132161

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 015

CIRC ACCESSION NO--AP0132161 UNCLASSIFIED PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE METHOD IS BASED ON THE COMBINING OF 2 PROCESS OF LIQUATION AND SULFIDIZATION OF CU IN ONE REVERBATORY FURNACE WITH DIRECT TRANSFER OF CU INTO A COM. MATTE. DETAILS OF THIS METHOD ARE DESCRIBED BY S., ET AL. (1966). BEFORE THE INTRODUCTION OF THIS PROCESS, THE MATTE CONTAINED PB 10 AND CU 20PERCENT, THE EXTN. OF PB INTO SOFT METAL WAS 78.4PERCENT, AND EXTN. OF CU INTO COM. MATTE WAS 73.54PERCENT. IN 1968, THE COM. MATTE CONTAINED PB 14.5 AND CU 60PERCENT. THE EXTN. OF PB INTO SOFT METAL WAS 88.4PERCENT AND THE EXTN. OF CU INTO COM. MATTE WAS 80.75PERCENT. IN ADDN., THE LOSSES OF SB, BI, AG, AND AU WERE REDUCED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 621.357.13:669.298

SMIRNOV, M. V., KUDYAKOV, V. YA., POSOKHIN, YU. V., and KRASNOV, YU. N.

"The Equilibrium of Metallic Thorium with Melts of Alkali Metal Chlorides Containing Its Ion"

Tr. In-ta elektrokhimii. Ural'sk. nauch. tsentr AN SSR (Works of the Institute of Electrochemistry. Ural Scientific Center, Academy of Sciences USSR), Vyp 18, 1972, pp 2732 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L343 A. D. Davydov)

Translation: During the measurement of the equilibrium electrode potentials of thorium in the melts of alkali metal chlorides, it was determined that metallic thorium was reduced from Th^{4+} to Th^{2+}. The equilibrium constants K were determined for the reaction $Th^{4+}_{melt} + Th_{solid} \rightleftharpoons 2Th^{2+}_{melt}$ in all the studied systems. Expressions were determined for the temperature dependence for the apparent standard electrode potentials (UP) of the Th^{4+}/Th and Th^{2+}/Th by the usual method. The relationship of the UP of Th^{2+}/Th and Th^{4+}/Th, K, other electrochemical characteristics to the nature of the salt solution was determined. The empirical equation relating these parameters to the radius of the cation of the salt was also determined.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 621.357.13:669.298

SMIRNOV, M. V., KUDYAKOV, V. YA., KHUDOLOZHKIN, V. N., and SHERSTOBITOVA, I.A.

"Volatile Components of Alloy Mixtures KCl-$ThCl_4$"

Tr. In-ta elektrokhimii. Ural'sk nauch. tsentr. AN SSR (Studies of the Institute of Electrochemistry. Ural Science Center, Academy of Sciences USSR) Vyp 18, 1972, pp 33-40 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L426 by A. D. Davydov)

Translation: The volatiles were measured in saturated vapors of KCl and $ThCl_4$ containing 0-50 mole % $ThCl_4$, in the temperature range 690-990°C. The composition of the gas phase was determined relative to the liquid phase. Based on the experimental data, the conclusion was drawn that there is an equilibrium concentration of the two compounds of the type K_2ThCl_6 in the vapor phase.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 621.357.13:699.822

SMIRNOV, M. V., BORODINA, N. P., and KOMAROV, V. E.

"Diffusion Coefficients of Uranyl Ions in Melts of Alkali Metal Halides and Their Mixtures"

Tr. In-ta elektrokhimii. Ural'sk nauch. tsentr. AN SSR (Studies of the Institute of Electrochemistry. Ural Science Center, Academy of Sciences USSR) Vyp 18, 1972, pp 64-68 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L427 by A. D. Davydov)

Translation: Diffusion coefficients were measured for uranyl ions in the following melts -- 3 LiCl-2KCl; NaCl-KCl; KCl; RbCl; and CsCl -- in the temperature interval 441-921°C. It was established that the diffusion coefficient of UO_2^{2+} decreased in the order above and increased with temperature.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 620.193.43

PENYAGINA, O. P., OZERYANAYA, I. N., SMIRNOV, M. V., SHIBANOV, B. S., and SHAMANOVA, N. D., Academy of Sciences USSR, Ural Branch, Institute of Electrochemistry

"Passivation of Iron and Nickel in Molten Carbonates"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 312-314

Abstract: A study was made of the passivation of NO nickel and Armco iron in carbonate melts. Significant passivation of nickel is observed in the ternary eutectic mixture of lithium, sodium, potassium carbonates at 800°. At 600° there is appreciable inhibition only of the dissolution of electrodes electropolished or working in contact with electronegative titanium. At 800° the phase composition of the film on the electrode changes as a result of the insertion of lithium oxide in the crystal lattice of nickelous oxide (solid solution $Li_2O \cdot NiO$). The corrosion rate and steady-state potentials do not depend on the cation composition of the melt. The influence of the nature of the melt is noted in the anodic polarization of nickel under potentiostatic conditions.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

PENYAGINA, O. P., et al., Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 312-314

The kinetic characteristics of Armco iron passivation were studied in a eutectic mixture of lithium, sodium, and potassium carbonates (0.43 : 0.32 : 0.25) at 600°. In contrast to nickel, the rate of anodic dissolution of iron at this temperature is high from the very start of polarization. The process is accompanied by intensive covering of the surface of the metal with products of its interaction with ions of the melt, and it reaches a maximum in the region of sufficiently negative potential values and then a sharp transition of the electrode to the passive state is observed. The iron electrodes after the test were coated with a film, X-ray diffraction analysis of which shows the formation of compounds of the $LiFeO_2$ and Fe_3O_4 spinel type on the surface of the iron during anodic polarization. Films with such a structure as a rule possess high protective properties.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

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

VERZHBITSKIY, F. R., VASILEVSKAYA, M. M., BUROV, G. V., and SMIRNOV, M. V.

"High-Frequency Noncontact Study of Temperature Dependence of Electrical Properties of Ionic Crystals"

Tr. In-ta elektrokhimii. Ural'sk. nauch. tsentr AN SSSR (Works of Electrochemistry Institute, Ural Scientific Center of Academy of Sciences USSR), 1971, vyp. 17, pp 7-10 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1226 from summary)

Translation: The authors study the electrical properties of NaCl, KCl, CsCl, KBr, and KI crystals by the noncontact HF method. It is established that on the curve for the temperature dependence of the tangent of the angle of dielectric loss in the crystals studied there is a maximum near the melting points. In the case of CsCl a maximum is found also in the region of polymorphous $\alpha \rightarrow \beta$ transformation at 475° C. The presence of a maximum on the tan δ curve is due to mutually opposed processes: an increase in the concentration of defects and a decrease in their mobility. The tan δ temperature dependence can be regarded as characteristic of temperature variations in the structure of ionic crystals.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 536.421.4+536.421.1

SMIRNOV, M. V., VASILEVSKAYA, M. M., and BUKOV, G. V.

"Investigating the Structure and Characteristics of Ionic Crystals Near the Melting Point"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 27-33 (from RZh-Fizika, No. 9, 1971, Abstract No. 9E372)

Translation: The results are given of an investigation into the change in volume, the lattice parameter, and the structure of NaCl and KCl crystals. It is established that the relative thermal expansion of these crystals increases sharply before the melting point, reaching 14-15%. Roentgenographic and pycnometric data on the relative expansion permitted the conclusion that at high temperatures, the formation of Frenkel defects may be prevalent in Na and K chlorides. New reflection planes in NaCl and KCl crystals at temperatures beyond 5-15° until their melting points are caused by the ordered arrangement of cations introduced into the internodes in the matrix of the fundamental lattice, satisfactorily described by two tetragonal lattices. The assumption is made that the groupings which occur at high temperatures in the crystal, surrounding its four anions, go into the melt to form the quasi-complexes $MeCl_4^{3-}$. Author's abstract

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR UDC 669.295:620.193.54:669.787

MANUKHINA, T. I., OZERYANAYA, I. N., and SMIRNOV, M. V.

"Influence of Oxygen on the Corrosion of Titanium in Molten Carbonates of Alkali Metals"

Tr. In-ta elektrokhimii Ural'skiy fil. AN SSSR (Works of the Institute of Electrochemistry, Ural Branch of the Academy of Sciences USSR(, 1970, vyp. 15, pp 109-113 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I82B by Ya. ULANOVSKIY)

Translation: By measuring standard potentials the authors studied the interaction of Ti, obtained by the thermal decomposition of its iodide, with a molten eutectic mixture of Li, Na, and K carbonates under an atmosphere of a mixture of CO_2 and O_2 in a ratio of 9 : 1.4 : 1.7 : 3 and air above the melt at a temperature of 600°. During the first moment of the interaction, electrochemical reduction of C takes place, Ti activity drops significantly owing to the saturation of its surface with oxygen, which sharply shifts the Ti potential in the direction of positive values, and the reduction of C ceases. The introduction of O_2 into the gaseous phase promotes a shift of the Ti potential in the direction of positive values. The formation of oxide phases

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

MANUKHINA, T. I., et al, Tr. In-ta elektrokhimii Ural'skiy fil. AN SSSR (Works of the Institute of Electrochemistry, Ural Branch of the Academy of Sciences USSR), 1970, vyp. 15, pp 109-113 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I828 by Ya. ULANOVSKIY)

on the surface during the reaction prevents the corrosion of metal in the melt from proceeding further. Bibliography of 11 titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC: 541.122.3-143

SMIRNOV, M. V., KUDYAKOV, V. YA., POSOKHIN, YU. V., and KRASNOV, YU. N.

"Electrochemical Behavior of Thorium in Fused Sodium Chloride and Equimolar Mixture of Chlorides of Potassium and Sodium"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, p 419

Abstract: The equilibrium potentials of thorium are measured for various concentrations and temperatures in fused NaCl and KCl-NaCl (50 mol.% NaCl). Empirical isotherm equations are produced, showing that a thorium electrode is reversible to mixtures of its ions Th^{2+} and Th^{4+}. Expressions are found for the temperature dependences of the apparent standard potentials of Th/Th (II) and Th/Th (IV) electrodes. Expressions are presented for the dependences of the equilibrium potential of thorium on its summary concentration.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 009

UNCLASSIFIED

TITLE--ELECTRICAL CONDUCTIVITY OF FUSED SALT SYSTEMS OF CESIUM CHLORIDE AND LANTHANUM CHLORIDE AND LITHIUM CHLORIDE AND LANTHANUM CHLORIDE -U-

PROCESSING DATE--18SEP70

AUTHOR-(02)-SMIRNOV, M.V., KHOKHLOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 302-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MOLTEN CHLORIDE, ELECTRICAL CONDUCTIVITY MEASUREMENT, CHEMICAL COMPOSITION, LITHIUM CHLORIDE, LANTHANUM CHLORIDE, CESIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0847

STEP NO--UR/0080/70/043/002/0302/0305

CIRC ACCESSION NO--AP0104283

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 009

CIRC ACCESSION NO--AP0104283 UNCLASSIFIED PROCESSING DATE--13SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. CONDS. OF THESE FUSED SALT SYSTEMS WERE STUDIED AT 800-950DEGREES OVER A WIDE CONCN. RANGE. THE FUSED LACL SUB3 WAS ALSO MEASURED AT 890-1005DEGREES. THE COND. IS A LINEAR FUNCTION OF CONCN. THE MOLAR COND. SHOWS NEG. DEVIATIONS FROM ADDITIVITY; THERE IS A DEEP MIN. IN THE CSCL-LACL SUB3 SYSTEM, WHILE THIS EFFECT IS ABSENT IN THE LICL-LACL SUB3 SYSTEM. THE MAX. DEVIATIONS ARE OBSERVED FOR 30-40 MOLE PERCENT LACL SUB3. THE DEVIATIONS ARE LARGER IN THE SYSTEM CONTG. LESS MOBILE CS PRIME POSITIVE ION. THE CONCN. DEPENDENCE OF THE ACTIVATION ENERGIES HAS THE SAME CHARACTER IN BOTH SYSTEMS. THE MECHANISMS OF THE PROCESSES INVOLVED ARE DISCUSSED IN DETAIL.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

UDC 669.046.5

KUDRIN, V. A., SIDORENKO, M. F., SMIRNOV, N. A., ZUBREV, A. S., MOROZOV, A. S., KHASIN, G. A., CHUVATIN, N. S., and FILATOV, S. K.

"Metal Blowing by Powderlike Materials"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 183-188

Translation of Abstract: The results of an investigation on dephosphorization and desulfurization. alloying, and deoxidation of metal by powder-like material blowing are presented. Data are presented on the effect of basic technological parameters on the rate and amplitude of the dephosphorization process of steel by blowing with an oxygen jet containing a powder-like mixture of optimal composition, consisting of lime, iron ore, and fluorspar. 4 figures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

USSR

MARIN, V. P., MAKAROV, V. N., SMIRNOV, N. A.

UDC 621.385.6

"Study of Debunching of Electron Stream in Drift Space of Type M Amplifier"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 1, pp 132-133 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A142)

Translation: The results are presented of an experimental study of the effect of the length of the drift space of Type M backward wave amplifiers with a cathode in the interaction space at the debunching of the electron stream. It is shown that with the length of the drift space more than 3 λ_3, grouping of the electrons is not complete. 2 ref. Author's Abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--KINETICS OF THE DEPHOSPHORIZING OF STEEL DURING THE INJECTION OF GAS POWDER MIXTURES -U-

AUTHOR-(03)-SMIRNOV, N.A., SIDORENKO, M.F., KUDRIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (2), 84-91

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL REACTION KINETICS, IRON OXIDE, GAS, METALLURGIC SLAG, PHOSPHORUS, STEEL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1451 STEP NO--UR/0370/70/000/002/0084/0091

CIRC ACCESSION NO--AP0130384

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203110004-8

2/2 022

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CIRC ACCESSION NO--AP0130384 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THE PRESENT STUDY IT IS CONCLUDED THAT CHARACTERISTIC FOR DEPHOSPHORIZATION KINETICS IS A RECTILINEAR CHANGE OF THE P CONTENT IN THE METAL DURING THE INJECTION OF GAS POWDER MIXTS. WITH THE PRESENCE OF AN INCUBATION PERIOD ASSOCD. WITH THE GRADUAL PILING UP OF FE OXIDES IN THE SLAG WHILE EMPLOYING NONOXIDIZING COMPNS. OF THE POWDERS. THE DEPHOSPHORIZATION PORCESS OF THE METAL BY THE INJECTION OF GAS POWDER MIXTS. WAS ACHIEVED PRIMARILY AT THE CONTACT SURFACE OF THE METAL WITH THE SLAG PARTICLES. THE LIMITING LINK IN THE ENTIRE DEPHOSPHORIZATION PROCESS IN THE DIFFUSION OF P IN SLAG PARTICLES. THE COMPLETENESS OF THE UTILIZATION OF DEPHOSPHORIZING CAPABILITY OF SLAG PARTICLES, AS CHARACTERIZED BY THE DEGREE OF PERFECTION OF THE DIFFUSION OF P IN THEM, IS, AT THE GIVEN COMPN. OF THE DEPHOSPHORIZING MIXT., DETD. BY THE POSITION OF THE LIQ. SLAG PARTICLES, DEPENDING ON THE PRESSURE OF THE TRANSPORTING GAS.

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Conferences

USSR

KUDRIN, V. A., and SMIRNOV, N. A., Moscow Evening Metallurgical Institute, Moscow

"Intensification of Metallurgical Processes by the Blowing in of Materials in Powder Form"

Moscow, Stal', Vol 31, No 4, Apr 71, pp 379-380

Abstract: A conference on the Intensification of Metallurgical Processes by the Blowing in of Materials in Powder Form was held in December 1970 at the Moscow Evening Metallurgical Institute. In reports presented at the conference, it was pointed out that blowing in of Mg and Mg alloys to improve the quality of cast iron and pig iron has been introduced at a number of plants. Ait is applied for blowing, because the added cost due to oxidation of Mg by O_2 of the air is not offset by the use of N_2, which involves a still greater cost. Blowing in of graphite powder was found to be of advantage in the open-hearth process. At the Donetsk Metallurgical Plant, it was established that blowing of CaO into open-hearth furnaces contributed to the formation of a slag with a high desulfurizing capacity. The Moscow Evening Metallurgical Institute and the Zlatoust Metallurgical Plant developed a method of electric steel

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USSR

KUDRIN, V. A., and SMIRNOV, N. A., Stal', Vol 31, No 4, Apr 71, pp 379-380

melting in which a mixture of CaO, iron ore, and fluorspar in the ratio of 7:2:1 is blown in with the O_2 stream during the oxidation period in order to dephosphorize the steel, while a mixture of CaO with 20% fluorspar or 10% fluorspar and 20% chamotte is blown in with Ar during the reduction period. By using NaCl powder, the content of H_2 in steel was reduced by 30-40% and that of non-metallic inclusions by 45%. NaCl, which evaporated from the steel, was more effective in the ladle than in the furnace and produced a higher degree of degasification thatn that obtained by blowing the steel with Ar. Various types of equipment for blowing in materials in powder form have been developed.

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SECTION IV

SCI: SELECTED AEROSPACE TECHNICAL FACILITIES
FCS-89
JUNE 1971

Name: Protein Research Institute, Pushchino

Description:

(U) During this quarterly reporting period, two new articles were located from the Protein Research Institute at Pushchino. On the basis of one of the articles, which dealt with escherichia coli ribosomes, it was possible to associate one new person, N. I. Smirnov, with the institute(32). The other article, also on escherichia coli, was issued jointly from the Institute of Genetics and Selection of Microorganisms, Moscow, and the Protein Research Institute at Pushchino(33). Previous articles by V. I. Permogorov have been issued from the former institute. No previous facility association could be located for V. D. Vasil'yev, but it is likely that he represents the latter institute. This article probably represents some joint work between the two institutes.

(U) As a ready source of reference, given below is a complete listing of personalities identified with the Protein Research Institute to the present time:

Baletsina, N. V.
Barshteyn, T. M.
Chirgadze, Yu. M.
Fadorov, B. A.
Finkel'shteyn, A. V.
Glinskaya, O. V.
Lavrilova, L. P.
Mitin, Yu. V.
Privalov, P. L.
Ptitsyn, O. B.
Rashevskaya, Ye. P.
Serdyuk, I. N.
Smirnov, N. I.
Spirin, A. S.
Tiktopulo, Ye. I.
Vasil'yev, V. D.

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USSR

SMIRNOV, N.I., ZHDANOV, I.YU.

UDC 621.391.8

"Use Of Discrete Technology Elements During Reception Of Quaternary Signals"

Moscow, Elektrosvyaz', No 12, Dec 71, pp 62-68

Abstract: In order to confirm the possibility of creating a canonical circuit of a discrete matched filter of E-sequences, a mock-up was assembled using the sequence duration n = 8. As elements of the circuit, hybrid microcircuits of Types 2TK041 and 1NM3 were used. A photograph is presented of the upper and lower subsequences E_1^3 at the input of the discrete matched filter and an oscillograph of the aperiodic functions of autocorrelation of this E-sequence. Various studies were conducted on the mock-up during change of the subpulses T_{sp} in the range from 2 to 200 microsecond, when $T = n \cdot T_{sp} = 8 \cdot 200 \cdot 10^{-6} =$ 1.6 millisecond. Analysis of the experimentally obtained aperiodic functions of autocorrelation of various E-sequences showed that in the suggested canonical circuit of a discrete matched filter, the level of the lateral pips (vybros) of the function of autocorrelation will not exceed several percent which completely agrees with theoretical considerations. Received by editors 25 Feb 71. 4 ref. 5 fig. 3 tab.

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