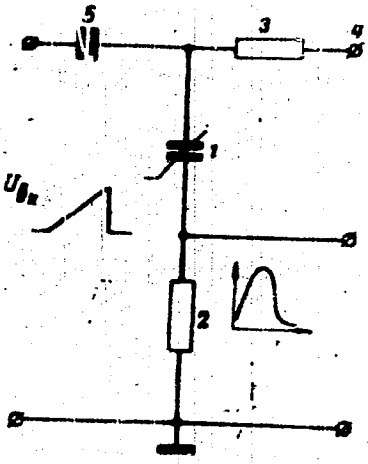
AA0046401



т.с,

2/2

19781595

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--VIROLOGIC AND MORPHOLOGIC INVESTIGATION OF COXSACKIE INFECTION IN GRAVID MICE -U-

AUTHOR-(02)-ANDRUSHCHENKO, N.I., MATVEYEV, YU.V.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 1, PP 68-72

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--COXSACKIE VIRUS, WHITE MOUSE, ANIMAL REPRODUCTION, MORPHOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0080 STEP NO--UR/0402/70/000/001/0068/0072

CIRC ACCESSION NO--AP0103760

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103760

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS THE RESULTS OF INVESTIGATION OF REPRODUCTION OF COXSACKIE B3 VIRUS AND MORPHOLOGICAL CHANGES IN THE ORGANISMS OF GRAVID AND NONGRAVID WHITE MICE. THE STUDIES WERE CARRIED OUT IN 144 GRAVID AND 90 NONGRAVID MICE WEIGHING 18 20G. THE ANIMALS WERE INOCULATED INTRAPERITONEALLY WITH 0.3ML OF TISSUE CULTURE FLUID OF NANCY STRAIN. THE VIRUS WAS DETECTED IN ALL ORGANS OF THE ANIMALS OF BOTH GROUPS WITHIN THE FIRST HOURS AFTER INOCULATION. IN GRAVID MICE THE VIRUS MULTIPLIED TO HIGHER TITERS AND PERSISTED LONGER IN THE BLOOD AND THE VISCERA. HISTOLOGIC EXAMINATION DEMONSTRATED SEVERE LESIONS OF DYSTROPHIC AND NECROBIOTIC NATURE IN MANY ORGANS. LESIONS OF VISCERA WERE FOUND TO BE OF THE SAME TYPE BOTH IN GRAVID AND NONGRAVID MICE BUT IN THE FORMER THEY WERE MORE MANIFEST.

UNCLASSIFIED

USSR UDC 621.79:539.23

ANTONOVA, Ye. A., APPEN, A. A., and ANDRUSHCHENKO, N. S., Leningrad

"Investigation of Temperature Conditions of Formation and Service of a Ni-Cr-Si-B Coating"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 31-37

Abstract: The conditions of the formation of coatings using the dross method were studied for an Ni-Cr-Si-B coating. The coating, referred to IM, contained 70% Ni, 20% Cr, 5% Si, and 5% B. The optimum temperature limits were investigated along with the distribution of elements during coating formation on St. 3 and 1Kh18N9T steels. The temperature limit of stability was found to be 700°C, and the gradual resorption of the coating at higher temperatures occurs as the result of iron diffusion into the coating and vice versa.

1M coating possesses all the properties inherent in "Kolmonoy" alloys. Along with heat resistance it has high stability to mechanical and thermal shock and outdoes stellite in resistance to scoring. The addition of 0.2-0.5% sooty carbon increases coating hardness and wear resistance while the addition of up to 30% tungsten and chromium carbides has the same effect. Addition of

1/2

USSR

ANTONOVA, Ye. A., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 31-37

CrB_2 favorably affects the coating's resistance to scoring in dry friction assemblies. Four figures, 3 tables, 10 bibliographic references.

2/2

USSR UDC 621.793.8

ANTONOVA, YE. A., ANDRUSHCHENKO, N. S., and SINAY, L. M., Academy of Sciences USSR, Institute of the Chemistry of Silicates imeni I. V. Grebenshchikov

"Interaction of Ni-Cr-Si-B Coatings With Steel During Facing"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 137-142.

Abstract: Results are presented from a study of the process of formation of protective coatings on carbon and alloy steels based on finely dispersed powder. The process of formation of the coatings from a mixture of finely dispersed powder applied to the surface of the metal to be protected and the modes of formation of coatings of powdered materials were studied. With the Slurry method of producing Ni-Cr-Si-B coatings of a powder mixture of the initial elements on a steel substrate, the optimal temperature area for facing, providing for a continuous layer, good adhesion, and minimum interaction with the substrate (reaction zone 20-30 μ) lies at the beginning of the interval of melting of the powder mixture, at 980-1050°. With facing temperatures of about 1170° and higher, the contact interaction is sharply expressed (iron in the coating 48% and higher), as a result of formation of large quantities of complex boride eutectics involving the metal substrate.

1/1

1/3 009 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--STUDYING FERROMANGANESE NODULES -U-

AUTHOR-(02)-ANDRUSHCHENKO, P.F., SKORNYAKOVA, N.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIRODA, NO 5, 1970, PP 63-67

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--OCEAN BOTTOM SAMPLING, CLAY, MINERAL NODULE/(U)VITYAZ OCEANOGRAPHIC SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1937 STEP NO--UR/0026/70/000/005/0063/0067

CIRC ACCESSION NO--AP0135466

UNCLASSIFIED

2/3 CCS UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIGURE 1 IN THE TEXT IS A MAP OF THE DISTRIBUTION OF FERROMANGANESE NODULES ON THE FLOOR OF THE PACIFIC OCEAN; IT SHOWS AREAS OF INDIVIDUAL FINDS, AREAS OF WIDESPREAD OCCURRENCE AND REGIONS OF HIGH CONCENTRATIONS. THESE NODULES USUALLY LIE ON THE VERY SURFACE OF BOTTOM DEPOSITS, PRIMARILY ON RED CLAYS, SOMETIMES ON RADIOLARIAN, LESS FREQUENTLY ON CARBONACEOUS OOZES. THE CONFIGURATION OF THE NODULES IS FREQUENTLY DEPENDENT ON THE ORIGINAL SHAPE OF THE FRAGMENTS SERVING AS THEIR NUCLEI AND THE DEGREE OF SUBSTITUTION OF THESE FRAGMENTS BY ORE MATERIAL. VIRTUALLY ANY CONFIGURATION CAN BE FOUND. THE AVERAGE SIZE OF THE NODULES IS FROM 2 TO 7 CM IN DIAMETER; SOMETIMES THEY MEASURE FROM 10 TO 20 CM IN DIAMETER AND WEIGH UP TO 4 KG. EARLIER IT WAS ASSUMED THAT THE NUCLEI OF THESE NODULES WERE PRIMARILY FRAGMENTS OF BASALTS, TUFF BRECCIAS AND TUFFS OF BASALTIC COMPOSITION, PUMICE AND VOLCANIC GLASS, BUT IT HAS NOW BEEN ESTABLISHED THAT THERE ARE COMPLETELY MINERALIZED NODULES WHOSE NUCLEI ARE VERY SMALL ORGANIC OR MINERAL PARTICLES. SMALL TEETH AND BONES OF FISH ALSO SERVE AS NUCLEI. SHARK TEETH UP TO 11 CM IN LENGTH AND 8 CM AT THE BASE OFTEN SERVE AS NUCLEI. NODULES WITH NUCLEI OF DIFFERENT COMPOSITION ARE FOUND IN DIFFERENT PARTS OF THE OCEAN. THE FOLLOWING TEXTURAL TYPES ARE DISCUSSED: PARALLEL LAYERED, DENDRITIC, GLOBULAR, CONCENTRICALLY BANDED, CATACLASTIC. DESPITE THE CONSIDERABLE VARIETY OF TEXTURAL TYPES, THE COMPOSITION OF NODULES IS LIMITED TO A RELATIVELY SMALL NUMBER OF MINERAL TYPES.

UNCLASSIFIED

3/3 009 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135466

ABSTRACT/EXTRACT--EARLIER IT WAS ASSUMED THAT THE PRINCIPAL ORE FORMING MANGANESE MINERAL FORMING FERROMANGANESE NODULES WAS FERROUS AND MANGANOUS MANGANITE. NOW THIS IS KNOWN TO BE UNTRUE. NONORE MINERALS INCLUDE MONTMORILLONITE AND NONTRONITE. THESE RESULTS FROM THE 43D VOYAGE OF THE "VITYAZ'" ARE ALL DISCUSSED IN GREATER DETAIL.

UNCLASSIFIED

USSR UDC 669.15:546.719:548.537

LYSAK, L. T., and ANDRUSHCHEK, L. O., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Phase Transformation On Hardening Rehenium Steels"
Kiev, Metallofizika, No 32, 1970, pp 59-69
Translation: A survey is made of previously published papers on the study of the processes of $\gamma \rightarrow \chi' \rightarrow \alpha'_M$ transformations in rhenium steels by various physical methods, i.e., the x-ray diffraction and dilatometric methods and the method of measuring electric resistance. It was established by the x-ray method on single-crystal specimens that in rhenium steels of a wide range of concentration of carbon (0.8-1.7%) and rhenium (20-6%), on hardening in liquid nitrogen, χ'-martensite is formed, which on subsequent heating in a region below room temperatures is transformed into α'-martensite. It was established that the crystal structure of χ'- and α'-martensite of rhenium steels with a carbon concentration of less than 1.4% is tetragonal body-centered, and for high-carbon steels (1.4%), rhombic. The dependence of the parameters of χ'- and α'-martensite on carbon concentration was studied.

1/2

USSR

LYSAK, L. I., and ANDRUSHCHIK, L. O., Metallofizika, No 32, 1970, pp 59-69

When the change in electrical resistance was studied, an effect of R reduction over the range -160 to -150°C was found, which was due to the order of carbon atoms along the grains of the crystal lattice of a supersatured α-solid solution on transformation of χ'- into α-martensite.

Dilatometrically, on temperature dependence curves of the relative length of the rhenium steel specimen rapidly ccoled in liquid nitrogen, on heating, an inflection was found over the temperature range -160 to 135°C caused by a reduction in the coefficient of thermal expansion. This inflection is due to the $\chi' \rightarrow \alpha_M$ transformation.

2/2

USSR

A

UDC 538.22:537.7:669.15:74.84-194

LYSAK, L. I., ANDRUSHCHIK, L. O., STORCHAK, N. A., and PROKOPENKO, V. G., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Method for Studying the $k' \rightarrow \alpha_m$ Transition on the Basis of the Change in Physical Properties of Hardened Steels at Low Temperatures"

Sverdlovsk, Fizika Metallov i Metallovedeniya, Vol 30, No 3, Sep 70, pp 661-663

Abstract: The task of this work was the production of experimental data by a magnetometric method, as well as the measurement of the electrical resistance to confirm the fact that the change in R observed upon heating of steels quenched in liquid nitrogen is a result of the superimposition of two processes -- the increase of R resulting from formation of additional portions of k'-martensite from residual austenite and the reduction in R resulting from the $k' \rightarrow \alpha_m$ transition. A decrease in electrical resistance at below -100° was observed in manganese and rhenium steels, which could have been explained only by the structural changes related to the occurrence of the $k' \rightarrow \alpha_m$ conversion in these steels. The results of the experiments indicate that in order to study the $k' \rightarrow \alpha_m$ transition, the physical properties must be measured directly at the experimental temperatures, since cooling in liquid nitrogen for measurement of these properties leads to formation of additional martensite.

1/1

USSR

UDC 669.15--194:546.719:539.292

LYSAK, L. I., ANDRUSHCHIK, L. O., and STORCHAK, N. A., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Change in the Physical Properties of Hardened Steels at Low Temperatures"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 841-846

Abstract: Three steels were investigated to determine their physical properties at low temperatures. Compositions of the steels were (in%): 1.7 C and 6.0 Re, 1.3 C and 3.3 Mn, and the third contained 30% Ni. Martensite transformations were also studied in order to determine the nature of the so-called athermal and isothermal martensite.

After each experimental ingot was heated to 1000°C, it was water quenched to room temperature to obtain austenite. The Fe-Ni alloy was given a second heat treatment at 1100°C for two hours and was then water quenched. The relationship between the coefficient of thermal expansion and the change in the amount of martensite was determined at a temperature range of -200 to 0° C for both the Re- and Mn-steels. Magnetometric studies of both steels showed that no new portions of martensite were found when the temperature was increased from -200 to -120°C. The two phases formed when the samples were quenched in liquid nitrogen were χ'-martensite and retained austenite. Since the phase composition remained unchanged between -200 and -120°C, one would expect the coefficient of thermal expansion to

USSR

LYSAK, L. I., et al., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 841-846

be a straight line; however at approximately -170°C the slope of the thermal coefficient bends to a lower angle and at -140° C the angle of the curve bends downward a little more. The authors were unable to explain this anomaly.

In the Mn-steel the χ'-martensite to austenite transformation starts at -145±5°C. The decrease in the coefficient of thermal expansion during the transformation was believed to be the result of carbon atom ordering in the lattice pores and the relaxation of internal stresses.

If the χ'-martensite to austenite transformation plays a significant role in the formation of martensite during heating, then in carbon-free alloys in which there is no transformation, one would expect a less intensive formation of isothermal martensite during heating. Study of the Fe-Ni alloys showed that the same amount of martensite is formed regardless of cooling rate to -196°C. In the Fe-Ni alloys, as well as in alloys with additives of C, Mn, Mo, and Cr, in which there is no transformation, the austenite is supercooled and subsequent increase in temperature increases magnetization where the formation of martensitic needles will be observed. The reason for this vast difference in the property changes of these alloys is still unclear. It is possible that, in some manner, there is an atomic-ferromagnetic ordering effect in ternary alloys.

2/3

USSR

LYSAK, L. I., et al., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 841-846

The authors thank Academician G. V. Kurdyumov and Candidate of Technical Sciences V. G. Gorbach for their assistance in this work.

3/3

1/2 037 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--NATURE OF CHANGES IN THE PHYSICAL PROPERTIES OF HARDENED STEELS AT LOW TEMPERATURES -U-

AUTHOR-(03)-LYSAK, L.I., ANDRUSHCHIK, L.O., STORCHAK, N.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(4), 841-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PHYSICAL PROPERTY, MARTENSITE, MAGNETOMETER, RHENIUM CONTAINING ALLOY, NICKEL CONTAINING ALLOY, IRON ALLOY, ALLOY PHASE TRANSFORMATION, DILATOMETRIC ANALYSIS, METAL RELAXATION, MAGNETIC FIELD, ISOTHERMAL TRANSFORMATION, METALLURGIC RESEARCH FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0389 STEP NO--UR/0126/70/029/004/0841/0846

CIRC ACCESSION NO--AP0126144

UNCLASSIFIED

2/2 037 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126144

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DILATOMETRIC AND MAGNETOMETRIC STUDIES WERE MADE OF PHASE TRANSFORMATIONS DURING SHARP COOLING IN LIQ. N AND ON SUBSEQUENT HEATING OF MN AND RE STEELS, AS WELL AS OF FE,NI ALLOYS. THE DECREASE IN THE AT. VOL. DURING THE X PRIME YIELDS ALPHA SUBM TRANSFORMATION LEADS TO PARTIAL RELAXATION OF INTERNAL STRESSES AT VERY LOW TEMPS., AND THIS ENHANCES THE RESUMPTION OF THE MARTENSITE TRANSFORMATION (FORMATION OF "ISOTHERMAL" MARTENSITE). THE STEELS STUDIED WERE MELTED IN A HIGH FREQUENCY FURNACE IN AR. THE MAGNETOMETRIC MEASUREMENTS WERE PERFORMED IN A MAGNETIC FIELD OF 6-7 KOE ON CYLINDRICAL SAMPLES. FACILITY: INST. METALLOFIZ., KIEV, USSR.

UNCLASSIFIED

AP0022852 METALS ABST. 2/70 A UR 0126

11 0053 Dilatometric Study of Phase Transformations at Low Temperatures in Rhenium Steels. L. I. Lysak and L. O. Andrushchik. Fizika Metallov i Metallovedenie, Sept. 1969, 28, (3), 478-481 [in Russian].

Phase transformations taking place at low temp. in Re steels were studied dilatometrically. The dilatometric curves of samples, cooled rapidly in liquid N, showed a sharp bend at 110-135 °K on heating. An X-ray study confirmed that this bend was associated with the transformation of κ' into α martensite. The temp. coeff. of the thermal expansion of the α form was lower than that of the κ' form. The dilatometric results confirmed the irreversibility of the $\kappa' \rightarrow \alpha$ transformation. 7 ref.—G. A.

SD

Y1 19631279 18

USSR

ANDRUSHCHUK, A. O., MOL'CHENKO, E. F., RADCHENKO, N. O., and LISYANA, T. O.

"Quantitative Characteristics of Immunoglobulins During Acute Respiratory Infections of Children"

Pediatriya, Akusherstvo i Ginekol (Pediatry, Obstetrics and Gynecology) 1973, No 4, pp 6-7 (From RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 1705)

Translation: One hundred twenty six children were studied during acute respiratory illness (ARI). The studies carried out explained the changes in the concentration of immunoglobulins in blood serum, in relationship to age, type of the disease, and complications. Children up to 1 year of age ailing with grippe and ARI of unknown etiology exhibited a lower concentration of immunoglobulin G and an increased content of the immunoglobulin A. In the 1-3 year group of children sick with grippe and pneumonia a significantly increased content of immunoglobulin G was noted with lower concentration of the immunoglobulin A. The macroglobulins of these children exhibited a tendency to an enlargement, in case of children ailing with pneumonia this elevation was statistically significant. With otitis complications the concentration of immunoglobulin M increased steadily.

1/1

USSR

UDC 389.0:531.768

SMIRNOV, G. A., ANDRUSHCHUK, V. V., KOVCHIN, S. A.

"A Precision Installation for the Reproduction of Constant Acceleration"

Moscow, Izmeritel'naya Tekhnika, No 12, Dec 70, pp 31-32

Abstract: In the article are presented the basic data concerning the design of the PTs-3 precision centrifuge, latest of a series developed by the Leningrad Polytechnical Institute imeni M. I. Kalin'in, in the range of 0.01-160 g with a limit relative error of 0.01%. A description is given of the design features of the mechanical part, the electric-drive system, and the precision mercury current collector used for picking up electrical signals from the tested instruments. 1 figure, 3 bibliographic entries.

1/1

USSR

UDC 621.385.623.4

ANDRUSHKEVICH, V.S., GAMAYUNOV, YU.G.

"To A Theory Of Klystrons With Distributed Interaction"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 33-44 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A163)

Translation: A method is proposed for computation of the principal nonlinear characteristics of klystrons with distributed interaction. The computed characteristics are presented for a one-resonator klystron (monotron) with distributed interaction. An expression is obtained for the figure of merit of a distributed resonator. 7 ref. Summary.

1/1

USSR

UDC 621.385.6

ANDRUSHKO, L.M.

"Experimental Investigation Of Two-Dimensional--Periodic Deceleration System Of The 'Opposed Plates' Type"

V sb. Vopr. elektrosvyazi (Problems Of Electrical Communications--Collection Of Works), Kiev, "Tekhnika," 1970, pp 141-145 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A40)

Translation: The results are presented of an experimental investigation of a 4-row deceleration system of the "opposed plates" type as applied to multibeam Type O devices. One of the possible methods is described for separation of the oscillation modes in such systems. The method involves the introduction of straps between neighboring rows of plates. 2 ref. Summary.

1/1

USSR

A

UDC: 621.372.8:621.385.63

ANDRUSHKO, L. M., MARKOV, S. Ye.

"On the Problem of Calculating Retarding Systems From Predetermined Frequency Responses by the Methods of Circuit Theory"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 2, pp 53-61 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B114)

Translation: The method of synthesizing circuits with lumped constants is used to obtain a two-terminal pair network whose SHF equivalent is a retarding system. The elements of the conductivity matrix which determine the circuit of the two--terminal pair network are found from the predetermined frequency responses of the dispersion and coupling impedance. Examples are given showing synthesis of circuits whose SHF realization is retarding systems of the network type coupled by a slot in cylindrical resonators. Three illustrations, bibliography of three titles. Resumé.

1/1

USSR UDC: 681.32.001

ANDRUSHKYAVICHUS, R. R., VALTERIS, S. E., GERTNERIS, I. Kh.

"Some Problems of Analyzing the Magnetic Elements of Computers"

Techn. kibernetika, Tekhn. kibernetika (Technical Cybernetics), Kaunas, 1970, pp 311-317 (from RZh-Avtomatika, Telemekhanika i vychislitelnaya tekhnika, No 9, Sep 70, Abstract No 9B214)

Translation: This article contains an investigation of the dynamic state equations of a magnetic core with a rectangular hysteresis loop taking into consideration the process of pulsed magnetic reversal of the magnetic cores. The results from numerical calculations on a digital computer are presented. There are three illustrations and a three-entry bibliography.

1/1

USSR

UDC 669.14.018.8

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

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

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

Abstract: The electrochemical behavior of alloys containing chromium, nickel, and molybdenum, of the system 15% Cr-15% Mo (OOKh15N70M15, OOKh15N65M16V (EP-567), and Kh15N55M15V (EP-375) was investigated in a wide potential interval, depending on the content of C, Si, Fe, and W in the alloy and also on conditions of heat treatment. Diagrams show potentiokinetic polarization curves of the investigated alloys and the anode current dependence on the potential for the third alloy after inducing heating, both in 30% H_2SO_4 at 90°. The first alloy was found to possess the highest corrosion resistance, the third alloy the lowest. With potentials more positive than 0.3 v, potentiostatic curves of Cr-Ni-Mo alloys show an activation zone related to the presence of selectively etching excess phases: the μ-phase in the (EP-567) alloy and carbides of M_6C-type and intermetallic phases of the μ-type in both other alloys. Two illustr., two tables, four biblio. refs.

1/1

Corrosion

USSR UDC 669.14.018.841.001.5

ANDRUSHOVA, N. V., KAZAKOVA, G. V., SVISTUNOVA, T. V., and CHERMENSKAYA, N. F.

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

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

Translation: The corrosion and electrochemical behavior of nickel-chromium-molybdenum alloys is studied in 30% H_2SO_4 at 90°C and 10% HCl at 20°C, depending on chromium and molybdenum content.

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

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

1/1

USSR

PERSHITS, YA. N., and ANDRUSIN, V. A., Pskov State Pedagogical Institute imeni S. M. Kirov

"Change in Conductivity of Alkali Halide Crystals After X-Irradiation and Additive Coloring"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 1, Jan 71, pp 280-281

Abstract: For purposes of elucidating the mechanism of radiation-induced changes in conductivity, the authors studied KCl crystals with Ca^{2+}, Sr^{2+}, Ba^{2+}, Ni^{2+}, Zn^{2+}, Cd^{2+}, Pb^{2+} ion impurities subjected to electrochemical coloring and discoloration (510-630° C, E = 100 v/cm), x-irradiation (URS-55 at V = 55 kv, I = 12 ma, dose $1.3 \cdot 10^4$ r), and discoloration and combined action: i. e., X-raying after electrochemical coloring and discoloration. In KCl crystals with alkali-earth metal and nickel impurities neither X-irradiation nor additive coloring causes reduced ionic conduc-

1/2

USSR

PERSHITS, YA. N., and ANDRUSIN, V. A., Fizika Tverdogo Tela, Vol 13, No 1, Jan 71, pp 280-281

tivity. Additive coloring or X-raying of KCl crystals with Zn^{2+}, Cd^{2+}, Pb^{2+} impurities reduces ionic conductivity. Annealing restores the conductivity possessed by the crystal before X-raying i. e., the atomic centers appearing in electrochemical coloring possess greater thermal stability than those appearing in X-irradiation. The variation with temperature of the conductivity of the X-rayed crystals is affected by two processes: viz., decreased vacancy concentration up to a temperature of 130° C, the reverse process at higher temperatures. The article offers an interpretation of the results.

2/2

ANDRYENKO, K. A.

Acc. Nr. AA0034551 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code 0000

70060e Rapid-drying foundry-core binders from organic by-products. Borskaya, E. A.; Kobzeva, Z. A.; Zotov, A. B.; Egorycheva, G. V.; Makarova, T. F.; Kiseleva, M. S.; Klimov, M. I.; Andrienko, K. A.; Tsyganov, V. I. (Scientific-Research Institute of the Technology of the Automotive Industry) Brit. 1,177,888 (Cl. B 22c), 14 Jan 1970, Appl. 13 Sep 1968; 2 pp. Binders having several years shelf life, for sand cores hardening in <1.5 min in core boxes heated to 240–60°, are obtained by mixing 60–70 parts sulfite liquor by wt. with 15–30 parts polyat. alc. mother soln. from pentaerythritol production, and adding to the mixt. 8–15 parts of an oxidn. catalyst slowly during 30–60 min with stirring or other means to suppress foam and prevent temps. >60–70°. Suitable sulfite liquor or lye has 1.27 sp. gr. Hydrolysates of corn cobs or sawdust can be substituted for it. Suitable mother soln. contains saccharides 11–13, pentaerythritol 8–12, resins 4–10, acids 2–5, and H_2O 60–75%, and has at least 1.16 sp. gr. The oxidn. catalyst can be H_3PO_4, a persulfate, or H_2O_2, and if the latter, not over 3% of a 30% aq. soln. should be used, with a H_2O-cooling jacket for cooling below 25°. The mixed binder should have 1.25–1.3 sp. gr. and 4–4.8 pH. Cores thus bonded retain useful properties 3–4 days. When they also contain up to 3% clay, hardening is faster than 1.5 min and the core strength is increased 25% or more. The collapsibility of the cores after castings are cooled is not impaired by these binders. George F. Comstock

11 5 16

1 1

18

REEL/FRAME

19711247

USSR

ANDRYEVA, YEVGENIYA, Central Research Laboratory, Riga Medical Institute

"The Threat of Rhesus Incompatibility Is Receding"

Riga, Nauka i Tekhnika, No 2, 1971, pp 33-36

Abstract: After describing the disease caused by rhesus incompatibility, the genetic aspects, etc, the author outlines the new Soviet method of prevention now undergoing trials in several Moscow and Leningrad clinics. Immediately after a Rh-negative woman gives birth to her first child in a maternity hospital, she receives a small quantity of antirhesus gamma globulin containing Rh antibodies. These antibodies bind the fetal Rh factor which together with fetal blood penetrate into the bloodstream of the mother during childbirth. In combining with the particles of the Rh factor, the antibodies neutralize it long before the mother begins to elaborate her own antibodies aimed at combatting the Rh factor of the fetus. The resulting antibody-fetal Rh factor complex is gradually excreted.

1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--GASEOUS NITROGEN CASE HARDENING OF STEEL DURING INDUCTION HEATING -U-

AUTHOR-(03)-KIDIN, I.N., ANDRYSUHECHKIN, V.I., KAMBUROV, K.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 134-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CASE HARDENING, STEEL HEAT TREATMENT, NITRIDATION, INDUCTION HEATING, AMMONIA, PROPANE, STEEL QUENCHING, MICROHARDNESS/(U)20 STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0836 STEP NO--UR/0148/70/013/003/0134/0138

CIRC ACCESSION NO--AT0132926

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSIFICATION OF N CASE HARDENING (TO 1-5 MIN) WAS ACHIEVED BY HEATING SPECIMENS OF STEEL 20 BY MEANS OF A HIGH FREQUENCY CURRENT. A MIXT. OF NH SUB3 AND PROPANE BUTANE WAS USED. THE INSTALLATION OF A HIGH FREQUENCY HEATER ALLOWED SUBSEQUENT QUENCHING OF SPECIMENS IN WATER. THE NITROCEMENTATION WAS CARRIED OUT AT 900-1200DEGREES WITH HEATING RATES 50DEGREES-SEC, HOLDING SPECIMENS AT THE INDICATED TEMPS. FOR 0, 30, 150, AND 300 SEC. AFTER NITROCEMENTATION, SOME OF THE SPECIMENS WERE QUENCHED IN WATER FROM 900DEGREES AND THE OTHERS WERE COOLED SLOWLY IN A GAS STREAM. THE HIGHERST MICROHARDNESS AND DEPTH OF NITRIDED LAYER WAS PRODUCED WHEN THE GAS MIXT. CONTAINED NH SUB3 30PERCENT AND PROPANE BUTANE 70PERCENT. WHEN HOLDING SPECIMENS AT 1100-50DEGREES FOR 150-300 SEC THE DEPTH OF NITROCEMENTED ALYER WAS 0.35-0.55 MM, WHILE THE SAME DEPTH WITH CONVENTIONAL SLOW HEATING COULD BE PRODUCED ANLY AFTER 3-5 HR. EVEN WITHOUT ANY HOLDING PERIOD THE DEPTH OF NITROCEMENTED LAYER WAS 0.15-0.20 MM. OPTIMAL NITROCEMENTATION TEMP. WAS 1100DEGREES WITH HOLDING TIME 4-5 MIN WHEREBY A GOOD QUALITY LAYER WAS PRODUCED 0.3-0.5 MM DEEP WITH MICROHARDNESS 900-1000 DAN-MM PRIME2. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 681.3.06.51

ANDRYUKHIN, I. Ya.

"Algorithm for Inversion of Search Patterns of Documents in an Automated Information Retrieval System"

Nauchno-teckn. Inform. Sb. Vses. In-t. Nauchn. i Tekhn. Inform. [Scientific-Technical Information. Collection of All-Union Institute for Scientific and Technical Information), Series 2, No. 9, 1970, pp 25-31 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V648 by the author).

Translation: The advantages of single inspection of search forms of documents in comparison with multiple inspection are studied when they are inverted using electronic computers. An algorithm for inversion of search patterns with single inspection and nodal organization of the file of descriptor lists in computer memory is described. Data from realization of this algorithm in the Minsk 22 computer are presented, indicating its high effectiveness, and recommendations are given for its use in automated IRS realized in computers with limited operative memory volume.

1/1

UDC: 533.9...16

USSR

ANDRYUKHINA, E. D., IVANOVSKIY, M. A., POPOV, S. N., POPRYADUKHIN, A. P., FEDYANIN, O. I., KHOL'NOV, Yu. V.

"Investigation of the Magnetic Field Structure of the Tor-1 and Tor-2 Stellarators"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of the USSR), 1973, 65, pp 73-81 (from RZh-Fizika, No 6, Jun 73, abstract No 6G358)

Translation: The electron beam method is used to study the structure of magnetic surfaces in toroidal plasma traps with a double-helix field -- the Tor-1 and Tor-2 stellarators. Beam monitoring was done by the conventional probe method and by a high-speed dielectric grid method. It is shown that the structure of the surfaces is regular up to angles of rotational conversion i of the order of 5.5π throughout the entire range of variation in i with the exception of the resonance values $i = \pi, 2\pi, 4\pi$, for which expansion of the surfaces with the formation of a rosette structure is recorded. The amplitude of resonance perturbations measured with respect to the width of the rosettes is of the order of 10^{-4} of the amplitude of the main stellarator field. Bibl. 11 titles.
1/1

UNCLASSIFIED PROCESSING DATE--17JUL79

TITLE--CALCULATION OF THE VISCOSITY OF LOW ALKALINE AND ALKALINE FREE GLASSES -U-

AUTHOR--CKHOTIN, M.V., ANDRYUKHINA, T.D.

COUNTRY OF INFO--USSR

SOURCE--STEKLO KERAM. 1970, 27(1), 12-13

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS VISCOSITY, ALKALI FREE GLASS, GLASS COMPOSITION, SODIUM OXIDE, CALCIUM OXIDE, MAGNESIUM OXIDE, ALUMINUM OXIDE, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0367 STEP NO--UR/0072/70/027/001/0012/0013

CIRC ACCESSION NO--AP0053346

UNCLASSIFIED

Acc. Nr: AP0053346

Abstracting Service: CHEMICAL ABST. 4/70

Ref. Code: UR0072

82423p Calculation of the viscosity of low-alkaline and alkaline free glasses. Oknotin, M. V.; Andryukhina, T. D. (USSR). *Steklo Keram.* 1970, 27(1), 12–13 (Russ). The viscosity (η) of glasses contg. 0–5% Na_2O was calcd. according to the equation $T = AX + BY + CZ + D$ where T = temp. corresponding to a determinate value of η, X = Na_2O, Y = CaO + MgO, and Z = Al_2O_3 (wt. %) content. The values of the consts. A, B, C, and D that were detd. exptl. for log η 7–14 are given.

Abram Chertkoff

REEL/FRAME
19830367

USSR

UDC 619.614.48

POLYAKOV, A. A., Academician, All-Union Academy of Agricultural Sciences imeni Lenin, KULIKOVSKIY, A. V., and ANDRYUNIN, Yu. I., Candidate of Veterinary Sciences, All-Union Research Institute of Veterinary Sanitation

"Studies on Disinfection of Bacteria and Spores by Gamma Rays"

Moscow, Veterinariya, No 4, 1973, pp 26-31

Abstract: The ultrastructure of Staphylococci, Listeria, and anthrax spores was studied with an electron microscope following their exposure to different doses of gamma rays from a ^{60}Co source. For electron microscopy, the cells and spores were fixed with osmic acid, defatted with ethanol, and embedded in methacrylate for sectioning. Exposure of the bacteria to different doses of radiation, including bactericidal doses (0.3 Mrad for listeria and 0.5 Mrad for Staphylococcus), elicited only minimal changes consisting of localized dissolution of plasma membrane, a less dense cytoplasm, vacuolization of the nuclear region, and aggregation of the nuclear strands. Exposure of the anthrax spores to 0.5 and 1 Mrad of irradiation caused the sporoplasm volume to increase, the outlines of the different coats to be less well differentiated, and germinating spores were noted. A 2 Mrad dose was sporocidal; spore outline became diffuse,

1/2

USSR

POLYAKOV, A. A. and ANDRYUNIN, Yu. I., Veterinariya, No 4, 1973, pp 26-31

and coat layers became indistinct. The internal structure was poorly differentiated and contained many dense bodies in the sporoplasm. The results showed that gamma rays exert their disinfectant action without exerting pronounced structural changes in bacterial vegetative cells and spores, and death occurs instantaneously after exposure. Sublethal doses induce germination in spores.

2/2

UDC 539.12+619

USSR

ANDRYUNIN, Yu. I., Aspirant, All-Union Scientific Research Institute of Veterinary Sanitation

"The Bactericidal, Sporicidal, and Virucidal Effects of Gamma Rays Delivered at Different Dose Rates" (Dissertation)

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 7, 1971, pp 145-146

Abstract: Suspensions and dry preparations of Strep. apis, spore-forming Bac. larvae, and foot-and-mouth disease virus were irradiated with 1 million r of gamma rays at the rates of 1,000, 10,000, and 22,560 r/min, and the survival of the microbes was determined by growing cultures (Strep. apis and Bac. larvae) and by assaying the ID_{50} on guinea pigs (virus). The results revealed no significant differences in the survival of microorganisms depending on the dose rate. It is concluded that no changes need be introduced in the routine industrial irradiation of food products for the purpose of sterilization.

1/1

UDC 51.330.115

USSR

ANDRYUNINA, T. K., BORISENKO, N. G., ROZHKOVA, R. L.

"Algorithm for Replanning of Network Graph as to Length"

Vychisl Metody i Programir [Computer Methods and Programming -- Collection of Works], No. 3, Saratov University Press, 1970, pp 78-82 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V606 by I. Romanovskiy).

Translation: The problem of changing (proportionally decreasing) the times for performance of operations is studied, when certain of the events on a network graph occur no later than the terms fixed by the assignments.

1/1

USSR UDC 621.165.018.001.5

ANDRYUSHCHENKO, A. I., PONYATOV, V. A., POPOVA, T. I.

"Optimal Finite Parameters of Turbine Power Plants with Step Steam Condensation"

Nauchn. soobshch. Saratov. politekhn. in-t (Scientific Reports of Saratov Polytechnical Institute), 1970, vyp. 3, 104 pp (from RZh-Turbostroyeniye, No 1, Jan 71, Abstract No 1.49.25)

Translation: Results are presented in this article from scientific research work of the Problem Scientific Research Laboratory of Thermal Power Engineering Plants of Electric Power Plants of the Department of Thermal Power Engineering of Saratov Polytechnical Institute for optimization of the final parameters of high-power units with step steam condensation. The practical recommendations obtained permit us to make economically well-founded decisions with respect to selecting the final steam pressure in the condensor stages and the multiplicity of cooling the 500-1,600 megawatt turbine power plants with supercritical initial parameters. The results of the study can be used when planning and designing the low pressure section and the condensation unit of high-power steam turbines. There are 7 illustrations, 39 tables and a 21-entry bibliography.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SOME SCIENTIFIC PROBLEMS CONNECTED WITH CREATION OF THERMAL POWER AGGREGATES IN THE NEAR FUTURE -U-

AUTHOR--ANDRYUSHENKO, A.I.

A

COUNTRY OF INFO--USSR

SOURCE--MINSK, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, ENERGETIKA, NO. 3, 1970, PP 47-51

DATE PUBLISHED--------70

SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE), METHODS AND EQUIPMENT

TOPIC TAGS--ELECTRIC POWER PRODUCTION, RELIABILITY ENGINEERING, COAL, NUCLEAR FUEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1654 STEP NO--UR/0143/70/000/003/0047/0051

CIRC ACCESSION NO--AT0123490

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0123490

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROSPECTS OF THE DEVELOPMENT OF THERMAL POWER ENGINEERING IN THE SOVIET UNION UP TO YEAR 2000 ARE EXAMINED. IT IS ARGUED THAT IN THE NEAR FUTURE THE THERMAL POWER UNITS USING BOTH ORGANIC FUELS (COAL, MAZUT) AND NUCLEAR ENERGY WILL BE THE BASIS OF POWER ENGINEERING. THE MAIN TASK IN THE CREATION OF NEW THERMAL POWER AGGREGATES WILL BE CONCURRENT DECREASE OF THE SPECIFIC CONSUMPTION OF FULE AND A REDUCTION OF ITS SPECIFIC COST. THE MOST IMPORTANT SCIENTIFIC TASKS CONNECTED WITH SOLUTION OF THIS PROBLEM ARE POINTED OUT, ONE OF WHICH IS THE IMPROVEMENT OF THE RELIABILITY OF THE WORK OF POWER UNITS WHILE TAKING INTO CONSIDERATION THE RELIABILITY FACTORS IN CALCULATING THEIR OPTIMUM PARAMETERS.

UNCLASSIFIED

USSR

UDC 621.357.7:669.35'.5(088.8)

OREKHOVA, V. V., ANDRYUSHCHENKO, F. K., and KOMAR', L. P., Kharkov University

"Electrolytic Plating of Copper-Zinc Alloys"

USSR Author's Certificate No 305207, Filed 20 Dec 69, Published 13 Jul 71 (from Referativnyy Zhurnal -- Khimiya, No 21(II), 1972, Abstract No 21L312P by E. Z. Napukh)

Translation: This method differs from other by the presence of the ligand $K_4P_2O_7$ and sodium sulfosalicylate which make it possible to obtain shiny coatings. Example: the alloy containing 67-72% Cu is electrodeposited from the electrolyte consisting of (in g/liter) 55-60 $ZnSO_4$, 5-10 $CuSO_4$, 240-250 $K_4P_2O_7$, 28-33 sodium sulfosalicylate at pH 8.9-9.2, 18-25°C, and D_c of 0.5-1 a/dm^2.

1/1

USSR

UDC 539.23:541.139

ANDRYUSHCHENKO, F. K., OREKHOVA, V. V., and GRITSENKO, T. I., Khar'kov Polytechnical Institute Imeni V. I. Lenin

"Preparation of Thin Magnetic Films With Special Properties by an Electrochemical Method"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 1, Jan 73, pp 52-56

Abstract: Since magnetic properties of the films obtained by the electrochemical method are affected by their composition, thickness, conditions of the electrolysis, acidity of the electrolytes and by other parameters, a study was undertaken of the effects of these parameters on thin magnetic films. It was established that lowering the coercive force to 3e and improvement in the anisotropy of these films may be achieved by depositing them in pulsed mode using intersticial layers of copper, and a brass base. The use of the pulsed mode may promote directional orientation of the crystals and by keeping them in a fine crystalline form improve their magnetic properties.

1/1

USSR

UDC 621.357.7:669.15'24(088.8)

ANDRYUSHCHENKO, F. K., OREKHOVA, V. V., GRITSENKO, T. I., TRUNOVA, A. I.

"Method of Electrolytic Deposition of a Nickel-Iron Alloy"

USSR Author's Certificate No 308098, filed 22 Oct 68, published 26 Aug 71 (from Rzh-Khimiya, No 6 (II), Jun 72, Abstract No 6L316P)

Translation: A procedure for electrolytic deposition of Ni-Fe alloy has been patented. It is distinguished by the fact that in order to obtain the magnetic anisotropy of thin films, the process is realized with the application of a square-pulse direct current with a period of 11-20 seconds, a pulse time of 10-15 seconds, an off-duty factor of 1.1-1.5 and an amplitude of 3-5 a The films obtained are characterized by magnetic anisotropy with a coercive force of 4-8 oersteds and an anisotropy field of 3-7 oersteds. The minimum values of the coercive force and the anisotropy field (2-4 oersteds) are achieved for a pulse period of 15 seconds (the pulse time was 10 seconds, the off-duty factor was 1.5) and an amplitude of 4 a/dm^2 during the electrolysis process with D_c 1 a/dm^2.

1/1

Thin Films

USSR

UDC 669.24.018.9(088.8)

ANDRYUSHCHENKO, F. K., ORLKHOVA, V. V., GRITSENKO, T. I., TRUNOVA, A. I.

"Method of Electrolytic Precipitation of Nickel-Iron Alloy"

USSR Author's Certificate No 308098, filed 22 Oct 68, published 26 Aug 71 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G317P)

Translation: This is a supplement to the primary patent (RZh--Metallurgiya, 1969, 5G402P). In order to obtain magnetic anisotropy of thin films, this process is realized with deposition on a direct current of square pulses with an 11-20 second period, a pulse time of 10-15 seconds, an off-duty factor of 1.1-1.5, and an amplitude of 3-5 amps/decimeter^2. The alloy films obtained are characterized by magnetic anisotropy with a coercive force of 4-8 oersteds and an anisotropy field of 3-7 oersteds.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--020CT70

TITLE--PREPARATION OF MAGNETIC ALLOYS WITH SPECIAL PROPERTIES BY AN ELECTROCHEMICAL METHOD -U-

AUTHOR-(03)-ANDRYUSHCHENKO, F.K., OREKHOVA, V.V., GRITSENKO, T.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 573-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MAGNETIC ALLOY, ELECTROCHEMISTRY, IRON ALLOY, NICKEL CONTAINING ALLOY, ELECTRODEPOSITION, METAL FILM, ELECTROLYTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0739 STEP NO--UR/0080/70/043/003/0573/0577

CIRC ACCESSION NO--AP0111932

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0111932
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE COMPN. OF NI-FE ALLOY FILMS, DEPOSITED FROM K SUB4 P SUB2 O SUB7 AND NA SALICYLATE SOLN., ON THE ELECTROLYTE CONCN. AT VARIOUS C.DS. WAS ESTABLISHED. THE EFFECTS OF COMPLEX FORMING METALS (NI AND FE) AND LIGANDS WERE STUDIED. NA SALICYLATE IS CHOSEN BECAUSE OF ITS INSTABILITY CONSTS., 3.24 TIMES 10 PRIME NEGATIVE28 AND 4.9 TIMES 10 PRIME NEGATIVE36. THE FE SALICYLATE COMPLEXES ARE SO STRONG THAT ELECTRODEPOSITION OF FE CAN BE ATTAINED ONLY BE CODEPOSITION WITH NI. FOR NI, K SUB4 P SUB2 O SUB7 IS MORE SUITABLE THAN THE SALICYLATE LIGANDS. INCREASE OF THE COMPLEXING METAL CONCN. SHIFTS THE POLARIZATION CURVES TOWARDS MORE ELECTROPOS. ELECTRODE POTENTIAL VALUES, WHICH CAUSES THE ENRICHMENT OF THE ALLOY WITH THAT METAL WHOSE COMPN. IN THE SOLN. INCREASES. AT THE SAME TIME, AN INCREASE OF THE LIGAND CONCN. SHIFTS THE DEPOSITION POTENTIAL TOWARDS MORE ELECTRONEG. VALUES. AN OPTIMUM ELECTROLYTE COMPN. IS NICL SUB2 TIMES 6H SUB2 O 70, FECL SUB3 TIMES 6H SUB2 O 2-3, K SUB4 P SUB2 O SUB7 3.30, NA SALICYLATE 20 G-1. AT 0.5-4 A-DM PRIME2, MIRRORLIKE NI-FE ALLOY FILMS ARE DEPOSITED FROM THIS ELECTROLYTE. ELECTROLYSIS DURATION OF 1.5-3 MIN PROVIDES A NI CONTENT IN THE DEPOSIT OF 80-83.5PERCENT, AND THE FILM THICKNESS IS INCREASED FROM 300 TO 800 ANGSTROM.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--DIFFERENCES IN THE THICKNESS OF THIN CLADDING DURING THE PRODUCTION OF A CLAD WIRE -U-

AUTHOR-(05)-MASTEROV, V.A., ANDRYUSHCHENKO, T.A., SUVOROV, I.K., YURGPAYEV, YU.A., YEFREMOVA, P.M.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(2), 52-4

DATE PUBLISHED-------70

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

TOPIC TAGS--METAL DRAWING, CLAD METAL, COPPER WIRE, SILVER, DEFORMATION RESISTANCE, THICKNESS GAGE, METAL CLADDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1922 STEP NO--UR/0136/70/043/002/0052/0054

CIRC ACCESSION NO--AP0108251

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0108251

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS AND THE POSSIBILITY OF DECREASING THE THICKNESS DIFFERENCES OF THIN CLADDINGS WERE INVESTIGATED FOR THE CU PLUS AG PAIR DURING THE PRESSING OF RODS AND DURING THE DRAWING FROM THEM OF WIRES SMALLER THAN OR EQUAL TO 150 MU IN DIAM. AND HAVING A COATING THICKNESS OF SIMILAR TO 7 MU. DURING THE PRESSING ON A VERTICAL 600 TON PRESS, THE ROLE OF PRIOR WELDING OF THE BAR, THE TOOL LUBRICANT, THE SHAPE OF THE DIE, AND THE HEATING AND DRAWING TEMPS., WAS INVESTIGATED. FOR THE SELECTION OF THE PROPER TEMP., THE RESISTANCE TO DEFORMATION OF CU AND OF AG WAS STUDIED. IN ORDER TO DET. THE MIN. THCIKNESS OF THE COATING, STATISTICAL METHODS MUST BE USED WHICH MEANS THAT A LARGE NO. OF MEASUREMENTS MUST BE TAKEN, WHICH IS OF SOME DIFFICULTY BECAUSE OF THE THINNESS OF THE COATINGS.

UNCLASSIFIED

USSR

UDC 543.272.6

TUSTANOVSKIY, V. T., ANDRYUSHCHENKO, V. I., VOL'GEMUT, A. A., PRONMAN, I. M., State Scientific Research and Planning Institute of the Rare-Metal Industry, Moscow

"The Neutron-Activation Method of Rapid Determination of the Carbon Content"

Moscow, Doklady Akademii Nauk SSR, Vol 196, No 3, 1971, pp 570-572

Abstract: The activation determination of carbon on the basis of a millisecond isotope permits hundreds of parallel cycles of radiation and measurement to be obtained in a short interval or time ;this compensates for the insignificant value of the activation-process cross section. At the same time the background should not increase with the passage of time. The recording system described in the article, the design features of the radiation sensor, and the use of an amplitude discriminator tuned to the anomalously high radiation energy of the isotope B^{12} permits this requirement to be satisfied. This method permits rapid and sufficiently precise determination of the carbon content in steels, hard alloys, and other materials without destruction of the specimens. This methods is most widely applicable in ferrous metallurgy, as well as in the control of finished products made of hard alloys, high-speed and tool steels. Two figures, 3 bibliographic entries.
1/1

USSR UDC 669.1'24:620.186:539.219.3:669.789

KIDIN, I. N., SHCHERBEDINSKIY, G. V., ANDRYUSHECHKIN, V. I., and VOLKOV, V. A., Moscow Institute of Steel and Alloys

"Diffusion of Carbon in Austenite for an Fe-30% Ni Alloy During Reverse Martensite Transformation"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 73, pp 8-10

Abstract: The authors studied the effect of varied state of austenite structure on the diffusion of carbon in an austenitic Fe-30% Ni alloy. It was found that the decrease in the diffusion coefficients after the gamma-alpha-gamma transformation was probably associated with the formation of a large number of defects in the austenite structure, which results in slowing down the diffusion process as a result of the interaction of carbon atoms with austenite lattice defects. Experimental data showed the energy of carbon atom-dislocation interaction amounted to 10,600±1050 cal/mole. 4 figures, 1 table, 4 bibliographic references.

1/1

USSR UDC 669.295:621.785.53

KIDIN, I. N., ANDRYUSHECHKIN, V. I., OPALEV, S. B., POGOZHEV, A. I., Moscow Institute of Steel and Alloys

"Calorizing Titanium and VT-14 Alloy in Powders With the Use of Electric Heating"

Moscow, IVUZ. Chernaya Metallurgiya, No 5, 1972, pp 139-1422

Abstract: The authors study diffusion calorizing of technically pure titanium VT1-0 and titanium alloy VT-14 with the use of high-speed electric heating. The specimens were flat strips measuring 60 × 5 mm in thicknesses of 0.3-0.6 mm. Calorizing was done at 1000-1100°C for 3-10 minutes. The specimens were heated at rates of 10 and 500 deg/s by direct passage of electric current through them. Temperature was measured by a chromel--alumel thermocouple accurate within ±5 deg. Calorizing was done in powders consisting of a mixture of aluminum (30-70%), aluminum oxide (67-27%) and ammonium chloride (3%). The process was done in argon to prevent oxidation. The structure, phase composition of the diffusion layers and the aluminum content in these layers were studied by methods of metallographic, x-ray radiographic phase and microscopic x-ray spectral analysis, as well as by

USSR

KIDIN, I. N., et al., IVUZ. Chernaya Metallurgiya, No 5, 1972, pp 139-142

measurements of the microhardness and microthermoelectromotive force. It was found that diffusion layers 50-100 μm deep can be produced in 5-10 minutes. The use of electric heating intensifies the process of titanium calorizing. Increasing the rate of electric heating forms deeper diffusion layers. Calorizing increased the thermal stability of pure titanium by a factor of 10, and that of VT-14 alloy by a factor of 5.

2/2

USSR

KIDIN, I. N., ANDRYUSHECHKIN, V. I., and OPALEV, S. B., Moscow Institute of Steel and Alloys

"The Interaction of Titanium With Rarefied Air During Electric Heating"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy: Chernaya metallurgiya, No 5, 1971, pp 139-142

Abstract: The authors study the interaction of grade VT1-0 commercially pure titanium with the residual gases of laboratory air at a rarefaction of 10^{-1} mm Hg under conditions of rapid electric heating and slow heating in a furnace. The study was conducted using specimens made from annealed, commercial VT1-0 grade titanium (C=0.33%, N_2 = 0.02%, H_2 = 0.004%, Fe = 0.08%, Si = 0.04%, and O_2 = 0.1%) with the following dimensions: 0.1 x 10 x 65 mm. The specimens were electrically heated by passing industrial frequency electric current directly through them. Slow heating was accomplished in an electric resistance furnace. The electric heating rate in the phase transformation temperature range for titanium was 150 degrees/sec. (1.5 degrees/sec. in the case of heating in the furnace). The rate of cooling in the same temperature interval was 50-70 degrees/sec. The phase transformation temperature was 880° C. This was determined by the inflection on the cooling curves. The

1/2

USSR

KIDIN, I. N., et al., Izvestiya vysshikh uchebnykh zavedeniy: Chernaya metallurgiya, No 5, 1971, pp 139-142

temperature was measured using a chromium-aluminum thermocouple. The interaction of titanium with rarefied air was studied within the 800-1000°C interval. Methods of electric resistance, micro-hardness, and microthermoelectromotive force measurements, along with weight analysis, indicate a great degree of activity in the interaction between the gas medium and titanium in the case of electric heating as opposed to slow heating in a furnace. Under experimental conditions, in addition to the diffusion of oxygen into titanium, a significant quantity of nitrogen also is diffused. Original article: three figures, one formula, and six bibliographic entries.

2/2

USSR

UDC: 620.178.15.05

KIDIN, I. N., ANDRYUSHECHKIN, V. I., and GORBUNOV, I. P.

"Machine for Determining Residual Stresses on the Basis of PMT-3 Equipment"

Moscow, Zavodskaya laboratoriya, No. 1, 1971, pp 107-109

Abstract: The description is given of a machine for determining the residual stresses in the surface layers of plastic specimens. The machine has as its basis the PMT-3 microhardness meter, an optical device used to measure the bend in the specimen arising from the removal of a layer in the course of the test, by a special device which continuously and electrolytically scrapes the surface layer of the specimen. A diagram of the device is given together with a detailed explanation of its operation. The machine was tested by measuring the residual stresses in the surface layer of welded type-20 steel plates. The results of these measurements agreed with the results obtained in the literature by other methods. The authors, members of the Moscow Steel and Alloy Institute, claim for their method the advantage that it takes into account the specific nature of the residual stress distribution in the specimens after surface toughening.

1/1

USSR UDC 669.15-194:669.295:621.785.545:620.183

KIDIN, I. N., ANDRYUSHECHKIN, V. I., RAGIMOV, M. M., and KUZNETSOV, A. S., Moscow Institute of Steel and Alloys

"The Effect of Fast Heating on the Formation of the Transition Zone in Bimetals of the Iron-Titanium System"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 130-133

Abstract: An investigation was made of the kinetics of the formation of the transition zone in the bimetals Armco iron-VT1-0 and steel 20-VT1-0 in repeated heating with rates of v = 4 deg/sec (furnace heating) and v - 100 deg/sec (electroheating), in a 940-1070°C interval, and with aging for 0-150 min (v = 4 deg/sec) and 0-4 min (v = 100 deg/sec). The deformation process of the diffusion transition zone in the bimetals intensifies in fast heating with v = 100 deg/sec. The diffusion of titanium in iron in fast heating takes place primarily in the grain boundaries. Microhardness and micro-thermoelectric power methods and X-ray phase analysis and metallographic analysis showed that an increased heating rate from 4 to 100 deg/sec in repeated heating after rolling does not affect the phase composition and structure of the transition zone in the bimetals.

1/1

USSR UDC 669.11.669.18:621.785.53

KIDIN, I. N., ANDRYUSHECHKIN, V. I., and LEVTANOVA, N. M., Moscow Institute of Steel and Alloys

"Calorizing of Iron in Pastes Using Electric Heating"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 137-140

Abstract: A study was made of the effect of a high rate of electric heating on the kinetics of the formation of the structure and phase content of Armco iron in calorizing in pastes at 950-1200°C for 1-10 min. Samples were heated by the contact method at a rate of 10 and 50 deg/sec. The paste composition (88% FeA1 + 10% quartz powder (marshallite) + 2% NH_4Cl) makes it possible to obtain the greatest layer thickness. For comparison, heating was conducted in paste at a rate of 10 deg/sec and in a powder mixture at 0.1 deg/sec with a holding time of 15 min to 2 hr. Electric heating makes it possible to intensify the process of metal saturation by aluminum by more than 12 times; the 120-160-mm layer thickness is attained at 1100° in 2-5 min. It was established by metallographic and other methods that electric heating in calorizing produces a

1/2

USSR

KIDIN, I. N., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 137-140

change in the structure and nature of the diffusion layer. The external brittle phase is absent in the layer. Which consists of an α-solid solution of 260 kg/mm^2 microhardness. Aluminum concentration on the surface is 15%.

2/2

USSR

UDC 620.186:621.785.539

KIDIN, I. N., ANDRYUSHECHKIN, V. I., LEVTONOVA, N. M., and GULYAYEVA, V. M.
Moscow Institute of Steels and Alloys

"Structure and Phase Composition of the Calorized Layer"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No. 2, 1971, pp 7-11

Abstract: The structure and phase composition of the layer formed by thermodiffusion calorizing of specimens heated in a furnace at rates of 0.1 and 10°/sec, and also electrically heated at 50 and 1000°/sec are studied. Results are presented from metallographic studies, X-ray phase and microroentgenospectral local analyses, and measurement of microhardness and thermal EMF of the layer. The dependence is established between the data produced by the various methods. The curve of the change in thermal EMF allows the concentration of aluminum in the layer and its phases to be determined. The influence of electric heating on the structure and phase composition of the calorized layer is demonstrated. Studies are performed for base specimens of Armco iron (0.05% C) and Kh5M steel (0.1% C; 4.42% Cr; 0.05% Mo). When calorizing was performed in a furnace from a vapor-gas phase with heating rates of 0.1 and 10°/sec at 950-1200°C with

1/2

USSR

KIDIN, I. N., et al., Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1971, pp 7-11

holding from 1 minute to 8 hours, the layer formed consisted of two zones, an outer, brittle layer consisting of an ordered solid solution of FeAl, containing 18-33% Al, plus a thicker solid solution of aluminum at the base, going over to a superstructure of Fe_3Al when the aluminum content reaches 10%. Electric heating prevents formation of the outer brittle zone. The entire layer consists of a solid solution of aluminum in iron, with aluminum concentration only 18-20% at the surface.

2/2

Coatings

A

USSR UDC: 669.13:621.785.53

KIDIN, I.N., ANDRYUSHECHKIN, V.I., and RACHKOV, N.M., Moscow Institute of Steel and Alloys

"Gas Titanium Plating of Iron in High-Speed Electric Heating"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 123-126

Abstract: A report is presented on the development and investigation of a process for titanium plating of iron from a hydrogen-free vapor-gas phase using high-speed electric heating. Titanium tetrachloride vapors were used as the active medium and were introduced in[illegible] collector by a flow of purified argon. The latter served as a $TiCl_4$ vapor carrier and diluent. The process was studied in the 950-1200°C temperature range with holding time from 1-9 minutes and heating rates of 1, 100, and 1000 degrees per second on commercial iron (ca 0.07% carbon). The kinetics of the gas titanium plating process and the structure and nature of the phases formed in gas titanium plating under high-speed electric heating conditions were studied by microscopic analysis methods and measurement of microhardness and microthermoelectromotive forces. Acceleration of heating intensifies the gas titanium plating process, and diffusion layers are obtained only

1/2

USSR

KIDIN, I.N., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 123-126

under fast electric heating conditions (100-1000 degrees per second) at temperatures of 1100°C and higher. Thickness of the layers formed ranges between 20 and 80 microns, depending on saturation conditions. The layers formed represent a solid solution of titanium in Alpha-iron. In some cases, especially in increase of titanium tetrachloride content in the gas mixture of 25%, the formation of two-phase layers was observed.

2/2

UDC 669.18:621.785.53

USSR

KIBIN, I. N., ANDRYUSHECHKIN, V. I., AFON'KINA, S. S., and MINCHEVA, V. R., Moscow Institute of Steel and Alloys

"Titanium Plating of Iron and Steel by Rapid Heating"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 9, 1973, pp 159-161

Abstract: The authors have investigated and developed conditions and modes for titanium plating which allow them to produce, in a short period of time, high-quality diffusion films with a titanium content greater than 30 percent. The investigations were conducted on samples of armco-iron and steel No 20 in the temperature range from 950 to 1200 degrees C with a holding time on the isotherm from 1 to 15 minutes. The saturated samples were subjected to metallographic, x-ray phase, and micro x-ray spectral analyses. The authors investigated the change in H_μ and the microthermal emf with depth of the diffusion film. As a result

1/2

USSR

KIBIN, I. N., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 9, 1973, pp 159-161

they have selected the optimal modes and saturated compositions that allow them to produce titanium-plated films, 40-150 micrometers thick with a titanium content up to 70-80 percent. The article contains 4 illustrations and 5 bibliographic references.

2/2

USSR

KIDIN, I. N., et al., [illegible] Metallurgiya, [illegible] 1972, [illegible]

measurements of the microhardness and microthermo[illegible] was found that diffusion layers 50-100 μm deep can [illegible] minutes. The use of electric heating intensifies [illegible] calorizing. Increasing the rate of electric heating [illegible] layers. Calorizing increased the thermal stability [illegible] factor of 10, and that of VT-14 alloy by a factor [illegible].

USSR

KIDIN, I. N., [illegible], [illegible]
Institute of Steel and Alloys

"[illegible] Titanium and VT-14 Alloy [illegible]
Heating"

Moscow, [illegible] Metallurgiya, No 5, 1972, [illegible]

[illegible]

USSR

KIDIN, I. N., ANDRYUSHECHKIN, V. I., and OPALEV, S. P., Moscow Institute of Steel and Alloys

"The Interaction of Titanium With Rarefied Air During Electric Heating"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy: Chernaya metallurgiya, No 5, 1971, pp 139-142

Abstract: The authors study the interaction of grade VT1-0 commercially pure titanium with the residual gases of laboratory air at a rarefaction of 10^{-1} mm Hg under conditions of rapid electric heating and slow heating in a furnace. The study was conducted using specimens made from annealed, commercial VT1-0 grade titanium (C=0.3%, N_2 = 0.02%, H_2 = 0.006%, Fe = 0.[illegible]%, Si 0.04%, and O_2 = 0.1%) with the following dimensions: 0.1 x 10 x 0[illegible] mm. The specimens were electrically heated by passing industrial frequency electric current directly through them. Slow heating was accomplished in an electric resistance furnace. The electric heating rate in the phase transformation temperature range for titanium was 150 degrees/sec. (1.5 degrees/sec. in the case of heating in the furnace). The rate of cooling in the same temperature interval was 50-70 degrees/sec. The phase transformation temperature was [illegible] C. This was determined by the inflection on the cooling curves. The

1/2

USSR

KIDIN, I. N., et al., [illegible] Chernaya metallurgiya, No 5, 1971, pp 13[illegible]-1[illegible]2

temperature was measured using a chromium-aluminum thermocouple. The interaction of titanium with rarefied air was studied within the 800-1000°C interval. Methods of electric resistance, micro-hardness, and microthermoelectromotive force measurements, along with weight analysis, indicate a great degree of activity in the interaction between the gas medium and titanium in the case of electric heating as opposed to slow heating in a furnace. Under experimental conditions, in addition to the diffusion of oxygen into titanium, a significant quantity of nitrogen also is diffused. Original article: three figures, one formula, and six bibliographic entries.

2/2

USSR UDC: 620.178.16.05

KIDIN, I. N., [illegible], V. I., and GORBUNOV, I. I.

"Machine for Determining Residual Stresses on the Basis of PMT-3 Equipment"

Moscow, Zavodskaya laboratoriya, No. 1, 1971, pp 107-109

Abstract: The description is given of a machine for determining the residual stresses in the surface layers of plastic specimens. The machine has as its basis the PMT-3 microhardness meter, an optical device used to measure the bend in the specimen arising from the removal of a layer in the course of the test, by a special device which continuously and electrolytically scrapes the surface layer of the specimen. A diagram of the device is given together with a detailed explanation of its operation. The machine was tested by measuring the residual stresses in the surface layer of welded type-30 steel plates. The results of these measurements agreed with the results obtained in the literature by other methods. The authors, members of the Moscow Steel and Alloy Institute, claim for their method the advantage that it takes into account the specific nature of the residual stress distribution in the specimens after surface treatment.

1/1

USSR UDC 669.15-194:669.295:621.785.545:620.183

KIDIN, I. N., ANDRYUSHECHKIN, V. I., RAGIMOV, M. M., and KUZNETSOV, A. S.,
Moscow Institute of Steel and Alloys

"The Effect of Fast Heating on the Formation of the Transition Zone in Bimetals of the Iron-Titanium System"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 130-133

Abstract: An investigation was made of the kinetics of the formation of the transition zone in the bimetals Armco iron-VT1-0 and steel 20-VT1-0 in repeated heating with rates of v = 4 deg/sec (furnace heating) and v - 100 deg/sec (electroheating), in a 940-1070°C interval, and with aging for 0-150 min (v = 4 deg/sec) and 0-4 min (v = 100 deg/sec). The deformation process of the diffusion transition zone in the bimetals intensifies in fast heating with v = 100 deg/sec. The diffusion of titanium in iron in fast heating takes place primarily in the grain boundaries. Microhardness and micro-thermoelectric power methods and X-ray phase analysis and metallographic analysis showed that an increased heating rate from 4 to 100 deg/sec in repeated heating after rolling does not affect the phase composition and structure of the transition zone in the bimetals.

1/1

USSR UDC 669.11.669.18:621.785.53

KIDIN, I. N., ANDRYUSHECHKIN, V. I., and LEVTANOVA, N. M., Moscow Institute of Steel and Alloys

"Calorizing of Iron in Pastes Using Electric Heating"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 137-140

Abstract: A study was made of the effect of a high rate of electric heating on the kinetics of the formation of the structure and phase content of Armco iron in calorizing in pastes at 950-1200°C for 1-10 min. Samples were heated by the contact method at a rate of 10 and 50 deg/sec. The paste composition (88% FeAl + 10% quartz powder (marshallite) + 2% NH_4Cl) makes it possible to obtain the greatest layer thickness. For comparison, heating was conducted in paste at a rate of 10 deg/sec and in a powder mixture at 0.1 deg/sec with a holding time of 15 min to 2 hr. Electric heating makes it possible to intensify the process of metal saturation by aluminum by more than 12 times; the 120-160-mm layer thickness is attained at 1100° in 2-5 min. It was established by metallographic and other methods that electric heating in calorizing produces a

1/2

USSR

KIDIN, I. N., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 137-140

change in the structure and nature of the diffusion layer. The external brittle phase is absent in the layer. Which consists of an α-solid solution of 260 kg/mm^2 microhardness. Aluminum concentration on the surface is 15%.

2/2

USSR

UDC 620.186:621.785.539

KIDIN, I. N., ANDRYUSHECHKIN, V. I., LEVTONOVA, N. M., and GULYAYEVA, V. M.
Moscow Institute of Steels and Alloys

"Structure and Phase Composition of the Calorized Layer"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No. 2, 1971, pp 7-11

Abstract: The structure and phase composition of the layer formed by thermodiffusion calorizing of specimens heated in a furnace at rates of 0.1 and 10°/sec, and also electrically heated at 50 and 1000°/sec are studied. Results are presented from metallographic studies, X-ray phase and microroentgenospectral local analyses, and measurement of microhardness and thermal EMF of the layer. The dependence is established between the data produced by the various methods. The curve of the change in the thermal EMF allows the concentration of aluminum in the layer and its phases to be determined. The influence of electric heating on the structure and phase composition of the calorized layer is demonstrated. Studies are performed for base specimens of Armco iron (0.05% C) and Kh5M steel (0.1% C; 4.42% Cr; 0.05% Mo). When calorizing was performed in a furnace from a vapor-gas phase with heating rates of 0.1 and 10°/sec at 950-1200°C with

1/2

USSR

KIDIN, I. N., et al., Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1971, pp 7-11

holding from 1 minute to 8 hours, the layer formed consisted of two zones, an outer, brittle layer consisting of an ordered solid solution of FeAl, containing 18-33% Al, plus a thicker solid solution of aluminum at the base, going over to a superstructure of Fe_3Al when the aluminum content reaches 10%. Electric heating prevents formation of the outer brittle zone. The entire layer consists of a solid solution of aluminum in iron, with aluminum concentration only 18-20% at the surface.

2/2

USSR [illegible]

[illegible]
and Alloys

"[illegible]"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, [illegible]
pp 1[illegible]

Abstract: A report is presented on the development and [illegible] for titanium plating of [illegible] from a hydrogen-free vapor-gas [illegible] speed electric heating. [illegible] chloride vapors [illegible] medium and were [illegible] the 950-1050°C [illegible] with heating [illegible] rate of [illegible], and 1000 degrees per second on [illegible]. The kinetics of the gas titanium plating process and [illegible] the phases formed in gas titanium plating under high-speed electric [illegible] conditions were studied by microscopic analysis methods and [illegible] hardness and thermo-electromotive force. Acceleration of [illegible] fies the gas titanium plating process, and diffusion layers [illegible]

1/2

USSR

KIDIN, I. N., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, [illegible],
No 5, 1970, pp [illegible]-126

under fast electric heating conditions ([illegible] 1000 degrees per [illegible]) [illegible] temperatures of 1100°C and higher. Thickne[illegible] of the layers formed [illegible] 20 and 80 microns, depending on saturation conditions. The layers [illegible] sent a solid solution of titanium in Alpha-iron. In some cases, [illegible] increase of titanium tetrachloride content in the gas mixture of [illegible] tion of two-phase layers was observed.

2/2

USSR UDC 669.18:621.785.53

KIBIN, I. N., ANDRYUSHECHKIN, V. I., AFON'KINA, S. S., and MINCHEVA, V. R., Moscow Institute of Steel and Alloys

"Titanium Plating of Iron and Steel by Rapid Heating"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 9, 1973, pp 159-161

Abstract: The authors have investigated and developed conditions and modes for titanium plating which allow them to produce, in a short period of time, high-quality diffusion films with a titanium content greater than 30 percent. The investigations were conducted on samples of armco-iron and steel No 20 in the temperature range from 950 to 1200 degrees C with a holding time on the isotherm from 1 to 15 minutes. The saturated samples were subjected to metallographic, x-ray phase, and micro x-ray spectral analyses. The authors investigated the change in H_μ and the microthermal emf with depth of the diffusion film. As a result

1/2

USSR

KIBIN, I. N., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 9, 197[illegible], pp 159-161

they have selected the optimal modes and saturated compositions that allow them to produce titanium-plated films, 40-150 micrometers thick with a titanium content up to 70-80 percent. The article contains 4 illustrations and 5 bibliographic references.

2/2

1/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EXPERIMENTAL DESALINATION OF TEREK DELTA SOIL WITH A DEEP DRAINAGE NETWORK BY A RICE CROP -U-

AUTHOR-(02)-ANDRYUSHIN, M.A., ZVEREVA, L.D.

COUNTRY OF INFO--USSR

SOURCE--POCHIVOVEDENIE 1970, (2), 119-32

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--SOIL TYPE, DESALINATION, RICE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0089 STEP NO--UR/0500/70/000/002/0119/0132

CIRC ACCESSION NO--AP0114485

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114485

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RICE WAS GROWN ON A STRONGLY SALINE SOIL AND SOLONCHAKS IN THE DELTA OF THE TEREK RIVER. THE RICE-PADDIES WERE IRRIGATED WITH 28,000 M PRIME3 H SUB2 O-HA. DURING A YEAR, THE AV. SALT CONTENT IN THE UPPER 1 M HORIZON DECREASED FROM ..23 TO 0.78PERCENT, AND DURING THE 2ND YEAR TO 0.60PERCENT. A SIMILAR DECREASE WAS OBSERVED IN THE SALT CONTENT OF UNDERGROUND WATER OF THE UPPER WATER CARRYING HORIZON. THE RICE YIELD WAS 4.05 TONS A. FACILITY: PYATIGORSK, FILIAL YUZHGIPROVODKHOZ, PYATIGORSK, USSR.

UNCLASSIFIED

Acc. Nr.: AN0104033 ANDREYUTIN V. Ref. Code: UR9030

AUTHOR-- BELIKOV, V., CORRESPONDENT

TITLE-- A SPEED BOAT ON THE SURA

NEWSPAPER-- NEDELYA, MAY 25-31, 1970, NR 22, P 4, COLS 1-2

ABSTRACT-- THE FIRST SOVIET WATER-JET PROPELLED AIR-CUSHION CRAFT, CAPABLE OF DOING 35 KMS PER HOUR, ITS HULL AND ALL OF ITS MACHINERY, WAS MADE BY THE TRAINING PILOT PLANT OF THE GOR,KIY INSTITUTE FOR WATER TRANSPORT ENGINEERS. THE WORKING BLUE PRINTS OF THE GOR,KOVCHANIN WERE PRODUCED BY THE "VOLGOBALTSUDOPROYEKT", AND ITS CHIEF DESIGNER WAS V. ZOROASTROV. THE PROPOSAL TO CONSTRUCT THE "GOR,KOVCHANIN" WAS SUBMITTED FIVE YEARS AGO. PRIOR TO THAT SEVERAL WORKING MODELS WERE CREATED AT THE GOR,KIY INSTITUTE FOR TRANSPORTATION ENGINEERS UNDER THE DIRECTION OF PROFESSOR V. ANDRYUTIN. V. ZOROASTROV, GRADUATE STUDENT AT THAT TIME, PARTICIPATED IN THE DEVELOPMENT PROGRAM. THE 9-METER AIR FAN OF THE CRAFT HAS BEEN DESIGNED BY THE STUDENT DESIGN BUREAU OF THE INSTITUTE.

1/2

REEL/FRAME
19870386

4

Acc. Nr.: AN0104033

IN ITS TRIALS, THE "GOR,KOVCHANIN" WAS ABLE TO NAVIGATE RAPIDS LESS THAN HALF A METER DEEP AND TO LAND ON A BEACH WITHOUT ANY LANDING FACILITIES.

ANOTHER AIR CUSHION CRAFT, THE FIRST ONE IN THE SERIES KNOWN AS THE "ZARNITSA" IS BEING CURRENTLY EXHIBITED IN MOSCOW.

2/2

K2

REEL/FRAME
19870387

USSR

ANDZELEVICH, E., Physician

"A New Method for the Treatment of Hypertension"

Frunze, Sovietskaya Kirgiziya, 15 Mar 73, p 4

Abstract: The Moscow Institute of Clinical and Experimental Surgery is reported to have developed a new method for the treatment of hypertension arising from disease of the vessels which carry blood to the kidneys. A specific case of a scar, formed after a fall on a sharp iron object, squeezing the renal artery is cited. The method, developed under the supervision of Mariya Kiyazeva, uses a special hook to squeeze out a portion of the aorta together with the renal artery. A "t"-shaped longitudinal incision is then made in these vessels, through which the dissected walls are twisted out and cleaned. Neither artificial materials or displacement of organs is necessary, and the incision is the size of that in an appendectomy. Two hundred patients have successfully undergone the operation.

1/1

USSR UDC 576.858.6.[illegible]

SOLOV'YEV, G. Ya., ANDZHAPARIDZE, O. G., and STEPANOVA, L. G., Moscow Scientific Research Institute of Viral Preparations

"Some Physicochemical Properties of Virions of an Oncogenic RNA-Containing Virus (LPV Strain) Isolated From Man"

Moscow, Voprosy Virusologii, No 6, 1972, pp 682-686

Abstract: An RNA-containing virus (LPV strain) was isolated from a patient with acute leukemia and cultured in human diploid cells. Attempts to fully isolate the virus to determine its properties were unsuccessful, as complexes between virus particles and normal cell components could not be broken down. It was determined indirectly by centrifugation that the virus is composed predominantly of 70S RNA. Thus the virus probably belongs to the oncogenic virus group. The nature of peaks produced by labeled RNA at 4S, 5S, and in the [illegible] zone remains unclear, though these could represent fragments of viral RNA. The presence of an enzyme system responsible for DNA synthesis and detected previously in other oncogenic viruses was sought. RNA-dependent DNA-polymerase was detected after treatment of virions with [illegible] and addition of [illegible]-thymidine phosphate.

1/1

ANDRZHEYEVSKAYA, L.G. math

TECHNICAL TRANSLATION

FSTC-HT-23-[illegible]-72

ENGLISH TITLE: [illegible]

FOREIGN TITLE: [illegible]

AUTHOR: [illegible]

SOURCE: [illegible]

Translated for FSTC by Albert L. [illegible]
Leo Kanner Associates

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statements contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information. Requests for additional copies of this document should be addressed to Department A, National Technical Information Service, Springfield, Virginia 22151. Approved for public release; distribution unlimited.

USSR UDC: 621.373.531(088.8)

SAKOVICH, A. A., ANTONOV, B. M., ANDRZHEVSKY, G. Y.

"A Pulse Generator"

USSR Author's Certificate No 269992, filed 14 Aug 67, published 4 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G210 P)

Translation: This Author's Certificate introduces a pulse generator based on a bridge circuit. The device includes a capacitor, resistors and a thyristor. To ensure high stability of the pulse repetition period over a wide frequency range, a semiconductor diode with charge accumulation and the primary winding of a controlling pulse transformer are connected in series in the diagonal of the bridge. The secondary winding of the transformer is connected to the control electrode and the cathode of the thyristor.

1/1

Molecular Biology

USSR UDC 616.988.25-022.6-07:616-008.939.633.2 [illegible] 07

ZHDANOV, V. M., GAVRILOV, V. I., KLIMENKO, S. M., [illegible], N. N., and ANDZHAPARIDZE, O. G., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and Institute of Viral Preparations, Ministry of Public Health USSR, Moscow

"Chronic Infection of Cell Cultures by Tick-Borne Encephalitis Virus: [illegible] Ribonucleoprotein Structures in Cells"

Moscow, Voprosy Virusologii, No 1, 1973, pp 17-25

Abstract: Labeled RNA precursors were added to [illegible] cell cultures chronically infected with tick-borne encephalitis virus, in which cell [illegible] synthesis was suppressed [illegible], to determine the [illegible] of viral products. Virus-specific ribonucleoprotein was found [illegible] in mitochondrial [illegible] fractions. Two forms with [illegible] and [illegible] sedimentation constants were detected by sucrose gradient [illegible]. [illegible] 1.33 and 1.42 g/ml respectively in cesium chloride gradients. Electron microscopic investigation indicated that the structures [illegible] long, and 50 Å and [illegible]-40 Å [illegible] respectively. [illegible] were also detected. These data suggest that these are viral [illegible].

1/2

USSR

ZHDANOV, V. M., et al., Vopro[illegible] [illegible] [illegible], [illegible] 1, 1973, pp 17-23

concluded that chronically inf[illegible] host [illegible] inhibit production of mature virions but have less effect on [illegible]somes. [illegible] supports viral persistence and which structures make possible i[illegible] newly divided cells remains unanswered.

2/2

USSR UDC 576.858.25.083.35.095.73

IZAKOVA, L. P., BOGOMOLOVA, N. N., and ANDZHAPARIDZE, O. G., Moscow Scientific Research Institute of Virus Preparations"

"Investigation of Lysosomes in Cells of Cultures Chronically Infected with Tickborne Encephalitis Virus"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 697-700

Abstract: Changes observed in the morphology and distribution of lysosomes, acid phosphatase activity, and absorption of vital stains in HEp-2-Soph culture cells chronically infected with tickborne encephalitis virus warrant classifying these cells into three groups. Group 1: the cells remain similar to controls. Group 2: during the first 48 hours after inoculation, the cells are characterized by a low acid phosphatase and presence of agglomerates of lysosomes near the nuclear membrane, and they resemble cells degenerating in the acute form of encephalitis. Group 3 is most numerous: from the 3rd to the 7th postinoculation days, lysosome "complexes" are present in the cells which also display a very high acid phosphatase activity and absorb large quantities of vital stains. Thus, by the lysosome reaction, the cells are similar to those observed in the latent from of tickborne encephalitis. After 7-8 days, the pathology begins to subside, and the morphology and function of the lysosomes of the HEp-2-Soph cells returns to normal.
1/1

USSR

BOGOMOLOVA, N. N., IZAKOVA, L. P., SHUKHMINA, N. R., and ANDZHAPARIDZE, O. G., Moscow Scientific Research Institute of Viral Preparations

"Chronic Infection of Cells With Tickborne Encephalitis Virus. 7. Isolation of Cell Clones and Study of Their Properties"

Moscow, Voprosy Virusologii, No 5, 1971, p 623

Abstract: A study is presented of 15 cell clones isolated from chronically infected Hep-2-Soph cultures while protected by specific antibodies. The production of infectious tickborne encephalitis virus was detected in 13 clones where interference with WEE virus was observed and specific antigen was synthesized. The use of histochemical methods revealed three groups of cells with different metabolisms in each of the clones. The first group included degenerating cells found during the first 2 hours after subculturing. These cells contained an abudnance of glycogen in the lyoform. They were also characterized by high succinic dehydrogenase activity with pronounced polymorphism of the formazan residue and low acid phosphatase activity. The second group of cells with normal morphology constituted most of the cell population. They were characterized by high succinic dehydrogenase activity, large content of lyo (dissolved) and granular glycogen, and high acid phos-
1/2

USSR

BOGOMOLOVA, N. N., et al., Voprosy Virusologii, No 5, 1971, p 623

phatase activity. The third group was indistinguishable from the control with respect to the nature of the metabolism of the substances studied. It was concluded that most of the cell population could be infected by a chronically infected Hep-2-Soph culture.

2/2

UDC 576.858.25.083.2:576.353

USSR

GIBADULIN, R. A., BOGOMOLOVA, N. N., and ANDZHAPARIDZE, O. G., Moscow Scientific Research Institute of Virus Preparations

"Chronic Infection of HEp-2 Cells with Tick-Borne Encephalitis Virus. Communication 6. Study of the Mitotic Cycle Parameters of Infected Cells"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 70, pp 658-662

Abstract: HEp-2 cultures were studied by introduction of labelled H^3-thymidine for 15 minutes. The index of labelled cells was 26.4-26.7% in the chronically infected culture and 38% in the control culture. It was found that, over a period of 48 hours, both types of cultures possessed the same proliferated pool of close to 100%. The chronically infected HEp-2-Sof culture was found to have a longer mitotic cycle (17 hours) than the uninfected culture. The mitotic index was 3.60-3.90% in the HEp-2 culture and 2.50-2.57% in the HEp-2-Sof culture. It is proposed that the synthesis of antivirus albumin by cells of the chronically infected cultures may be one of the reasons for the decrease in cell metabolism and the prolongation of the mitotic cycle.

1/1

USSR

ANDZHAPARIDZE, O. G., LOTTE, V. D., and YUROVSKAYA, G. B.

"The Leukosis-Like Virus in Cell Cultures Transformed by Blood From Leukotic Patients"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 217-219

Abstract: The viral etiology of human leukemia is postulated on the basis of indirect data and analogy with leukemia in mammals and birds. Cultures of human diploid cells (hdc), strain WI-38, were inoculated with blood and blood elements from patients with acute hemocytoblastosis and from healthy donors. In five cases out of nine, inoculations from acutely ill patients transformed the culture; its cells acquired an epitheliol character and lost their capacity for contact growth inhibition. The altered hdc cultures differed from normal ones in higher metabolic activity and higher growth potential. The altered cells lost their former karyotype and changed into heteroploid cells. Karyological analysis showed that cells of all altered lines had two anomalous marker chromosomes: a large submetacentered one, larger than Group A chromosomes; and a large acrocentric, larger than the acrocentric chromosomes of Group D. Transplantation of altered cells into a hamster cheek pouch produced,
1/3

USSR

ANDZHAPARIDZE, O. G., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 217-219

in 45 cases out of 89, neoplasma of the epidermoid carcinoma type, mixed. The altered cultures consistently showed mycoplasma which, when introduced into a fresh hdc culture, did not alter the new culture. New cultures were frequently transformed by acellular homogenates and ultrafiltrates of the altered cells. Under electron microscopy, cytoplasm of altered cells showed the presence of membrane bodies of complex contour, containing virus-like structures. The bodies tended to localize in the perinuclear area near, or among, the Golgi complex. The bodies resembled mitochondria or lysosome cells, but had one, two, or three double contour sheaths, of which one or two formed internal spiral structures. They also contained formations of one double contour sheath with homogeneous filament material, containing virus-like particles, which are described in detail. At a later stage in the experiments (40 min), the membrane bodies and virus-like particles were replaced by a small number of immature, still-evolving forms and mature forms of leukosis-like virus in the extracellular space and cell surface. The immature cell particles corresponded to type A virus particles; while the mature particles corresponded to type C virus particles. The A-type particles formed on the cell surface,

USSR

ANDZHAPARIDZE, O. G., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 217-219

and often later formed two virus particles in an identical area. Type C virus particles are mature virus particles formed from type A particles through inner structural changes. Type C virus particles were found in the extracellular space and often had an irregular form, with an eccentric nucleotide of varying electron-optical density. Examination of controls and experimental cultures revealed no structures of the membranous type. Both cultures showed the presence of many mature and dividing mycoplasmic bodies, as well as elementary bodies 100 mu in diameter forming on mycoplasmic surface. It was concluded that hdc transformation seems to be associated with inoculation of this culture with formed elements and blood from patients with acute hemocytoblastoma. The nature of membrane bodies and their role in the alteration process remains unclear, despite previous research. The possibility that membrane bodies with virus-like particles could be mycoplasma with elementary bodies is not ruled out. The leukosis-like virus isolated here in altered cells is similar morphologically to those already isolated from mice and birds, as well as those from humans, cats, dogs, and cows. It is possible that one or more agents isolated in transformed cells is responsible for altered cultures of human diploid cells.

3/3

USSR

UDC 576.311:578.085.1

IZAKOVA, L. P., BOGOMOLOVA, N. N., ZALKIND, S. Ya., and ANDZHAPARIDZE, O. G., Laboratory of Cytopathology and Laboratory of Immunobiology, Institute of Virus Preparations, Ministry of Public Health USSR, Moscow

"Studies of Lysosomes of Cells in Cultures Infected With Tickborne Encephalitis Virus"

Leningrad, Tsitologiya, Vol 12, No 10, Oct 70, pp 1,328-1,333

Abstract: Cytochemical methods, determination of acid phosphatase activity and cytological methods (accumulation of neutral red and acridine orange dyes) were used in a comparative study of the lysosome apparatus of two stable cell lines, one of which acutely infected and the other latently infected with tickborne encephalitis virus. Considerable changes in the localization and psysiological state of the lysosomes were found which are apparently associated with different stages of the infection. Immediately after infection, lysosome granules move to the cell periphery and their activity is reduced. After 2-3 hours, the lysosomes are in the perinuclear zone; their acid phosphatase activity is enhanced, as is the accumulation of vital stains. For the acute infection, the maximum reaction

is observed 24 hours after virus inoculation. In the latent infection, the maximum reaction is observed 24-72 hours after infection. After 5-6 days, the lysosome apparatus returns to its normal state. The lysosome reaction in the early stages of infection thus depends on the type of infection (acute or latent).

USSR

UDC 576.858.25.095.5

STEPANOVA, L. G., SHUKHMINA, N. R., and ANDZHAPARIDZE, O. G., Moscow Scientific Research Institute of Virus Preparations

"Study of the Variability of Tickborne Encephalitis Virus. Report VI. Some Aspects of Immunogenesis in Mice Vaccinated With the Attenuated I-40 D Strain"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 70, pp 405-408

Abstract: Following intracerebral inoculation of white mice with the pathogenic I-40 strain of tickborne encephalitis and the attenuated I-40 D strain (antigen and infectious virus), both viruses were isolated from the brain, blood, cervical lymph nodes, and spleen of the animals. All of the mice died 5 to 7 days later. After subcutaneous inoculation of I-40, the virus and antigen were found in the brain blood, cervical and mesenteric lymph nodes, spleen, and small intestine. After subcutaneous inoculation of I-40 D, however, the virus was found only in the lymph nodes and small intestine. The antigen (but not the infectious virus) was isolated from the brain. All of the animals infected subcutaneously with strain I-40 died within 9 days, while those so infected with strain I-40 D remained healthy throughout the 25-day observation period. Both oral and subcutaneous vaccination of mice with the I-40 D strain produced immunity to 1,000 LD_{50} of tickborne encephalitis virus.

1/1