

S/226/62/000/005/001/007
E202/E135

AUTHORS: Geguzin, Ya.Ye., and Ovcharenko, N.N.

TITLE: Microscopic pycnometry of solids with microcavities

PERIODICAL: Poroshkovaya metallurgiya, no.5, 1962, 15-19

TEXT: It is observed that instead of using the experimentally difficult and occasionally ambiguous method of low scattering of X-rays in determining the volume of discontinuities (cavities) Δ , where

$$\Delta = 1 - \frac{\rho_{\text{pycn}}}{\rho_{\text{xray}}} \quad (1)$$

it is possible, when Δ is small, to use ordinary metallographic method as long as the samples are subjected to high temperature annealing prior to metallographic observation. The annealing causes diffusional coalescence of the cavities which increases the average cavity size. With cubic lattices, and certain other reservations it is possible to connect the pycnometric and X-ray porosity and the number of thermal treatment cycles (n) with the energy of vacancies formation U_0 viz:

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Microscopic pycnometry of solids ...

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$$U_0 = -KT \log \left[\frac{1}{n} \left(1 - \frac{\rho_{\text{pycn}}}{\rho_{\text{xray}}} \right) \right]$$

Using copper it was found that for $n = 50$ (with tempering from 650 °C), the number of pores $N = 2.5 \times 10^6 \text{ cm}^{-3}$, the average size of pores $L \approx 2.7 - 3 \times 10^{-4} \text{ cm}$, i.e. $\rho_{\text{pycn}} = 0.999925 \rho_{\text{xray}}$ and $U_0 = 20 - 22 \text{ kcal/mol}$. The above method is particularly suitable in studying the formation of friable electrolytic deposits and in other cases where there are small discrepancies between ρ_{pycn} and ρ_{xray} . There are 1 figure and 7 tables. ✓

ASSOCIATION: Khar'kovskiy ordena Trudovogo Krasnogo Znameni gosudarstvennyy universitet im. A.M. Gor'kogo (Khar'kov Order of the Red Banner of Labour, State University imeni A.M. Gor'kiy)

SUBMITTED: February 5, 1962

Card 2/2

Kinetics of thermal ...

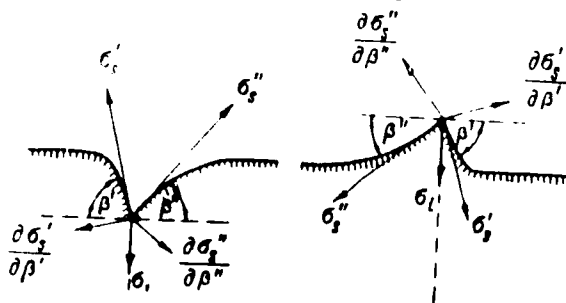
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B102/B104

to 64 erg/cm^2 , where $\sigma = 1.4 \cdot 10^3 \text{ erg/cm}^2$, $\delta = 4.07 \cdot 10^{-8} \text{ cm}$, $D = 4.10^{-5} \text{ cm}^2/\text{sec}$ and $T = 950^\circ \text{C}$. The effective boundary energy $\sigma_1 = \sigma + 2\sigma \frac{\partial \sigma}{\partial \beta} \cos \beta$ with $\cos \beta = 1$ was found to be $\sigma_1 = 148 \text{ erg/cm}^2$, $\sigma_1 = \sigma - 2\sigma \frac{\partial \sigma}{\partial \beta} \cos \beta = 20 \text{ erg/cm}^2$ and $\sigma_1/\sigma = 0.014$, which agrees well with values from other authors. There are 7 figures.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: June 12, 1962

Fig. 1. Schematic drawing of the forces acting on a notch or cusp.



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S/181/62/004/011/013/049
B104/B102

24 750

AUTHORS: Geguzin, Ya. Ye., and Ovcharenko, N. N.

TITLE: The anisotropy of the coefficients of surface diffusion of metals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 11, 1962, 3117 - 3123

TEXT: A study is made of the influence which natural rugosities on the surface of crystals exert on the anisotropy of the coefficients D_s of surface diffusion. D_s was obtained from the smoothening, due to diffusion at 900°C, of the wedge-shaped scratch produced on the surface of polycrystalline samples of Cu, Fe and Au. To prevent the smoothening being affected by evaporation or by oxygen the samples were wrapped in foils of the same material and annealed in an atmosphere of dry hydrogen. The depth h of the wedge-shaped scratches was determined by an interferometric method.

$h = \frac{h_1 \lambda}{d \cdot 2}$, where h_1 is the interferometer depth of the scratch, d the distance between the interference lines and λ the wavelength. The scratch

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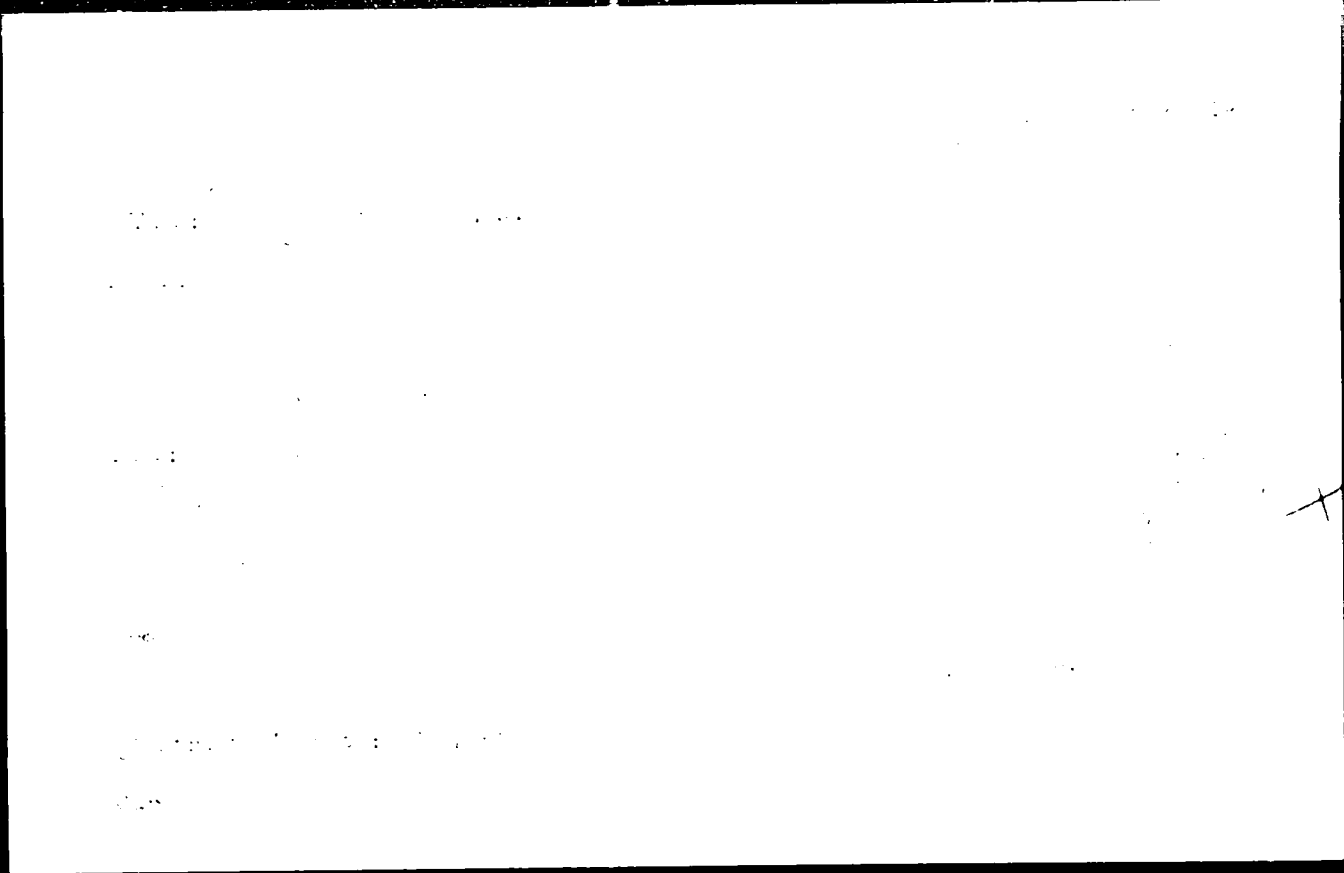
GEUZIN, Ya.Ye.; OVCHARENKO, N.N.

Surface energy and increases on the surface of solids.
Usp. fiz. nauk 76 no.2:283-328 P '62. (MIRA 15:2)
(Surface chemistry)

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.; PARITSKAYA, L.N.

Interaction of vacancies with grain boundaries. Dokl. AN SSSR
141 no.3:603-606 N '61. (MIRA 14:11)

1. Institut khimii Khar'kovskogo gosudarstvennogo universiteta
im. A.M. Gor'kogo. Predstavleno akademikom P.A. Rebinderom.
(Crystal lattices)



GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.; FARITSKAYA, L.N.

Investigating certain physical processes occurring on the surface of crystalline solids at high temperatures. Part 8: Characteristics of stria leveling on the distorted surface of polycrystalline copper. Fiz. met. i metalloved. 12 no.1:42-46 J1 '61.

(MIRA 14:8)

1. Institut khimii pri Khar'kovskom gosudarstvennom universitete i Khar'kovskiy gosudarstvennyy universitet.

(Copper--Metallography) (Metals at high temperatures)

GEGUZIN, Ya.Ye.: OVCHARENKO, N.N.

Investigation of certain processes on the surface of single crystals.
Part 3. Kristallografiia 6 no.2:239-243 Mr-Apr '61.

(MIRA 14:9)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo
(Surfaces, Deformations of) (Rock salt crystals)

S, OBTAINED FROM THE
BIBLIOTECA

AUTHORS

Ovsyarenko, N. N.; Galatukha, L. S.

TITLE

Effects of annealing on the structure of the diffusion layer in iron which has been spark treated using different metal electrodes

PERIODICAL

Referativnyi zhurnal. Khimicheskaya fizika. 1982, v. 1, no. 1, p. 1-4. 211-2. Ukr. nazv. Khar'kovsk. un-t. v. 1982, no. 1, p. 1-4. Fak. i N. in-ta khimii KnOU. v. 1982, no. 1, p. 1-4.

TEXT

The nature of the diffusion of various alloying elements in γ -iron and the thickness of the diffusion layer developing when specimens of γ -iron and mild steel (0.3% C), which had been subjected to long-term spark treatment with metal electrodes, were annealed, has been investigated. The electrodes were of V, Cr, Ni, Co, Mo, W, Be, and Cu. It was established that V, Cr, Mo, and W diffuse on a continuous front in γ -iron, Co and Ni principally along the austenite grain boundaries. The coefficients of diffusion for the alloying elements investigated in γ -iron are between 10^{-10} and 10^{-12} cm².sec⁻¹. [Abstracter's note. Complete translation.]

Card: 1

S 053/62/076 002-104 014
B117 1104

AUTHORS: Geguzin, Ya. Ye., Ovcharenko, N. N.

TITLE: Surface energy and processes on the surface of solids

PERIODICAL: Uspekhi fizicheskikh nauk, v. 76, no. 2, 1962, 287 - 320

TEXT: This is a survey on progress achieved in the investigation of processes taking place on the surface of single solids which are in equilibrium with their own vapors. The survey comprises studies dealing with the following problems: Method of determining the surface energy of solids; "natural roughness" of crystal surfaces; variation of the surface profile of single crystals and polycrystals, development of intergranular thermal etching grooves; liquid films on the surface of crystalline bodies. Finally it is pointed out that further studies must be undertaken and a few problems are posed whose solution is of great importance for the development of this branch of solid-state physics, e. g., working out experimental methods for determining the surface energy of solids; study of processes taking place on the surface of solid alloys; effect of gases dissolving on the surface, on surface tension. Apart from being

Card 1/2

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.

Investigating certain physical processes occurring on the surface of crystalline solids at high temperatures. Part 5. Self-correction of defects purposely produced on the surface of polycrystalline copper. Fiz. met. i metalloved. 9 no. 4:569-577 Ap '60.
(MIRA 14:5)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Surface tension) (Diffusion) (Metals at high temperatures)

2/11/141/003/006, 021
 14-25

24 7100

AUTHORS: Geguzi Ya. Ye., V. V. ... L. N.

TITLE: Interactions between vacancies and grain boundaries

PERIODICAL: Akademiya nauk SSSR Doklady, v. 141, no. 3, 1961, 602 - 606

TEXT. When studying the physical properties of polycrystals at high temperatures where the mobility of atoms and vacancies is very high, the interaction between vacancies and grain boundaries plays an important role. The authors investigated the grain boundaries as locations of prevalent condensation of excess vacancies and the formation of macroscopic pores and grain boundaries as preferred places for the discharge of excess vacancies from the boundaries of the polycrystal. It is assumed that pores located at grain boundaries will consist of two semi-pores. The profile of such pores is determined by the mutual orientation of grains and by the surface energy. The existence of surface energy between grains will change the equilibrium conditions along fracture lines of the pore profile, and this will cause pores to move along the boundaries (Fig. 1). To estimate the angular change of the fracture line of the pore profile, the relation $\sigma_{1k} = 2\sigma_0(\cos\bar{\alpha} - \cos\alpha)$

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104/B125

Interactions between vacancies...

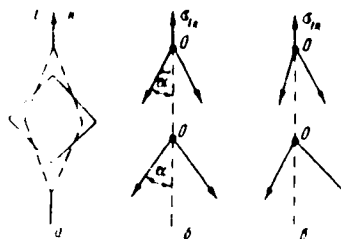
ASSOCIATION: Institut khimii Khar'kov v *Ukrains'koj* universiteta
im. A. M. Gor'kogo (Institute of Chemistry of Khar'kov State
University imeni A. M. Gor'kogo).

PRESENTED: June 20, 1961, by P. A. Ketinder, Academician

SUBMITTED: June 12, 1961

Legend to Fig. 1: (a) Diagram of the change of the pore profile under the influence of an intermediate-phase surface energy; (b) pore located symmetrically to the boundary; (c) pore located asymmetrically.

Fig. 1



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S/126/61/012/001/005/020
E102/480

AUTHORS: Geguzin Ya.Ye., Ocharenko, N.N., Paritskaya, L.N.

TITLE: Investigation of certain processes taking place on the surface of crystalline substances at elevated temperatures. VIII. Concerning the character of levelling up of scratches on distorted surfaces of polycrystalline copper.

PERIODICAL: Fizika metallov i metallovedeniye, 1961 Vol.12, No.1, pp.42-46 + 2 plates

TEXT: The results of an earlier investigation carried out by the present authors (Ref.1 FMM, 1960, 9, No.4, 569 DAN SSSR, 1960, 130, No.3, 537), showed that the process of levelling up of a scratch on a flat surface of a polycrystalline specimen is affected by its structural state. Thus a scratch on the surface of a specimen that had undergone prolonged preliminary annealing did not disappear upon subsequent holding at elevated temperatures but only changed its profile in accordance with the orientation of the grains relative to the polished surface. On the other hand, a scratch on the surface of a preliminarily deformed specimen levelled up at a rate which increased with increasing degree of preliminary
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Investigation of certain

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E193/E480

deformation. The object of the present investigation was to obtain additional data which would help in formulating an explanation of these effects. To this end the change of the profile of scratches on the surface of both electrolytically deposited and cast, polycrystalline copper was studied. The scratches were made with the aid of a diamond pyramid indenter with an angle of 136° between opposite faces. The tests were carried out in hydrogen, on specimens wrapped up in copper foil to minimize the effect of volatilization. An interferometer was used to keep track of the changes in the profile of the scratches. In the first series of experiments specimens of copper electrodeposited at a current density of 0.5 and 10 amp/dm² and a cast copper specimen (turned, ground and polished) were studied. Upon holding at 950°C, scratches of all these three specimens levelled up. The rates of levelling of scratches on copper electrodeposited at 10 amp/dm² and on the cast specimen with the surface deformed by machining, were about the same and faster than that of the scratch made on copper, electrodeposited at 0.5 amp/dm². In the second series of experiments, similar specimens were used which, however, had been given a four-hour anneal at 950°C before inscribing the scratches.

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Investigation of certain ...

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The preliminary annealing slowed down the rate of levelling up of scratches during subsequent heating for all three specimens. The rate of self-healing of the scratch on copper electrodeposited at 10 amp/dm² remained faster than that for copper deposited at the lower current density. Since the density of electrodeposited metal decreases (in the case of thin deposits) with the distance from the first deposited layer, the object of the next series of experiments was to study the behaviour of scratches inscribed on the surface of copper electrodeposited to a thickness of 0.5, 1, 2 and 3 μ on annealed, copper strip cathodes. It was found that the thicker the deposit the faster was the rate at which the scratch levelled up on subsequent heating. Finally, it was found that (other factors being equal) the rate of levelling up of scratches inscribed on electrodeposited copper depended on the direction of the scratch relative to the direction of the current during electrodeposition. The results obtained are discussed in terms of the effect of structural defects on the self-diffusion mechanism of levelling up of the surface scratches. It is postulated that the experimental facts may be explained if it is assumed that side by side with surface diffusion, sub-surface diffusion takes place in a Card 3/4

Investigation of certain

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layer which is considerably thicker than the interatomic distance of the metal. The fact that the profile of the scratch remained smooth during the levelling up process in all the cases studied was attributed to small degree of anisotropy of the coefficient of surface tension of copper, and to the presence of misoriented elements of a dispersed structure in the surface layer. The results of the present investigation are in agreement with those obtained since by J.M.Blakely and H.Mykura (Ref.7: Acta met., 1961, 9, No.1, 23). There are 9 figures and 7 references. 5 Soviet and 2 non-Soviet. The two references to English language publications read as follows: Moore A.J.W. Acta met. 1958, 6, No.4 293 Blakely J.M. and Mykura H. Acta met. 1961, 9, No.1, 23.

ASSOCIATION. Institut khimii KhGU Khar'kovskiy gosuniversitet
(Institute of Chemistry, KGU Khar'kov State University)

SUBMITTED: October 3, 1960

Card 4/4

GEGUZIN, Ya.Ye. (Khar'kov); OVCHARENKO, N.N. (Khar'kov)

"Inherent roughness" in polycrystals. Izv.AN SSSR.Otd.tekh.nauk.
Met.i topl. no.3:48-52 My-Je '60. (MIRA 13:6)

1. Khar'kovskiy gosudarstvennyy universitet i Nauchno-issledovatel'-
skiy institut khimii pri Khar'kovskom gosudarstvennom universitete.
(Metal crystals) (Metallography)

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S/180/60/000/03/008/030

E193/E383 (Khar'kov)

AUTHORS:

Geguzin, Ya.Ye. and Ovcharenko, N.N.

TITLE:

On the "Intrinsic Roughness" of a Polycrystal

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo. 1960, Nr 3, pp 48 - 52 (USSR)

ABSTRACT:

It is a generally known fact that a polished surface of a polycrystal specimen, annealed at elevated temperatures, ceases to be flat owing to the appearance of a network of grooves and/or steps, standing out in relief. This phenomenon has been studied previously by the present authors (Refs 2-6), who have arrived at the conclusion that this effect is associated with the anisotropy of the coefficient of surface tension and who, consequently, have coined a term "intrinsic roughness" to describe roughness due to high-temperature annealing. L.B. Erlikh, who had also studied this effect, has recently published a paper (Ref 17) in which he postulates that roughening of a polished surface of a polycrystal during high-temperature annealing is a result of the deformation of a thin surface layer, which is caused by compressive stresses, set up in the surface layer owing to its temperature being higher

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E123/E383

On the "Intrinsic Roughness" of a Polycrystal

specimens of polycrystalline copper were heated at a constant rate of heating to various temperatures; the polished surface became rough at temperatures higher than 800 °C, whereas at lower temperatures, slight roughening of the surface occurred only after prolonged treatment. These observations disprove Erlikh's hypothesis on the part played by the temperature gradient in the phenomenon under consideration, since under the conditions of heating by radiation, the temperature gradient decreases with rising temperature of the specimen, reaching zero when the specimen reaches the furnace temperature. The experimental results described above, combined with theoretical considerations leave, in the opinion of the present authors, no doubt that anisotropy of the surface tension coefficients plays a predominant part in the onset of "intrinsic roughness". There are 3 figures and 19 references, 15 of which are Soviet and 4 English.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet Nauchno-issledovatel'skiy institut khimi pri KhGU (Khar'kov State University - Chemical Research Institut)

SUBMITTED: December 3, 1959
Card 3/3

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.

Properties and stability of distortions in the crystal
lattices of an electrolytically prepared metal. Izv.vys.ucheb.
sav.; chern.met. no.3:165-168 '60. (MIRA 13:4)

1. Khar'kovskiy gosudarstvennyy universitet.
(Crystal lattices) (Metallography)

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SOV/126-8-5-12/29

AUTHORS: Geguzin, Ya.Ye., and Ovcharenko, N.N.

TITLE: Investigation of the Reasons for the Diffusion "Activity" of Crystalline Solids Containing Distortions. II - On Sintering of Metals of Galvanic Origin According to Experimental Results with Models

PERIODICAL: Fizika metallov i metallovedeniye, Vol 8, 1959, Nr 5, pp 714-720 (USSR)

ABSTRACT: In this article results of experiments are given in which a porous solid was modelled by a set of short wires of galvanic origin, i.e. wires made by the same process by which "active" powders are made. Experiments with such models represent the next step on the way from the study of wire models with an undistorted lattice to the study of the actual powder objects. It can be assumed that experiments with such models may produce additional information on the reasons for the increased speed and special kinetics of volume contraction of powder pressings. Copper wires of galvanic origin were obtained in a continuous plating bath, the layout of which is shown in Fig 1. An annealed wire of 50-70 μ diameter was placed coaxially with a cylindrical copper

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Investigation of the Reasons for the Diffusion "Activity" of Crystalline Solids containing Distortions. II - On Sintering of Metals of Galvanic Origin According to Experimental Results with Models

electrode, and the wire could be moved at a given rate along the electrode axis. A layer of galvanic copper was deposited on the wire, and the thickness of the deposit was controlled by varying the current density or the speed at which the wire was moved. A U-tube, filled with water, was attached to the end of the bath for washing the filament. A wire of uniform thickness could be obtained only when the copper was deposited on a moving wire. Experiments with deposition on a stationary wire have shown that the latter, due to a fall in potential along its length, becomes conical. The authors used an acid solution under the following conditions: $I = 5A/dm^2$, rate of motion $v = 3 \times 10^{-2}$ cm/sec. The wire thus obtained was sized by drawing through a diamond die, the diameter of which was approximately 5μ less than that of the wire. As the result, small irregularities on the wire surface were ironed out. The specimens were prepared by a method used before by Geach et al and ✓

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Investigation of the Reasons for the Diffusion "Activity" of Crystalline Solids containing Distortions. II - On Sintering of Metals of Galvanic Origin According to Experimental Results with Models

Alexander et al (Refs 7 and 8). The wire was wound in several layers on a copper reel of 8 mm diameter. Winding was carried out on a special device in which contact between the coils could be controlled by means of a microscope (a lead of approximately 100 g suspended from the wire during coiling ensured regular close contact between the coils). This method was used for the preparation of specimens of "galvanic" and ordinary wires. The main experiments were carried out on wires of 120 μ diameter. Diffusion annealing was carried out in vacuum at 750, 870 and 1020 $^{\circ}$ C. The annealed reels were pressed into AT-1 plastic material, which polymerizes at 30 $^{\circ}$ C. Metallographic sections were prepared from diameter sections of the reel. The structure was inspected after repeated polishing and etching with a solution of ammonium persulphate in ammonia. Results obtained in three series of isothermal annealing are shown in Figs 2a-B and 3a-z. Fig 4 shows the cross-

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XV/126-8-5-12/29

Investigation of the Reasons for the Diffusion "Activity" of Crystalline Solids containing Distortions. II - On Sintering of Metals of Galvanic Origin According to Experimental Results with Models

section of the wire after annealing at 750 °C for 20 hours ($\lambda = 500$). Figs 5, 6 and 7 show the cross-sections of wire coils after annealing at 1020 °C for various lengths of time (Fig 5 - ordinary wires, Figs 6 and 7 - wires of "combined" specimens). The authors have gained information about the temperature dependence of the effective self-diffusion coefficient relationship between ordinary copper D_0 and galvanic copper D_1 ($\lambda = D_1/D_0$). By using the experimental value of λ , at three different temperatures, and knowing the activation energy of the process of self-diffusion of copper in an equilibrium lattice (Q_0) (Ref 8), the value of $\lambda = Q_0/Q_1$ can be estimated, where Q_1 is the activation energy of the sintering process of galvanic wires. A table on page 718 shows values of λ and λ for different temperatures. The relationship between chords which form at the boundary between two wires of galvanic origin Y_{11} , one wire of galvanic and one of ordinary origin Y_{10}

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Investigation of the Reasons for the Diffusion "Activity" of Crystalline Solids containing Distortions. II - On Sintering of Metals of Galvanic Origin According to Experimental Results with Models

and two ordinary wires Y_{00} has been worked out mathematically. The authors conclude that wires of galvanic origin become fused to each other considerably faster than ordinary wires. The approach of galvanic wires to equilibrium is accompanied by a coarsening of the diffusion pores which are situated mainly along the grain boundaries. Fusion of wires of the same metals to each other possessing 'different' diffusion activities is considered. Experiments on combined specimens consisting of galvanic and ordinary wires showed that the experimentally observed chords agree in magnitude with those predicted on the basis of the diffusion mechanism of high-temperature sintering.

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There are 7 figures, 1 table and 10 references, of which 6 are Soviet, 3 English and 1 International.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo; Nauchno-issledovatel'skiy institut khimii KhGU ✓

67911

24740

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S/020/60/130/03/015/065
B014/B014

AUTHORS: Geguzin, Ya. Ye.,
Ovcharenko, N. N.

TITLE: Self-healing of Defects on the Surface of Crystalline
Bodies at High Temperatures

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 3,
pp 537 - 540 (USSR)

ABSTRACT: The authors first discuss experiments made by P.I. Lukirskiy (Ref 1) which showed that spontaneous processes occurring on the surface of crystalline bodies at high temperatures lead to a decrease in surface energy. The present paper is intended to study the decrease in surface energy in the leveling of a surface with macroscopic defects. The defects are healed by volume diffusion, surface diffusion, or substance transport by the gaseous phase. It is noted that volume diffusion is negligible in this case. According to equation (1), the self-diffusion coefficient of the surface is determined from the leveling rate. The surface tension of the solid phase is calculated from equation (2). The anisotropy of surface tension is not taken into account by the above-mentioned formulas. The

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Self-healing of Defects on the Surface of
Crystalline Bodies at High Temperatures

S/020/60/130/03/015/065
B014/B014

"half-lives of healing" were compared to one another according to (3) in order to determine the relative part played by the two mechanisms in healing. For crystals with high vapor pressure, especially for ion crystals, the substance transport by the gaseous phase is described to be predominant in healing. This was confirmed by experiments on the healing of scratches of rock-salt crystals. Text, the authors describe experiments on high-temperature leveling which were made with copper free of oxygen. Annealing was carried out in a vacuum, protective argon- or hydrogen atmosphere at 600°C, 700°C, 850°C, and 950°C. An interferometer was used for observations. The diffusion coefficients determined from the leveling kinetics are consistent with those mentioned in publications. In view of the fact that a smooth profile of the scratch developed in healing, the authors assumed that the surface was covered with a thin amorphous layer. They arrived at this conclusion because of similar results obtained for glass. This is, however, incorrect at with electron diffraction studies carried out in experiments with metals. In this connection the so-called Bayley layer is mentioned. It is assumed that this behavior results from a thin,

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66890

SOV/126-8-1-7/25

18.6100

AUTHORS: Geguzin, Ya. Ye. and Qvcharenko, N.N.

TITLE: Relief of Metallic Powders, 9

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1, pp 38-44 (USSR)

ABSTRACT: The experiments described were undertaken to study the surface condition of sintered metal powder objects, especially the details of pore form to supplement Geguzin's earlier work (Ref 6) on spheroidization. Conditions in the bulk of a copper-powder object during sintering were simulated by polishing one surface and wrapping in copper foil (to expose it to a copper vapour at the constant experimental temperature). Annealing was carried out at 10^{-3} mm Hg, mean particle size (of electrolytic copper) was about 50μ and initial porosity was 35-40%. After the annealing the polished surface was studied under type MIM-6 and MIM-3 microscopes. It was found that the polished surface becomes covered with "macroscopic" irregularities about 100μ apart (Figs 1 and 2). Each of these irregularities contains the step-like "natural" roughness (step size about 0.5μ)

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phenomena in

66850

Relief of Metallic Powders

SOV/126-8-1-7/25

"natural roughness" formation

There are 8 figures and 10 references, 6 of which are Soviet, 3 German and 1 English.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet imeni
A. M. Gor'kogo (Khar'kov State University imeni A.M.Gor'kiy)

SUBMITTED: April 5, 1958

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Card 3/3

GEGUZIN, Ya.Ye.; OVCHARENKO, N.N.

Using adsorption pumps in high-temperature metallographic investigations. Prib. i tekhn. eksp. no.6:117-118 N-D '58.
(MIRA 12:1)

1. Nauchno-issledovatel'skiy institut khimii Khar'kovskogo gosudarstvennogo universiteta.
(Metals at high temperatures--Metallography)
(Pumping machinery)

SOV/137-57-11 21179

Translation from Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 77 (USSR)

AUTHORS: Mitsan, D.N., Bulgakova, A.M., Ovcharenko, N.N.

TITLE: The Oxidizability of Powder Cadmium Produced Electrolytically (Okislyayemost' poroshkoobraznogo kadmiva pri vego polucheni elektroliticheskim putem)

PERIODICAL: Uch. zap. Khar'kovsk. un-t, 1956, Vol 15, pp 53-58

ABSTRACT: An investigation is made of the degree of oxidation of electrolytic powder Cd in accordance with the conditions of production (current density and bath composition) and of the possibility of reducing the reactivity of the powder by making use of the phenomena of passivation and protection from oxidation with the aid of organic additives at the moment the metal is deposited on the cathode, with simultaneous stabilization of its high degree of dispersion. The investigations are conducted with aqueous solutions of Cd sulfate and nitrate. It is established that the electrolytic Cd powders obtained from these solutions are highly disperse and highly oxidized, particularly if a nitrate bath is used, this being explained by the influence of the NO_3 ion. It is shown that the increase in the degree of

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SOV/137-57-11-21174

The Oxidizability of Powder Cadmium Produced Electrolytically

oxidation of Cd powders with rise in current density is fundamentally conditioned by increase in local temperature at the interface between the cathode and the solution. X-rays are used to show that electrical deposition of Cd in the presence of gelatin will yield unoxidized Cd powders.

N. P.

Card 2/2

OVCHARENKO, N.N., GEGUZIN, Ya.Ye.

"The Structure of the Surface of Metal Under High Temperatures," DAN
USSR, V. 9, No 3, AN (Academy of Sciences) USSR, publication, M. - L.
p. 389.

OVCHARENKO, Nikita Leont'yevna; GORA, A.P., red.; KIN'TORSKAYA,
Ye.S., red.izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Preventing explosions in blast-furnace and steel-melting
shops] Preduprezhdenie vzryvov v domennykh i staleplavil'-
nykh tsekhakh. Moskva, Metallurgizdat, 1963. 67 p.
(MIRA 17:3)

L 57592-85 EWP(a)/EWT(m)/EWP(i)/EWP(b) Pg-4 WH
ACCESSION NR: AP5017830 UR/0286/65/000/011/0064/0064
666:221.6

19
B

AUTHOR: Yakhkind, A. K.; Ovcharenko, N. V.

TITLE: Optical glass. (Class 32, No. 171521)

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 64

TOPIC TAGS: optical glass

ABSTRACT: The index of refraction of a new optical glass was raised from 2.20 to 2.35 by using the following formulation: TeO₂, 20-60%; WO₃, 30-45%; Bi₂O₃, 25-35%, PbO, up to 20%; TiO₂, up to 10%; Nb₂O₅, up to 16%, by weight. [vs]

ASSOCIATION: none

SUBMITTED: 04May64

ENCL: 00

SUB CODE: OP, MT

NO REF SOV: 000

OTHER: 000

ATD PRESS: . 4041

Card 1/1

LONGHART, V., ...
BRANDEN ...
... HERMAN ...

Received ...

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...
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...

YELIN, V.L. [IElin, V.L.]; OVCHARENKO, O.I.; RUMYANTSEVA, I.V.

Can Nitrosomonas assimilate organic matter from the air?
Mikrobiol. zhur. 22 no. 5:1-5 '60. (MIRA 13:10)

1. Khar'kovskiy institut vaktsin i syvorotok.
(NITROSOMONAS)

KHAZAN, G. L., kand. med. nauk; GONCHAROVA, N. N., kand. med. nauk;
KARAMYSHEV, V. B., mladshiy nauchnyy sotrudnik; VYCHEGZHANIN,
A. G., mladshiy nauchnyy sotrudnik; OVCHARENKO, O. I., kand. med.
nauk; ZHUK. G. S., kand. med. nauk (Khar'kov)

Bacterial diffusion in the atmosphere of machine shops and ways
of decreasing it by the ultraviolet irradiation of the recircu-
lated air. Vrach. delo no.6:121-124 Je '62.

(MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut gigiyeny truda
i professional'nykh zabolevaniy.

(ULTRAVIOLET RAYS)

(METALLURGICAL PLANTS--HEATING AND VENTILATION)

(AIR--BACTERIOLOGY)

OVCHARENKO, O. I. Doc Cand Med Sci -- (diss) " Combined activity
of ^{enter}some antibiotics on typhoid bacteria in experimental cases."
Khar'kov, 1957. 117 pp 22 cm. (Min of Health Uk SSR. Khar'kov
State Medical Inst), 200 copies
(KL, 21-57, 106)

-112-

OVCHARENKO, O.I.; CHERKAS, G.P. [Cherkas, H.P.]; ZHUK, G.S. [Zhuk, H.S.]

Effect of bacterial toxins on the tissue culture. Mikrobiol. zhur.
26 no.5:44-49 '64. (MIRA 12:7)

1. Khar'kovskiy institut vaktsin i syvorotok im. Mechnikova.

WASD L 02107-01 ENR(1) JK

001-50

ACC NR: AP6031136 SOURCE CODE: UR/0438/66/028/004/0077/0079

21/B

AUTHOR: Ovcharenko, O. I. ; Teslikova, N. S. ; Artemenko, O. I. --Artemenko, A. I.

ORG: Khar'kov Scientific Research Institute of Vaccines and Sera im Mechnikov (Kharkivs'kyy n-d instytut naktsyn ta syrovatok); Khar'kov Medical Institute (Kharkivs'kyy Medychnyy instytut)

TITLE: Antibacterial activity of alpha, and beta unsaturated ketones of the furanic series

SOURCE: Mikrobiologichnyy zhurnal, v. 28, no. 4, 1966, 77-79

TOPIC TAGS: ketone, chemical compound, microorganism, staphylococcus, tuberculosis, typhoid, microbe

ABSTRACT: The author studied the antibacterial effect of 47 chemical compounds belonging to alpha, and beta unsaturated ketones of the furanic series. Their activity varied with respect to the microorganisms investigated. The organisms most sensitive to these substances were Staphylococci, Listeria and tubercle bacilli. Typhoid microbes were less sensitive. [Based on authors' abstract] [GC]

SUB CODE: 06, 07/ SUBM DATE: 29Mar55/ ORIG REF: 003/ OTH REF: 005

Card 1/1

[W.A. 50]

Ovcharenko, O. N.

USSR/ Molecular theory

Card 1/1 Pub. 22 - 9/46

Authors : Lazarev, V. G. Act. Mem. Acad. Scs., and Ovcharenko, O. N.

Title : About the effect of crystalline lattice holes on the electric resistance of a metal

Periodical : Dok. AN SSSR 100/5. 875-878, Feb 11, 1955

Abstract : The results of experiments with the electric conductivity are described and analyzed. The experiments were conducted for the purpose of establishing the correctness of the theory dealing with the effect of the so-called crystal lattice holes on the electric conductivity of metals. *) Eleven references: 2 French, 6 USA, 2 USSR and 1 German (1931-1953). Graphs.

Institution : Academy of Sciences of the USSR, Physico-Technical Institute

Submitted :

*) In the abstracted article, the R is used as the universal constant and as a metal resistance.

AUTHORS: Lazarev, B.G., Ovcharenko, O.N. and SOV/126-7-1-25/28
shvedcnuk, I.K.

TITLE: On the Problem of Determining the Activation Energy of
Vacancy-Formation Using Dilatometric Measurements
(K voprosu ob opredelenii energii aktivatsii obrazovaniya
vakansiy iz dilatometricheskikh izmereniy)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol.7. Nr.1.
pp 154-155 (USSR)

ABSTRACT: Gertsriken (Ref.1) pointed out that expansion of a metal
on heating is due to an increase in the amplitude of thermal
fluctuations as well as to loosening of the lattice by
vacancy-formation. The volume change due to vacancy-formation
is given by

$$\frac{\Delta V}{V} = C e^{-E_D/RT},$$

where C is the vacancy density and E_D the energy of
formation. The energy E_D found from dilatometric measure-
Card 1/3 ments for gold was found to agree well with the value obtained

SOV/126-7-1-25/28

On the Problem of Determining the Activation Energy of Vacancy-
Formation Using Dilatometric Measurements

from experiments on quenching of vacancies ($E_D = 18.2 \text{ kcal} = \pm 0.79 \text{ eV}$, Ref.4). This value of E_D indicates a vacancy density of 1.08×10^{-3} near the melting point. It is known that a vacancy density of $(1 - 5) \times 10^{-4}$ can be easily quenched-in in gold. A sample with this quenched-in vacancy density should decrease in volume on cooling. Dilatometric experiments carried out by the authors showed that no such contraction occurred in gold. This negative result is due to the technique employed: the volume contraction was deduced from the change in length of a sample in the form of a plane parallel plate 0.1 mm thick (the other dimensions were 8 and 100 mm). It can easily be shown that contraction of such a sample will occur primarily in the form of a change in the sample thickness rather than its length. There are 4 references, of which 2 are Soviet, 1 German and 1 English.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
Card 2/3 (Physico-Technical Institute, Ac. Sc. USSR)

24(2)

AUTHORS:

Lazarev, B. G., Svcharenko, G. N.

SOV 56-76-1-117-81

TITLE:

The Energy of Formation and Displacement of Vacancies in Gold and Platinum (Energija obrazovaniya i peremeshcheniya vakantsiy v zolote i platine)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, No 1, pp 60-69 USSR.

ABSTRACT:

In continuation of an earlier paper [Ref. 1] in which the authors had investigated the self-diffusion of gold and platinum, the present paper gives a report on the experimental investigation of the formation and displacement energy of vacancies in thin gold and platinum wires (with diameters of 0.05 and 0.1 mm). Very pure (99.99 %) tempered metals with a relative electric residual resistance of $3.5 \cdot 10^{-3}$ (Au), and $2 \cdot 10^{-3}$ (Pt) were used (α = resistance at 4.5° K/resistance at room temperature). The wires had a length of 50 - 70 mm. Measurements were carried out in temperature intervals of 600 - 1000° C (Au) and 300 - 1500° C (Pt). Resistance measurements at low temperatures were carried out in liquid helium, hydrogen, and nitrogen. Figure 1 shows the dependence of the growth of the relative resistance $\Delta R/R_0$ on temperature.

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The Energy of Formation and Displacement of Vacancies in Gold and Platinum

during quenching of the vacancies (gold) in water and air respectively. The first curve shows an exponential increase of $\Delta R/R_0$ with temperature. In a corresponding manner the dependence $\ln(\Delta R/R_0)$ on $1/T$ (T in $^\circ K$) develops as a straight line (Fig 2). For the connection between $\Delta R/R_0$ and the vacancy concentration it holds that $\Delta \rho = (\Delta R/R_0) \rho = 7.7 \cdot 10^{-5} \exp(-Q_1/RT) \Omega \text{ cm}$, where Q_1 denotes the formation energy of the vacancies. The following was obtained: a) for platinum: $Q_1 = (27.0 \pm 0.5) \cdot 10^3 \text{ cal/mole}$, b) for gold: $Q_1 = (19.0 \pm 0.5) \cdot 10^3 \text{ cal/mole}$.

The second paragraph of the paper deals with the determination of the displacement energy Q_2 of the vacancies, which had already been determined (Ref 1) from the growth of electric resistance in isothermal tempering as amounting to $12 \cdot 10^3$ (Au) and $25 \cdot 10^3$ (Pt). The dependence $\Delta R/\Delta R_0$ on time (0-30 min) for gold (0.1 mm) at $100^\circ C$ is shown by figure 3 (straight). Figure 4 shows the same dependence for wires of various thicknesses and various vacancy concentrations for tempering at 120° .

Card 2/3

The Energy of Formation and Displacement of Vacancies in Gold and Platinum

The following was obtained:
For Q_2 in platinum: $Q_2 = (25 \pm 1) \cdot 10^3$ cal/mole and for gold:
 $Q_2 = (20 \pm 1) \cdot 10^3$ cal/mole. The sum $Q_1 + Q_2 = Q$ furnishes the
activation energy of self-diffusion. For gold one obtains
 $Q = (0.39 \pm 1.5) \cdot 10^3$ cal/mole and for platinum $Q =$
 $= (52 \pm 1) \cdot 10^3$ cal/mole.
The results are compared with those obtained by other authors.
There are 6 figures, 1 table, and 14 references, 3 of which
are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk USSR (Physico-
Technical Institute of the Academy of Sciences, UkrSSR)

SUBMITTED: August 8, 1958

Card 3/3

OVCHARENKO, O. N.

Cand Phys-Math Sci - (diss) "Study of the behavior of vacancies in crystal lattice of metals in connection with diffusion mobility." Kiev, 1961. 10 pp; (Joint Academic Council of Institutes of Mathematics, Metallophysics, and Physics Academy of Sciences Ukrainian SSR); 225 copies; free; (KL, 7-61 sup, 219)

OVCHARENKO, O.M.

Determining the energy of vacancy formation in silver.
Ukr. fiz. zhur. 6 no.1:139-140 Ja⁸ '61. (MIRA 14:6) -

1. Fiziko-tekhnicheskij institut AN USSR, g. Khar'kov.
(Dislocations in crystals)
(Diffusion)
(Silver)

5/126/61/011/003/008/017
E021/E435

AUTHOR: Ovcharenko, O.N.

TITLE: Quenching Experiments With Pure Silver

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.3,
pp.404-408

TEXT: An attempt was made to obtain information on the values of the energy of formation and the energy of activation of movement of vacancies, characterizing the elementary act of self diffusion in silver. The method was used to estimate the solubility of oxygen in silver. 99.99% Silver wire, 0.05 mm in diameter, was used in the investigation. It was electrically heated in air or helium with varying oxygen contents and quenched in a Dewar flask with liquid helium. The relative residual resistance $R_{4.2^{\circ}\text{K}}/R_{20^{\circ}\text{C}}$ was measured. Fig.1 shows the relation between the increase in the relative resistance and the quenching temperature, $^{\circ}\text{K}$, for samples quenched from air. The ordinate is the difference in relative resistance of quenched and annealed samples $\Delta R/R_{20^{\circ}\text{C}} \cdot 10^3$. Fig.2 shows the increase in the relative resistance with temperature for silver quenched from helium with different oxygen contents. Notation is the same as for Fig.1. ✓

Card 1/4

44245

S/056/62/043/006/059/067
B141/B102

AUTHORS: Lazarev, B. G., Lazareva, L. S., Ovcharenko, O. N.,
Matsakova, A. A.

TITLE: Effect of universal compression on the temperature of the
superconducting transition of Nb_3Sn

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 6(12), 1962, 2309-2310

TEXT: Nb_3Sn shows a very small isotopic effect, in which the critical
temperature T_{cr} is not proportional to $M^{-1/2}$ but to $M^{-1/12}$. The pressure
applied was 1730 kg/cm^2 , which resulted in a decrease of T_{cr} by
 $(4.5 \pm 0.5) \cdot 10^{-2} \text{ deg}$; i.e. $\partial T_{cr} / \partial p = -(2.5 \pm 0.3) \cdot 10^{-5} \text{ deg/atm}$. The
pressure effect is of the same sign as in the majority of superconductors
and of the same amount as in good superconductors, wherein T_{cr} is almost
proportional to $M^{-1/2}$. $(\partial H_{cr} / \partial T)_{T_{cr}} = -15.5 \cdot 10^3 \text{ gauss/deg}$. Thus Nb_3Sn

Card 1/2

KOGAN, V.S.; KRIVKO, A.I.; LAZAREV, B.G.; LAZAREVA, L.S.; MATSAKOVA, A.A.;
OVCHARENKO, O.N.

Constitutional diagram of the system Nb - Sn. Fiz.met.i metalloved.
15 no.1:143-145 Ja '63. (MIRA 16:2)

1. Khar'kovskiy fiziko-tekhnicheskiy institut AN UkrSSR.
(Diffusion coatings) (Niobium-tin alloys)
(Phase rule and equilibrium)

ACCESSION NR: AP4009135

S/0056/63/045/006/2068/2069

AUTHOR: Lazarev, B. G.; Khorenko, V. K.; Korniyenko, L. A.; Krivko, A. I.; Matsakova, A. A.; Ovcharenko, O. N.

TITLE: On the layered and filamentlike structure of the superconducting alloys Nb-Zr and Nb-Ti

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 2068-2069

TOPIC TAGS: superconducting alloy, niobium zirconium alloy, niobium titanium alloy, layered structure, filament structure, electron microscopic investigation, plastic deformation, critical magnetic field, solid solution, saturated solid solution, critical current density

ABSTRACT: Data are presented on electron-microscopic observations of thin films and filamentary systems of tracks in alloys of Nb with 25 at. % Zr and of Nb with 66 at. % Ti. Samples of the original alloy were compared with samples reduced in thickness by rolling from 2-5 mm to 0.05-0.5 mm at room temperature. When observed by

Card 1/2

ACCESSION NR: AP4025914

S/0056/64/046/003/0831/0832

AUTHORS: D'yakov, I. G.; Lazarev, B. G.; Matsakova, A. A.; Ovcharenko, O. N.

TITLE: Critical magnetic fields of superconducting niobium films

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 46, no. 3, 1964, 831-832

TOPIC TAGS: niobium, superconducting niobium, superconductivity, critical magnetic field, field depth of penetration, niobium film, superconducting niobium film, superconducting bulk niobium, critical superconducting temperature

ABSTRACT: Thin (20 and 50 micron) superconducting niobium films were produced by condensation on pyrex glass or on mica with silver contacts prepared beforehand. The results are of interest since they permit an estimate of the depth of penetration of the field in

Card 1/2

ACCESSION NR: AP4025914

niobium ($\sim 10^{-4}$ cm, about one order of magnitude higher than in "soft" superconductors) and show that the high critical fields in niobium alloys are due to thin superconducting paths in the alloys. The precautions taken to reduce the effect of gas impurities are briefly described. The critical field for the 50 micron film was about 25,000 Oe, about 10 times that for bulk niobium. The field for the 20 micron film is much higher but could not be measured with the available external magnetic field (22,000 Oe). The transition temperatures for the 20 and 50 micron films were 6.5 and 7.5K respectively as against 9.1K for bulk niobium, indicating that the films were still not sufficiently pure. Orig. art. has: 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physico-technical Institute, AN UkrSSR)

SUBMITTED: 27Aug63

DATE ACQ: 16Apr64

ENCL: 01

SUB CODE: PH

NO REF SOV: 004

OTHER: 004

Card 2/32

L 32037-66 EWT(m)/T/EWP(t)/STI IJF(c) JD/JG

ACC NR: AP6018939

SOURCE CODE: UR/0126/66/021/006/0828/0832

AUTHOR: Kogan, V. S.; Lazarev, B. G.; Matsakova, A. A.; Ovcharenko, O. N.;
Yakimenko, L. F.

45
B

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tehnicheskiy institut AN UkrSSR)

21 21

TITLE: The width of the homogeneity region of intermetallic phases in the Nb-Sn and V-Ga systems

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 6, 1966, 828-832

TOPIC TAGS: superconducting compound, niobium alloy, binary alloy, tin containing alloy, vanadium alloy, gallium containing alloy, intermetallic compound, compound homogeneity region

ABSTRACT: Experiments have been made to determine the width of the homogeneity region of intermetallic phases formed in the Nb-Sn and V-Ga systems, i.e., systems whose components have widely different melting temperatures. Nb₃Sn and V₃Ga intermetallic compounds were obtained by diffusion of Nb₃Sn by holding an Nb specimen for several hours in molten tin at 1000C, and V₃Ga by holding a vanadium specimen wetted with gallium in a vacuum at about 1200C. X-ray diffraction patterns of the diffusion layer on vanadium showed that the surface layer contacting gallium and the inner layer adjacent to vanadium had equal lattice parameters, 4.819 ± 0.002 Å. The temperature of transition to the superconductivity state of V₃Ga was found to be

Card 1/2

UDC: 548.53

L 38537-66 EWI(m)/T/EMP(w)/EMP(t)/ETI IJP(c) JG/JD/GD

ACC NR: AT6014756

SOURCE CODE: UR/C000/65/000/000/0089/0090

AUTHORS: Lazarev, B. G.; Lazareva, L. S.; Matsakova, A. A.; Ovcharenko, C. N.

ORG: none

TITLE: The superconductivity of V_3Ga

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. Ist, 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 89-90

TOPIC TAGS: superconductivity, critical magnetic field, hydrostatic pressure, gallium compound, vanadium compound, intermetallic compound

ABSTRACT: The superconducting properties of the intermetallic compound V_3Ga are studied. The compound was prepared by arc smelting in an argon atmosphere. The specimens were in the form of wafers with a thickness of ~ 5 mm. The effect of hydrostatic pressure on the transition temperature was determined. The critical magnetic field as a function of temperature was also studied (see Fig. 1). The specific-heat discontinuity and the discontinuity of the thermal expansion coefficient could not be determined from the data of the work.

Card 1/2

L 58546-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/JA/OD

ACC NR: AT6014753

SOURCE CODE: UR/0000/65/000/000/0076/0082

AUTHORS: Kogan, V. S.; Krivko, A. I.; Lazarev, B. G.; Lazareva, L. S.; Matsakova, A. A.; Ovcharenko, O. N.

ORG: none

TITLE: The phase diagram of the niobium-tin system

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov, 1st, 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 76-82

TOPIC TAGS: superconductivity, superconducting alloy, tin base alloy, niobium alloy, x ray analysis, spectrographic analysis, critical magnetic field, intermetallic compound, alloy phase diagram

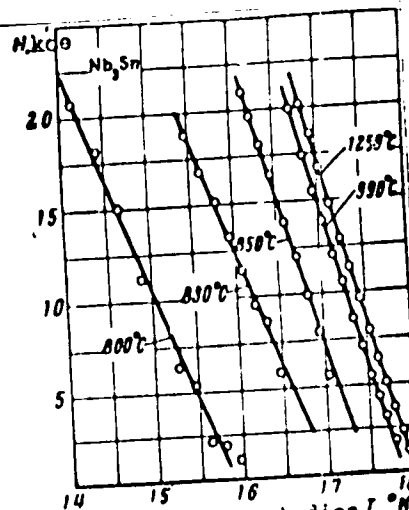
ABSTRACT: This paper is a continuation of an earlier work by V. S. Kogan, A. I. Krivko, B. G. Lazarev, L. S. Lazareva, A. A. Matsakova, and O. N. Ovcharenko (FM34, 1963, 15, 143) in which it was found that specimens produced by holding niobium in molten tin at temperatures above and below 850C differed in their superconducting properties. The superconductivity transition temperature for specimens produced at 990C and 1250C is 18.0K and 18.1K, respectively (see Fig. 1). For diffusion layers formed at below 850C, the superconductivity transition temperature is reduced; the lower T_k , the lower the temperature of formation of the layer. For specimens

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L 38546-66

ACC NR: AT6014753

Fig. 1. Critical magnetic field H_k as a function of temperature for diffusion layers of Nb_3Sn obtained at temperatures of 800--1250C.



obtained at above 850C, T_k agrees with the known value for Nb_3Sn . X-ray studies confirmed that only the compound Nb_3Sn is formed when specimens are prepared at over 850C. For temperatures below 850C, the diffraction pattern shows that Nb_2Sn_3 is formed. It was concluded that in specimens prepared at temperatures below 850C there is present a very thin interlayer beneath the new phase. The formula $NbSn$ is ascribed to the new compound. The superconductivity transition temperature of the $NbSn$ was found to be 2.7K. In other papers the new compound has been given the

Card 2/3

L 38546-66

ACC NR: AT6014753

formula $NbSn_2$ or Nb_2Sn_3 . The authors thank L. N. Mosova for conducting the qualitative spectral analysis. Orig. art. has: 5 graphs, 1 table, and 1 photograph.

SUB CODE: 11, 20/ SUBM DATE: 23Dec65/ ORIG REF: 002/ OTH REF: 018

Card 3/3/116

RODIONOVA, A.Ye.; KOBILEV, A.G.; OVCHARENKO, P.P.

Chemical methods for determining the free silicon dioxide content
of rocks. Izv. vys. ucheb. zav.; khim. i khim. tekhn. 6 no.3:
518-521 '63. (MIRA 16:8)

1. Novocherkasskiy politekhnicheskiy institut, kafedra
kristallografii, mineralogii i petrografii.
(Silica) (Rocks--Analysis)

OVCHARENKO, Sergey Grigor'yevich, slesar'-instrumental'shchik;
~~SKORUBSKAYA, I.N., red.;~~ GOLICHENKOVA, A.A., tekhn.red.

[Not a single minute lost] Ni minuty poter'. Moskva,
Izd-vo VTsSPS Profizdat, 1958. 68 p. (MIRA 12:8)

1. Odesskiy zavod stroitel'no-otdelochnykh mashin (for Ovcha-
renko).

(Dies (Metalworking))

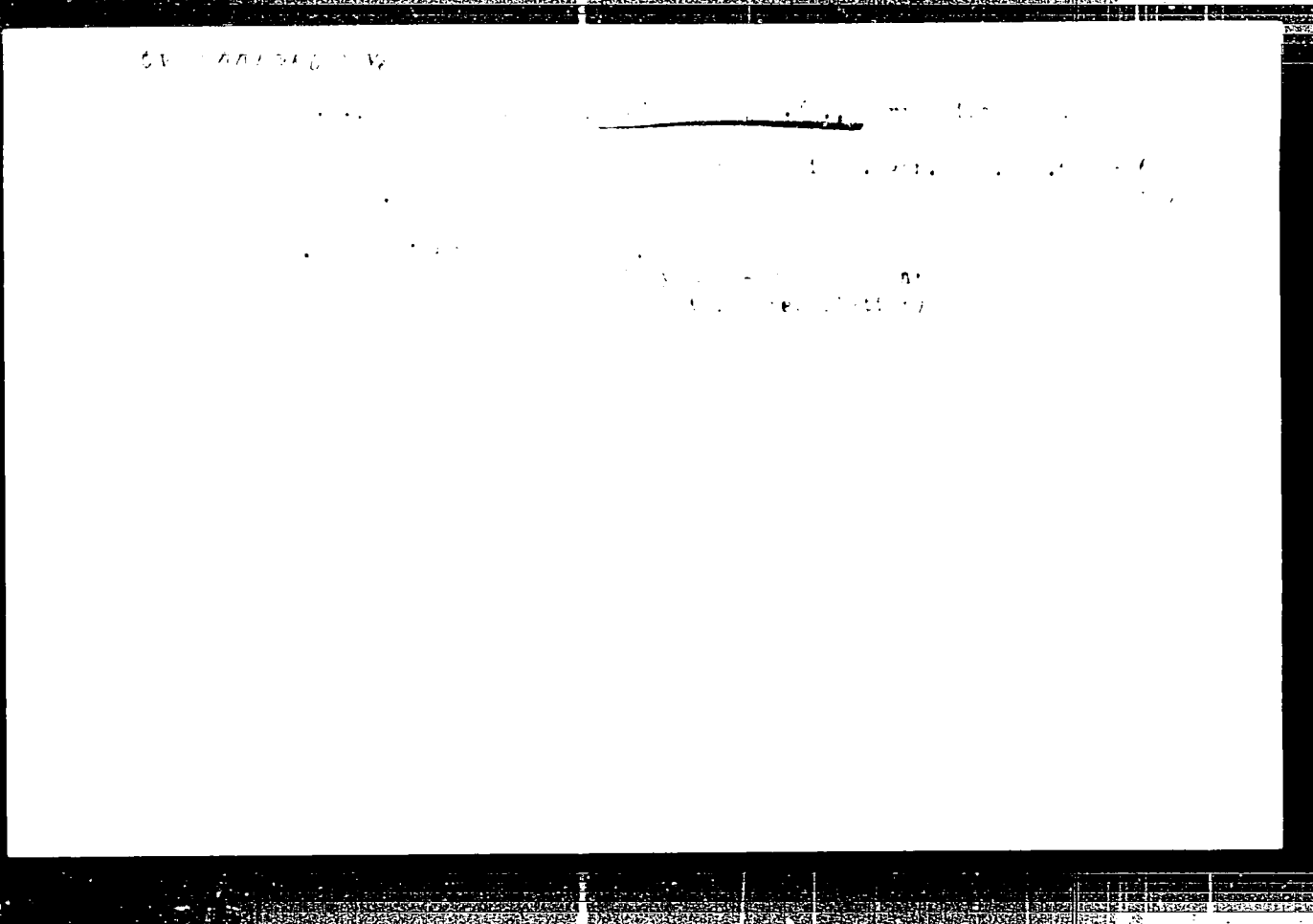
ZHILKINA, Lyudmila Vasil'yevna [Zhylkina, L.V.]; OVCHARENKO, S.K.,
red.; NEMCHENKO, I.Yu., tekhn. red.

[Analysis of the utilization of working capital on col-
lective farms] Analiz vykorystannia oborotnykh koshtiv v
kolhospakh. Kyiv, Derzhsil'hospvydav URSR, 1963. 64 p.
(MIRA 17:3)

TUR, Vladimir Zakharovich; OVCHARENKO, S.K., red.; NEMCHENKO,
I.Yu., tekhn. red.

[Path to collective farm abundance] Shliakh do kolhospnoho
dostatku. Kyiv, Derzhsil'hospvydav URSR, 1963. 112 p.
(MIRA 17:3)

1. Predsedatel' kolkhoza imeni Tatarbunarskogo vosstaniya
Odeskoy oblasti (for Tur).



OVCHARENKO, T.

Example of early preparation of storages for grain deliveries.
Muk.-elev.prom.21 no.6:28 Je '55. (MIRA 8:10)

1. Bayram-Aliyskaya realizatsionnaya baza Zagotserno
(Granaries)

BIRYUKOVA, L.V.; OVCHARENKO, V.G.; MIRONOV, A.M.; KARABAYEV, A.A.

Testing atomizers and sprinklers used for spraying in absorbers.
Khim. prom. no.6:464-468 Je '63. (MIRA 16:8)

1. Vsesoyuznyy alyuminiyevo-magniyevyy institut i Solikamskiy
magniyevyy zavod.

(Absorption)
(Spraying and dusting equipment—Testing)

P559

S/048/60/024/007,030/032/XX
B019/B056

84.45.

AUTHORS: Konstantinov, B. D. and Ovcharenko, V. I.

TITLE: β -Transitions in Weakly Deformed Nuclei

PERIODICAL: ¹⁹ Izvestiya Akademii nauk SSSR. Seriya fizicheskaya. 1960
Vol. 24. No. 7, pp. 912-919

TEXT: This paper was read at the 10th All-Union Conference on Nuclear Spectroscopy, which took place from January 19 to January 27, 1960 at Moscow. Using results obtained by A. M. Korolev (Ref. 5), the authors calculated the nuclear matrix elements. Korolev had derived wave functions and energy levels of odd nuclei, and calculated non-adiabatic terms and double-phonon states. The authors confine themselves to investigating the matrix elements of allowed and first forbidden β -transitions in non-relativistic approximation for a scalar and tensorial interaction of nucleons with an electron-neutrino field. They calculate the matrix elements of allowed and first forbidden β -transitions between nuclei consisting of a core of an even-even spherical nucleus and an external nucleon. The wave function of this system had already been given by

Card 1/3

85596

β -Transitions in Weakly Deformed Nuclei

S/048/60;C24/007/030/032/XX
B019/B056

ASSOCIATION: Institut fiziki Akademii nauk USSR (Institute of Physics
of the Academy of Sciences, UkrSSR)

Card 3/3

Deuteron splitting under ...

S/185/62/007/006/004/014
D407/D301

$\psi_p(p)$, $\psi_d(r)$ and $\psi_p(r)$, describing (respectively) the motion of the deuteron in the initial state, of the system neutron-proton in the final state and the ground state of the deuteron. These functions are used for calculating the matrix elements of the transition of the system neutron-proton from the bound to the free state. Formulas are derived for the differential cross-section of deuteron splitting, and for the angular distribution of protons and neutrons. Further, the total effective cross-section of deuteron splitting is calculated as a function of the energy of the relative motion of the incident deuteron and nucleus. As the obtained expressions for the differential and total cross-sections are rather cumbersome, the case of deuteron energies are considered close to the (d,np)-reaction threshold, $E_d \text{ thr.} = \epsilon \frac{A+2}{A}$. Thereby a formula for the total cross-section is obtained, which is used in the calculation of a numerical example. A figure shows the theoretical curve: total cross-section σ of deuteron splitting on the Ni⁵⁸-nucleus versus energy

Card 2/ 4

Deuteron splitting under ...

S/185/62/007/006/004/014
D407/D301

ASSOCIATION: Instytut fizyki AN UkrRSR, Kyiv (Institute of Physics of the AS UkrRSR, Kiyev) +

SUBMITTED: January 3, 1962

Card 4/4

DAVYDOV, A.S., akademik; OVCHARENKO, V.I.

Electric quadrupole transitions between rotary states with large spins in even nuclei. Dokl. AN SSSR 163 no.2:329-331 J1 '65.
(MIRA 18:7)

1. Institut fiziki AN UkrSSR. 2 AN UkrSSR (for Davydov).

1. SPV, V.P. (C)CHARENKO, V.I. (S) RUDOV, V.M.

2. SPV, V.P. (C)CHARENKO, V.I. (S) RUDOV, V.M.
of a leaf extract, SPV, V.P. (C)CHARENKO, V.I. (S) RUDOV, V.M.
1. SPV, V.P. (C)CHARENKO, V.I. (S) RUDOV, V.M.

OVCHARENKO, V.N.; SHCHELKANOV, V.A.

Improving the system of mining inclined dikes at the Berezovskiy
Mine. Trudy Gor.-geol.inst.UFAN SSSR no.54:103-110 '60.

(MIRA 14:6)

(Mining geology)

(Berezovskiy (Sverdlovsk Province)—Gold mines and mining)

MALIKOV, K.V.; PISHVANOV, V.L.; SUNTSOV, G.N.; STAROVEROV, A.A.;
OVCHARENKO, V.M.; ANDREYEV, V.I.; MAZIN, B.S.; RUN'KOV, V.I.;
SEMAVIN, P.Y.

Using sulfurous mazut in blast furnaces. Stal' 23 no.5:394-397
My '63. (MIRA 16:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy
teplotekhniki i Beletskiy metallurgicheskiy kombinat.
(Blast furnaces--Equipment and supplies)
(Mazut--Analysis)

OVCHARENKO, V.N.; SHEHELKANOV, V.A.

Increasing the efficiency of working inclined dikes in the Berezovskiy Mine. Gor. zhur. no.1:36-39 Ja '62. (MIRA 15:7)

1. Glavnyy inzhener Berezovskogo rudnika (for Ovcharenko).
2. Ural'skiy filial AN SSSR (for Shchelkanov).
(Berezovskiy region (East Kazakhstan Province)--Mining engineering)

OVCHARENKO, V.M.

Beloretsk Metallurgical Combine is 200 years' old. Metallurg
7 no.9:36-38 S '62. (MIRA 19:9)

1. Direktor Beloretskogo metallurgicheskogo kombinata.
(Beloretsk—Iron and steel plants)

ОЦЕНКА КНИЖНОСТИ

SOV/5298

PHASE I BOOK EXPLOITATION

Академия наук СССР. Урал'skiy filial. Gorno-geologicheskii institut.

Podzemnaya razrabotka rudnykh mestorozhdeniy (Underground Exploitation of Ore Deposits) Svetlovsk [1960] 165 p. (Series: Ita; Trudy, vyp. 54) 1,000 copies printed.

Editorial Board: K. V. Kochnev, Professor, Doctor of Technical Sciences; L. K. Zubrilov, Candidate of Technical Sciences; A. A. Il'vitskiy, Candidate of Technical Sciences. Ed. of Publishing House: M. S. Eberget; Tech. Ed. I. N. P. Seredkina.

PURPOSE: This publication is intended for engineering and technical personnel in the mining industry.

COVERAGE: This is a collection of 22 articles by different authors on problems of underground exploitation of large massive ore deposits in the Urals. The articles are based on studies carried out in the Laboratory for the Exploitation of Ore Deposits of the Gorno-geologicheskii institut Ural'skii (Institute of Mining Geology, Ural Branch AS USSR), between 1958-1959. No personalities are mentioned. Most of the articles are accompanied by references.

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KRICHMAR, S.I.; OVCHARUKO, V.N.

Apparatus for the continuous automatic control of hydrogen chloride
in the production of ethylbenzene. Zav.lab 26 no.10:1172-1173 '60.
(MIRA 13:10)

1. Ural'skiy lesotekhnicheskiy institut.
(Butyl alcohol) (Ether)

25(6)

SOV, 1958, 3-41/70

AUTHORS: Krichmar, S. I., Ovcharenko, V. N., Ioffe, A. I.

TITLE: Automatic Gas Analyzer for the Determination of Inert Gases in Ammonia (Avtomaticheskii gazoanalizator dlya opredeleniya inertnykh gazov v ammiake)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 25, Nr 3, pp 213 - 215 (USSR)

ABSTRACT: The apparatus described (Fig) permits a continuous determination of the gases used in the production of weak nitric acid. The rate of displacement of a constant volume of an absorption liquid in a eudiometer by the gases remaining after the absorption of ammonia in the absorption liquid is measured. The apparatus has electrically operated valves of the EM-3 type, an automatically balanced bridge EMP-212, and a synchronous motor SD-60 (for turning the timing relays), as well as an EID potentiometer. The inert-gas content is recorded automatically. A detailed description of the apparatus is contained in the article, and it is mentioned that with the EID potentiometer it is necessary to correct the delay, which is not true in the case of EM-09. The total error is given

Card 1/2

Automatic Gas Analyzer for the Determination of Inert Gases SOV, 71-25-2-41, 78
in Ammonia

as $\pm 1\%$. In experimental operation of the apparatus described the following conditions were obtained: pressure of ammonia at input - 500-700 mm water column, gas consumption according to the manostat - 1.5 l per hour, duration of analysis - 8 minutes, absorption liquid to be replaced once a week - 3 l of 25% H_2SO_4 , measuring range 0.05-1.5%. A calculation formula as well as a comparative table of the analysis results obtained with this apparatus and the results of chemical analyses are given (Table). There are 1 figure and 1 table.

ASSOCIATION: Dneprodzerzhinskiy azotno-tukovyy zavod (Dneprodzerzhinsk Nitrogen-Fertilizer Plant)

Card 2/2

KRICHMAR, S.I.; OVCHARENKO, V.N.

Apparatus for the continuous automatic control of hydrogen chloride
in the production of ethylbenzene. Zav.lab 26 no.10:1174 '60.

(Hydrochloric acid)

(Benzene)

(MIRA 13:10)

(Chemical apparatus)

L 21352-65 EWT(1)/FOC AEDC(a) GR
ACCESSION NR: AP5000861

B/0166/64/000/005/0071/0074

AUTHOR: Ovcharenko, V.P.

TITLE: Concerning baroclinic pressure field forecasting

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 5, 1964, 71-74

TOPIC TAGS: Pressure field, relative vorticity, baroclinic forecast, absolute vorticity, weather forecasting

ABSTRACT: Noting that the time variation of the vorticity, upon which a great many of the existing procedures for forecasting the pressure field are based, is effected by the transformation and redistribution of energy in the atmosphere, the author sets out to derive an expression in which the energy transformations are more fully taken into account. Beginning his derivation from the broadest form of the equation of vorticity for the revolving Earth, the author derives an expression which can be used in baroclinic forecasting. Quasi-static and quasigeostrophic conditions are assumed. The daily variation of temperature is approximated by a harmonic function. Orig. art. has: 9 numbered equations.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Hydrometeorological Scientific Research Institute)

Card 1/8

L 21353-65
ACCESSION NR: AP5000861

SUBMITTED: 24Mar64

ENCL: 00

SUB CODE: ES

NO REF SOV: 003

OTHER: 001

Card 2/2

ВЕРХЕНКОВ, Д.О.; КОПЧЕНКО, Д.С.; ПРОН'КИН, В.Ф.; СИДОРОВСКИЙ, В.А.;
КЕРШАНСКИЙ, И.И.; ОУХАРЕНКО, В.П.

Introducing the electrothermic method of zinc distillation from
silver crust at the Ust'-Kamenogorsk lead smelting plant. TSvet. met.
32 no.1:33-40 Ja '59. (MIRA 12:1)

1. Ust'-Kamenogorskiy svintsove-tsinkovyy kombinat (for Averchenkov,
Kopchenko, Pron'kin, Sidorevskiy) 2. Vsesoyuznyy nauchno-issledovatel'-
skiy institut tsvetnykh metallov (for Kerzhanskiy, Oucharenko).
(Ust'-Kamenogorsk--Lead--Metallurgy)

SOV/136-59-1-9/24

AUTHORS: Averchenko D.O., Kopchenko D.S., Pron'kin V.F.,
Sidorovskiy V.A., Kershanskiy I.I. and Ovcharenko V.P.

TITLE: Introduction of an Electrothermic Method of Distilling
Zinc from Silver Crust at the Ust'-Kamenogorskiy Lead
Works (Vnedreniye elektrotermicheskogo sposoba distill-
yatsii tsinka iz serebristoy peny na Ust'-Kamenogorskom
svintsovom zavode)

PERIODICAL: Tsvetnyye Metally, 1959, Nr 1, pp 33-40 (USSR)

ABSTRACT: The authors point out that as continuous desilvering of lead is not used in the USSR, methods of crust enrichment are being sought. A system (Ref 7) in which fusion under carnalite is followed by vacuum distillation has proved unsatisfactory while that successfully used in Bulgaria (Ref 8) is not applicable to Soviet crusts. Based on enlarged laboratory and pilot plant work at the VNIITsvetmet in 1956-1957 (Ref 9) an experimental production unit based on electrothermic zinc-distillation was built at the Ust'-Kamenogorskiy lead works and has operated from November 1957 to the present. The authors give the results obtained and describe the plant.

Card 1/4

SOV/136-59-1-9/24

Introduction of an Electrothermic Method of Distilling Zinc from Silver Crust at the Ust'-Kamenogorskiy Lead Works

I.P. Volkov, N.V. Kungurov, K.B. Boztayev, D.R. Demurin and others from the works and V.P. Kuur, F.A. Mardamshin, Yu.K. Medel'tsov, A.I. Tkachenko and V.P. Shchurckov of VNIITsvetmet, participated. The electro-thermic installation (Fig 1) consisting of an electric furnace, oxidation chamber and dust catchers, was designed by the design department of the UKSTsK under the direction of A.V. Bratchik. The works and VNIITsvetmet laboratories performed necessary chemical analyses. The 3-phase 300-kVA furnace has a hearth bottom area of 2 m² and an effective height of 1.8 m. Fig 2 shows a vertical section through the furnace. The normal tapping hole is situated 140 mm above the bottom. The furnace is charged with an Irtyshskiy medeplavil'nyy zavod (Irtysh copper-smelting works) type feeder (Fig 3). Power is supplied by two type EPOM-250/6 transformers with a total rating of 500 kVA. The electrodes are graphitized and 200 mm in diameter. Distillations of zinc were effected at 1150-1300°C, giving lead bullion (sent for cupellation), dust (discharged periodically and sent to the zinc works) and

Card 2/4

SOV/136-59-1-9/24

Introduction of an Electrothermic Method of Distilling Zinc from Silver Crust at the Ust'-Kamenogorskiy Lead Works

as to improved working conditions in the cupellation department and great economies.

There are 4 figures, 2 tables and 9 references, 8 of which are Soviet and 1 English.

ASSOCIATIONS: Ust'-Kamenogorskiy svintsovo-tsinkovyy kombinat (Ust'-Kamenogorsk Lead-zinc combine) and VNIITsvetmet.

Card 4/4

ACCESSION NR: AT4030528

S/0000/63/000/000/0035/0071

AUTHOR: Bugayeva, I. V.; Burkova, M. V.; Dzhordzhio, V. A.; Dzhurayev, A. D.; Neushkin, A. I.; Ovcharenko, V. P.; Petrosyants, M. A.; Romanov, N. N.; Emma, Z. G.

TITLE: On the upper cloud boundary along Tashkent-Moscow route according to observations from TU-104 passenger aircraft

SOURCE: Nauchnaya konferentsiya po aviatsionnoy meteorologii. Moscow, 1960. Materialy*. Moscow, Gidrometeoizdat, 1963, 65-71

TOPIC TAGS: TU-104 aircraft, cloud boundary, flight condition, troposphere, stratosphere, jet stream

ABSTRACT: This paper is based on unpublished reports of the 40 papers given at the Nauchnaya konferentsiya po voprosam aviatsionnoy meteorologii (scientific conference on problems of aviation meteorology) that was held in June and July of 1960 in Moscow at the Glavnoye upravleniye gidrometeorologicheskoy sluzhby* SSSR. In this paper the authors present some visual weather observations made from aircraft and the results of their processing. Reports from TU-104 crews along the Tashkent-Moscow route, made during the period of 16 Sep 58 through 31 Dec 59, and airborne observations by a group of Tashkent meteorologists, made in two series of flights

ACCESSION NR: AT4030528

(Oct-Dec 59 and Mar-Apr 60) in TU-104 aircraft along the same route, served as the raw data. Results of these observations are given in graphs. 248 research flights made in the warm half of the year, have shown a principle difference between the frontal stratocumulus clouds and the same clouds in extrafrontal zones, located in the central, western, and northwestern regions of deep seated, well developed cyclones. This difference is shown. Frontal stratocumulus clouds have an upper boundary of 2 to 3 times greater than stratocumulus clouds in central, western and especially northwestern sections of deep seated, well developed cyclones. In these portions of the cyclones the ascending currents are caused by friction convergence which in any stage of the cyclone do not extend high enough and even at levels of from 2 to 4 km alternate with intense descending movements. Orig. art. has 2 figures.

ASSOCIATION: none

SUBMITTED: 18F 63

DATE ACQ: 17Apr64

ENCL: 00

SUB CODE: AS

NO REF SOV: 000

OTHER: 000

OVCHARENKO, V.P.

Accuracy of calculating the Laplacian and Jacobian of the absolute geopotential in barotropic forecasting. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 7 no.3:71-73 '63.

(MIRA 16:8)

1. Sredneaziatskiy gidrometeorologicheskiy institut.

CYC#AREKRU, V. P.

²⁷
Silver foam. I. I. Kerzhantsev and V. P. Chibrikov.
U.S.S.R. 109,280, Dec. 26, 1967. The process deals with
the treatment of Ag foam obtained in desilvering Pb while
Zn is being driven off and the precious metals are collected
in the Pb. The Ag foam is then treated in an elec. furnace of
which the resistor is the molten slag. The latter used in the
process contains SiO₂ 30-45, Na₂O 20-35, and CaO 25-30%.

3
2

1/1 Distr: hE2o/hEhJ .

Jr

KKRSHANSKIY, I.I.; OVCHARENKO, V.P.

~~Electrothermic~~ Method of distilling zinc out of silver crust.
TSvet. met. 31 no. 4:34-43 Ap '58. (MIRA 11:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut TSvetmet.
(Zinc--Electrometallurgy)

KRICHMAR, S.I.; OVCHARENKO, V.N.; IOFFE, A.I.

Automatic gas analyzer for determining inert gases in ammonia. Zav. lab.
75 no.2:213-215 ' 59. (MIRA 12:3)

1. Dneprodzershinskiy azotno-tukovyy zavod.
(Gases--Analysis) (Ammonia)

OVCHARENKO, V.I.

ABDYEV, M.A.; ANDREYEV, V.M.; OVCHARENKO, V.P.; RODYAKIN, V.V.

Discussion of Professor V.I. Smirnov's book, "Shaft furnaces in the metallurgy of nonferrous metals." TSvet. met. 30 no.4:82-84 Ap '57
(Nonferrous metals--Metallurgy) (Smirnov, V.I.) (MIRA 10:6)

OVCHARENKO, V.P.

Baroclinic forecasting of a pressure field. Izv. AN Uz. SSR, Ser.
fiz.-mat.nauk 8 no.5:71-74 '64. (MIRA 18:2)

1. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorolo-
gicheskiy institut.

OVCHARENKO, V. I.

Use of a "Ural" computer in the numerical analysis of hydrodynamics
and pressure forecasting. Nauch. Izv. TashGU no. 20. Fiz. Mat. Ser.
no. 22:136-141. 1964. (MIRA 18 1.)

PETUSHEV, G.Ye.; Inzh.; KARAS', I.M., Inzh.; OVCHARFENKO, V.P., Inzh.

Surface hardening of hollow chamfers of crankshafts by stamping.
Mashinostroenie no.3:37-38 My-Je '65. (MIRA 18:6