ZHAMAGORTSYAN, M.A., [illegible], I.[illegible], [illegible]ANYAN, A.T.

Reversibility of a cobalt electrode at high temperatures. Elektrokhimiia 1 no.1:20-22 Ja '65. (MIRA 18:5)

1. Institut fizicheskoy khimii AN SSSR.

SOLOV'YEVA, Z.A.; VAGRAMYAN, A.T.

Effect of the state of the cathode surface on the kinetics of electroreduction of chromic acid. Elektrokhimiia 1 no.2:188-193 F '65. (MIRA 18:6)

1. Institut fizicheskoy khimii AN SSSR.

L 2618-66 EWT(m)/EPF(c)/EWP(i)/EWP(t)/EWP(b) JD/WB

ACCESSION NR: AP5011366

UR/0365/65/001/002/0230/0232
620.199.621.351.7

53

AUTHOR: Baraboshkina, N. K.; Vagramyan, A. T.; Titova, V. N.

44,55 44,55 44,55

50

B

TITLE: On the possibility of photometric determination of adhesion of electrolytic plating to its base

SOURCE: Zashchita metallov, v. 1, no. 2, 1965, 230-232

TOPIC TAGS: nickel plating, corrosion protection, electrolytic deposition, adhesion

44,55, 18

ABSTRACT: The feasibility of continuous photometric characterization of the adhesion of nickel-plating to a metal base during the electroplating process was examined. After focusing a light beam on an electrode surface subjected to electrolytic nickel-plating the intensity of the reflected light was measured photometrically. The nickel plating reflectivity and polarization were measured in an electrolyte containing: 300 g/l of $NiSO_4 \cdot 7H_2O$, 60 g/l of $NiCl_2 \cdot 6H_2O$, and 38 g/l of H_3BO_3; at pH = 3, with a current density of 40 mA/cm^2, and at 25°C. The nickel platings were deposited on passivated (immersed for 20 sec in a chromic acid--250 g/l) or activated (immersed in 5% H_2SO_4) nickel and steel electrodes. The

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L 2618-66

ACCESSION NR: AP5011366

3

change in reflectivity and polarization during the process of nickel-plating of steel samples is shown in fig. 1 of the Enclosure. The electrode surface activity and the strength of adhesion of nickel plating is well characterized in terms of reflectivity decline after the initial current switch-on. The strength of the plating-base adhesion is determined by the photometric method more accurately than by either mechanical or electrochemical methods. It is found that passivation with chromic acid impairs the adhesion strength. Orig. art. has: 3 figures.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii (Academy of Sciences SSSR, Institute of Physical Chemistry) 44,55

SUBMITTED: 20Aug64 ENCL: 01 SUB CODE: MM

NO REF SOV: 003 OTHER: 001

Card 2/3

L 2618-66

ACCESSION NR: AP5011366

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ENCLOSURE: 01

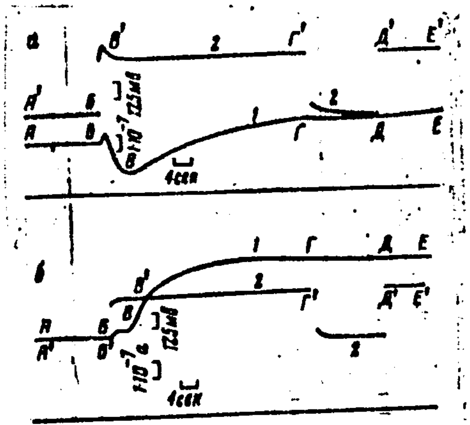

Fig. 1. a--passivated sample; b--activated sample; 1--reflectivity; 2--polarization; AB and A'B'--prior to current switch-on; BCD and B'C'D'--during the electrolysis process, DE and D'E'--current-off period; EF and E'F'--after the second on-current period.

Card 3/3

ACCESSION NR: AP5009303 S/0364/65/001/003/0321/0325

AUTHOR: Lezhava, T.I.; Vagramyan, A.T.

TITLE: Passivation of the surface of liquid and solid gallium in the course of electrodeposition

SOURCE: Elektrokhimiya, v. 1, no. 3, 1965, 321-325

TOPIC TAGS: gallium electrodeposition, gallium passivation, electrochemistry, liquid electrode, [illegible]

ABSTRACT: The rates of reduction [illegible] on a liquid and solid gallium electrode [illegible]

Card 1/2

L 41363-65

ACCESSION NR: AP5009303

changes only with the thermal motion of the particles, whereas on the surface of liquid gallium the foreign particles are weakly adsorbed because of the greater mobility of the liquid electrode. In all probability, these characteristics of liquid and solid gallium are responsible for the difference in the degree of retardation observed in the course of reduction of gallium ions. Orig. art. has: 8 figures.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry, Academy of Sciences SSSR)

SUBMITTED: 20Apr64 ENCL: 00 SUB CODE: IC, MM

NO REF SOV: 001 OTHER: 003

cc

Card 2/2

[illegible]

ACCESSION NR: AP5017741 UR/0365/65/001/004/0367/0369

621.357.9

AUTHOR: Nikitina, A. A.; Sominskaya, Z. M.; Vagramyan, A. T.

TITLE: Combined electrolytic deposition of rhenium and copper

SOURCE: Zashchita metallov, v. 1, no. 4, 1965, 367-369

[illegible]

Card 1/3

L [illegible]

ACCESSION NR: AP5017741

about 7% Pb. Therefore, even mutually insoluble metals may be co-deposited [illegible]

electrochemical [illegible]
unoxidized residues containing [illegible]

[illegible]

tion of rhenium and copper and the case of [illegible]
[illegible]
reduces the polarization [illegible]
deposition of these metals [illegible] although they form [illegible]
lid solutions nor chemical compounds [illegible] increase in polarization [illegible]

Card 2/3

L 63782-65

ACCESSION NR: AP5017741

facilitated reduction of metal ions should be differentiated from depolarization, due to the change [illegible]

[illegible]

ions [illegible]

[illegible] the rate of reduction [illegible] their ions compared with the rate of reduction of hydrogen ions [illegible] was [illegible] fied by appropriate experiments [illegible]

tages of the [illegible]

1 figure, 2 tables.

ASSOCIATION: Gosudarstvennyy [illegible] cheskoy promyshlennosti (State Scientific Research Institute of Rare Metals Industry)

SUBMITTED: 06Mar63

NO REF SOV: 004

Card 3/3

SOLOV'YEVA, Z.A.; VAGRAMYAN, A.T.

Cathodic passivation in chromate electrolytes with the additions of chloride ions. Elektrokhimiia 1 no.4:413-417 Ap '65. (MIRA 18:6)

1. Institut fizicheskoy khimii AN SSSR.

ACCESSION NR: AP5[illegible] UR/0364/65/001/004/0485/0488

[illegible]

TOPIC TAGS: gallium, electrode

ABSTRACT: The stationary potential of a nonpolarized electrode does not always [illegible]

[illegible]

electrolyte, thus producing a fresh surface, with simultaneous recording of the change of potential. Fig. [illegible] of the Enclosure shows oscillograms for the change of

Card 1/3

L [illegible]

ACCESSION NR: AP501[illegible]

gallium potential, when the metal is broken in a gallate solution at 5[illegible] When the [illegible]

[illegible]

Chemistry, Academy of [illegible])

[illegible] SUB CODE: [illegible]

NO REF SOV: 001 [illegible]

AC [illegible]

[illegible]

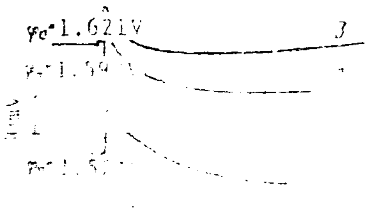

Fig. 1 Change in [illegible]

KUDRYAVTSEV, V.N.; BALAKIN, Yu.P.; VAGRAMYAN, A.T.

Hydrogen absorption by steel during cathodic polarization in acid solutions. Zashch. met. 1 no.5:477-481 S-O '65. (MIRA 18:9)

1. Institut fizicheskoy khimii AN SSSR.

SOLOV'YEVA, Z.A.; VAGRAMYAN, A.T.

Effect of chloride ions on cathodic polarization in chromium electrodeposition. Elektrokhimiia 1 no.5:551-556 My '65. (MIRA 18:6)

1. Institut fizicheskoy khimii AN SSSR.

VAGRAMYAN, A.T.; ZHAMAGORTSYAN, M.A.; UVAROV, L.A.

Effect of temperature on the kinetics of cobalt ion reduction. Elektrokhimiia 1 no.6:633-639 Je '65. (MIRA 18:7)

1. Institut fizicheskoy khimii AN SSSR.

NIKITINA, A.A.; SOLOV'YEVA, Z.A.; SOMINSKAYA, Z.M.; VAGRAMYAN, A.T.

Mechanism of rhenium electrodeposition. Elektrokhimiia 1 no.6:
748-751 Je '65. (MIRA 18:7)

1. Institut fizicheskoy khimii AN SSSR.

TITOVA, V.N.; VAGRAMYAN, A.T.

Reflecting power and structure of electrolytic copper deposits.
Elektrokhimiia 1 no.8:1011-1015 Ag '65. (MIRA 18:9)

1. Institut fizicheskoy khimii AN SSSR.

L 7968-66 EWT(m)/EWP(i)/EWP(t)/EWP(b) IJP(c) JD
ACC NR: AP5025079 SOURCE CODE: UR/0364/65/001/010/1212/1217

AUTHOR: Vagramyan, A. T.; Titova, V. N.
44,55 44,55

25
B

ORG: Institute of Physical Chemistry, AN SSSR (Institut fizicheskoy khimii, AN SSSR)
44,55

TITLE: Study of conditions for obtaining bright copper deposits by anode treatment
44,55 B

SOURCE: Elektrokhimiya, v. 1, no. 10, 1965, 1212-1217

TOPIC TAGS: electroplating, copper, pulse generator, electrolytic cell, light reflection
17

ABSTRACT: The article describes an attempt to produce bright copper deposits by anode treatment with a current pulse in a pyrophosphoric acid electrolyte used for electroplating. The reflecting power of the copper deposit was studied in the electrolysis process with a photometer developed in the Institute of Physical Chemistry of the AN SSSR. The photocurrent characterizing the magnitude of the reflecting power, with the aid of a direct current amplifier, was recorded on a POB-14 loop oscillograph. Simultaneously, in the electrolytic process, measurements were made of the electrode potential, measured with reference to a satur-

Card 1/2

UDC: 621.357.7

L 7968-66

ACC NR: AP5025079

ated calomel electrode. A pulse device was used to produce the current pulse; this made it possible to vary the duration of the impulse over a wide time range. The electroplating and the anode treatment of the coating were carried out in an electrolyte of the following composition: $CuSO_4$, 90 grams/liter; $K_4P_2O_7$, 350 grams/liter; ammonium nitrate, 20 grams/liter; pH, 8.1; temperature, 60 C. A series of experiments was carried out at different current densities to determine the conditions for anode treatment at which a noticeable increase in the reflecting power starts. The observed increase in the reflecting power after treatment with a current pulse beyond the critical point is in all probability connected with the fact that, at large current densities, a supersaturation of the solution occurs. In anode dissolving of the metal there should also be observed a smoothing of the surface of the electrode, if the removal of the metal takes place uniformly over the whole surface of the electrode. It is evident that during the dissolving of metals, a projection will be completely dissolved if the thickness of the dissolving layer is commensurate with the thickness of the projections. Therefore, in this case also, we can expect a smoothing effect. It is possible that both cases occur during the treatment of copper with a current pulse. Orig. art. has: 7 figures

SUB CODE: GC, MM/ SUBM DATE: 08Feb65/ ORIG REF: 004/ OTH REF: 004

Card 2/2

VAGRAMYAN, A.T.; YASTREBOVA, E.K.

Copper polarization in pyrophosphate electrolytes. Zhur. fiz. khim. 39 no.4:865-869 Ap '65. (MIRA 19:1)

1. Institut fizicheskoy khimii AN SSSR. Submitted July 23, 1963.

LEZHAVA, T.I.; VAGRAMYAN, A.T.

Passivation of the surface of liquid and solid gallium in the process of electrodeposition. Elektrokhimiia 1 no.3:321-325 Mr '65. (MIRA 18:12)

1. Institut fizicheskoy khimii AN SSSR.

L 39953-66 EWT(m)/EWT(t)/ETI IJP(c) JD/JG

~~ACC NR:~~ AP6015291 (A) SOURCE CODE: UR/0365/66/002/003/0349/0352

AUTHOR: Nikitina, A. A.; Sominskaya, Z. M.; Vagramyan, A. T.

33
B

ORG: none

TITLE: Mechanism of electrodeposition 16 of rhenium 27

SOURCE: Zashchita metallov, v. 2, no. 3, 1966, 349-352

TOPIC TAGS: rhenium, electrodeposition, passivation

ABSTRACT: The study was devoted to a verification of a proposed mechanism of rhenium electrodeposition, and to the determination of the passivation rate of the electrode surface. Electrolytes of the following compositions (in g/l) were employed: (1) ammonium perrhenate 50, sulfuric acid 25; (2) ammonium perrhenate 50, sulfuric acid 25, ammonium sulfate 40. The electrolysis was conducted at a current density of 1 A/cm^2 and 70°C for 15 min. In the electrodeposition of rhenium from solution (1) with an intermittent current, the minimum on the curve representing the current efficiency of the metal vs. the pause between the current pulses was found to correspond to a pause of 10^{-2} sec. As the pause decreases, the current efficiency of the metal increases, indicating that the renewed surface of the cathode does not manage to become fully passivated. The curve shows that a pause of the order of 10^{-3} sec is required for the electrode surface to regain its original state. Thus, the experimental results bear out the "activation" mechanism of rhenium electrodeposition and

Card 1/2 UDC: 621.357.7

L 39953-66

ACC NR: AP6015291

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show that the current efficiency of the metal depends of the state of the electrode surface, which in turn depends on the admixtures (such as ammonium sulfate, which is an activator of the electrode surface) present in the electrolyte. The experiment shows that in many cases, electrolysis with a pulsating current makes it possible to determine the passivation rate of an electrode surface. Orig. art. has: 3 figures.

SUB CODE: 11,07/ SUBM DATE: 21Oct65/ ORIG REF: 003

Card 2/2

L 27381-66 EWT(m)/EWP(t) IJP(c) JD/HW/JG

ACC NR: AP6015013 (N) SOURCE CODE: UR/0364/66/002/005/0551/0556

AUTHOR: Vagramyan, A. T. (Moscow); Ginberg, A. M. (Moscow); Fedotova, N. Ya. (Moscow); Ginberg, T. A. (Moscow) 29

ORG: none

TITLE: Effect of ultrasound on the electrodeposition of Ni-Fe-Mo alloys

SOURCE: Elektrokhimiya, v. 2, no. 5, 1966, 551-556 18

TOPIC TAGS: electrodeposition, alloy electrodeposition, nickel alloy, iron containing alloy, molybdenum containing alloy, ultrasound effect

ABSTRACT: The effect of ultrasound on the electrodeposition of Ni-Fe-Mo alloys from a sulfate electrolyte containing 2.2—18.0 g/l sodium molybdate has been investigated. The alloys deposited without ultrasound contained less than 1% molybdenum, regardless of molybdate concentration. At concentrations of molybdate higher than 12 g/l, the deposits were dark and cracked owing to high internal stresses. Ultrasound with an intensity of 0.9—1.04 W/cm^2 and a frequency of 22—26 kc had a beneficial effect on the electrodeposition process and quality of alloys. At a molybdate concentration of 8—10 g/l, the Mo content in the alloy was 4—5%, the internal stresses in deposit decreased, and the deposits were dense and lustrous. The optimum pH of the electrolyte was found to be 2.3—2.7 and the optimum current density, 40—60 a/dm^2.

Card 1/2 UDC: 543.251:546.3-19

L 27381-66

ACC NR: AP6015013

The yield under such conditions amounted to 70—80%. The deposits consisted of a solid solution with the free lattice having a parameter equal to 3.54 ±0.02 A. Orig. art. has: 6 figures. [WW]

SUB CODE: 11/ SUBM DATE: 11Aug65/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS: 4259

Card 2/2

OSMAN-ZADE, Sh.D.; VAGRAMYAN, A.T.

Equilibrium potential of a selenium electrode in selenous acid solutions. Elektrokhimiia 2 no.1:85-87 Ja '66. (MIRA 19:1)

1. Institut fizicheskoy khimii AN SSSR, Moskva. Submitted February 25, 1965.

L 08110-67 EWP(e)/EWT(m)/EWP(v)/EWP(t)/ETI IJP(c) [illegible]

ACC NR: AP6033076 SOURCE CODE: UR/0032/66/032/010/1223/1226

AUTHOR: Vagramyan, A. T.; Baraboshkina, N. K.; Batrukova, M. G.; Titova, V. N. 44
3

ORG: Institute of Physical Chemistry AN SSSR (Institut fizicheskoy khimii AN SSSR)

TITLE: Photometric method for determining the reflectivity and the adhesion 7 of a deposited metal to the backing

SOURCE: Zavodskaya laboratoriya, v. 32, no. 10, 1966, 1223-1226

TOPIC TAGS: electrolytic deposition, 16 light reflection coefficient, adhesive bonding

ABSTRACT: The article describes a method and apparatus for determining the adhesion of an electrolytic coating to the base directly during the electrolysis process, and also for evaluation of the reflectivity of the coating at the time of its deposition. 15 A schematic diagram of the apparatus is shown in Fig. 1. The electrolytic cell consists of a removable cathode 1 and an anode 2, which are fixed to the body of the instrument. The anode is so located with respect to the cathode that uniform distribution of the flow over the whole surface of the electrode is assured. The electrolyte under investigation is placed in a glass vessel 3, which is placed in a thermostatted jacket 4, connected to an ultrathermostat. The photoelectric unit consists of a light source 6, a system of lenses, and the photoelement 7. The reflectivity and the polarization of a nickel deposit were studied in a solution of $NiSO_4 \cdot 7H_2O$—300 grams/liter;

Card 1/3 UDC: 621.357.1:539.61:535.312

L 08110-67
ACC NR: AP6033076

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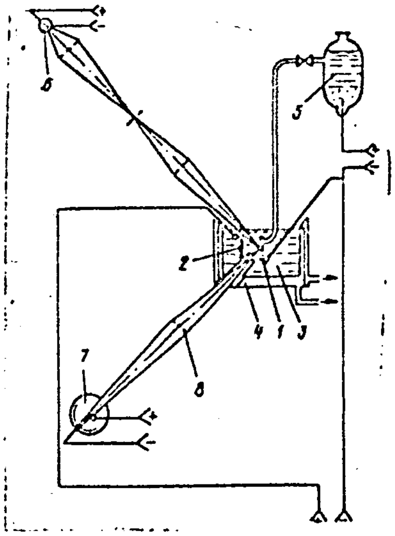

Fig. 1. Schematic diagram of photoelectric instrument

$NiCl_2 \cdot 6H_2O$--60 grams/liter; H_3BO_3--38 grams/liter; pH = 4; D_k = 40 ma/cm^2; t = 25°C. The nickel was deposited on nickel and steel samples with different preliminary treatments of the surface of the metal. The experimental results are shown in graphic

Card 2/3

L 08110-67

ACC NR: AP6033076 O

form. The method is said to be applicable for the determination of adhesion at very high current densities. Orig. art. has: 4 figures.

SUB CODE: 20, 07, 11/ SUBM DATE: none

Card 3/3 nst

NIKITINA, A.A.; [illegible], A.M.; [illegible]YAN, A.[illegible].

Simultaneous electrochemical deposition of [illegible].
Zashch.met. 1 no.4:[illegible] '65.
(MIRA 18:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut [illegible]cheskoy promyshlennosti.

L 5220-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) MJW/JD

ACCESSION NR: AP5022654 UR/0365/65/001/005/0477/0481
620.193.41
669.788

AUTHOR: Kudryavtsev, V. N.; Baakin, Yu. P.; Vagramyan, A. T.
44,55 44,55 44,55

TITLE: Hydrogen absorption in steels during cathodic polarization in acid solutions. I. Effect of current density 16

SOURCE: Zashchita metallov, v. 1, no. 5, 1965, 477-481

TOPIC TAGS: hydrogenation, electrolysis, steel, low carbon steel, hydrogen embrittlement 16,44,55

ABSTRACT: Cathodic polarization experiments were performed in 0.1 N H_2SO_4 solutions, both with and without As_2O_3 which was used as a stimulant. Armco iron and 30KhGSA steel were used; 30KhGSA steel had the following composition: C (0.3%), Si (1%), Mn (0.9%), P (0.03%), S (0.025%), Cr (0.9%), Ni (0.2%), and Cu (0.2%). The quantity of absorbed hydrogen was determined by vacuum extraction at 400°C, while mechanical properties were measured on samples 3 mm diameter and 20 mm long, at a strain rate of 8 mm/min. The criterion for determining the amount of hydrogen embrittlement was the difference $\Delta\psi$ between the reduction in area for charged and

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L 5220-66
ACCESSION NR: AP5022654

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uncharged samples. Results are given in terms of $\Delta\psi\%$ as a function of i_k (ma/cm^2), the polarization current density; and hydrogen concentration as a function of i_k. The influence of cathodic polarization of steel on the loss in ductility is severe; the curves for $\Delta\psi$ and absorbed hydrogen content both pass through a maximum at about 25 ma/cm^2. These same curves were given for cathodic polarization in 0.1 N H_2SO_4 solution with 0.01 g/ℓ addition of As_2O_3. A difference is observed; with increase in i_k, the brittleness of the samples and the amount of absorbed hydrogen continually increase. An explanation is offered based on reactions at the electrode:

$$H^+ + e = H_{ads} \qquad (1) \qquad\qquad H_{ads} \rightarrow H_{abs} \qquad (3)$$

$$H_{ads} + H_{ads} = H_2 \qquad (2a)$$

$$H_{ads} + H^+ + e = H_2 \qquad (2b)$$

Thus the concentration $[H]_{ads}$ depends on the speed of disintegration of hydrogen ions, and on the rate of removal of atoms of hydrogen from the surface of the electrode. The increase in the current density depends on the amount of absorbed hydrogen on the surface of the electrodes, as well as on the speed of its removal; this removal depends on the recombination mechanism (reaction 2a), whose speed is pro-

Card 2/3

L 5220-66
ACCESSION NR: AP5022654

portional to the concentration of absorbed hydrogen squared--$i = K_1([H]^i_{ads})^2$. The data are explained using the above considerations, the maxima being associated with a limiting value of hydrogen concentration at the electrode due to the recombination mechanism. For the As_2O_3 additions, there is no maximum because the removal of the absorbed hydrogen lessened by retarded recombination. Orig. art. has: 4 figures, 1 table.

ASSOCIATION: Akademiya nauk SSSR Institut fizicheskoy khimii (Academy of Sciences SSSR, Institute of Physical Chemistry) 44,55

SUBMITTED: 25May64 ENCL: 00 SUB CODE: GC, MM

NO REF SOV: 014 OTHER: 004

Card 3/3

VAGRAMYAN, N. T.

Vagramian, N. T. and Vagraunan, A. T., The influence of surface active substances on the rate of growth-of the electrolytic mono-crystal of silver. P. 78.

The dependence of the degree of polarization on the current density are studied with and without surface substances during the growth of a mono-crystal of silver. Two different methods are applied to obtain the true current density. It is proven that when the true current density is taken into account then the degree of polarization is practically the same in both cases.

Institute of Physical Chemistry
Aca. of Sci. USSR
Moscow
April 27, 1948

SO: Journal of Physical Chemistry (USSR) 23, No. 1 (1949)

VAGRAMYAN, A. T. Cand Chem Sci

Dissertation: "Mechanism of Electrical Reduction in the Nitro-Benzene-Aniline Series and the Nature of Hydrogenating Agent."

23/6/50

Moscow Order of Lenin Chemical-Technological Inst imeni D. I. Mendeleyev

SO Vecheryaya Moskva
Sum 71

CA VAGRAMYAN, N.T.

4

Electrolytic reduction of the series nitrobenzene aniline. L. I. Antropov and N. T. Vagramyan (Acad. Sci. Armenian S.S.R., Erevan). *Zhur. Fiz. Khim.* **25**, 100-18(1951).—The electrolytic reduction of nitrobenzene (I), nitrosobenzene (II), and phenylhydroxylamine (III) in alc. 2 N H_2SO_4 solns. on a Pt cathode was studied at 25 ± 0.1° in order to explain earlier observations (Haber, *Z. Elektrochem.* **4**, 107, 200(1898); H. and Russ, *Z. physik. Chem.* **47**, 257(1904)) and to illustrate the theoretical derivations of Antropov (*C.A.* **45**, 8842h). The reference electrode was $Hg|HgSO_4|2\ N\ H_2SO_4$; the exptl. equil. potential of $Pt(H_2)|2\ N\ H_2SO_4$ was 0.054 ± 0.005 v. The concn. of I was changed between 10^{-4} and 10^{-1} mole/l.; the concn. of II between 10^{-6} and 10^{-4}. With both I and II, at various concns., the data obey $E = a + b \log D$ (1) and $E = a' + (RT/2\alpha F) \ln [D/[1 + (k_2c^{\phi}/k_1)]]$ (2) (cf. A., *loc. cit.*) where E is the cathode potential, D the c.d. (between 10^{-6} and 10^{-1} amp./sq. cm.), c the depolarizer concn., and k_1 and k_2 the rate consts. for the slow step for H evolution and for reduction, resp. The depolarizing action of III depends on the electrode potential; it drops when the latter departs from the zero charge potential E_0 of smooth Pt. A measure of depolarizing action is provided by the ratio k_2/k_1; for values of E not far from E_0, the data show the following order of depolarizing action: II, III, I. Far from E_0, the order becomes II, I, III, and reduction of III is practically absent. M. B.

Effect of pH on electrochemical hydrogenation processes. N. T. Vagramyan and L. I. Antropov (Acad. Sci. Armenian S.S.R., Erevan). *Zhur. Fiz. Khim.* **25**, 119-25(1951).—Except for the work of Lachs (*C.A.* **33**, 7660) there are no data relative to the effect of pH on the overvoltage during electrochem. reduction. The latter was investigated for the reduction of nitrobenzene on two electrodes: Hg and Pt at small current values (10^{-8}-10^{-4} amp.). According to the theory of A. (*C.A.* **45**, 5512*d*) it becomes possible to decide between the mechanisms of slow H discharge (*a*) or of slow formation of H_2 mols. (*b*). The equations of Antropov are applied to the data. It is concluded that mechanism (*a*) is certain at a Hg cathode and that mechanism (*b*) is very likely at a Pt electrode.

Michel Boudart

S/080/60/033/012/013/024
D209/D305

AUTHORS: Vagramyan, N.T., and Kobosnidze, G.I.

TITLE: Distribution of metal on the surface of a cathode during electrodeposition of nickel

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960, 2731 - 2734

TEXT: In order to compare the throwing power of 7 electroplating solutions (numbered 1, 2, 3 etc.) used in practice, the distribution of the nickel deposit obtained from them was examined. Electrolysis was carried out in a cylindrical electroplating tank with cylindrical anode made from nickel sheet and cylindrical cathode consisting of 10 metal rings, numbered 1, 2, 3, etc., fitted tightly and fixed on one bar. This cathode was placed in the center of the tank at an equal distance from the anode and from the bottom and the surface of the electrolyte. Parts of the cathode above ring No. 1 and below ring No. 10 were sealed with plexiglass, a

Card 1/4

S/080/60/033/012/013/024
D209/D305

Distribution of metal ...

polymethacrylic resin. The distribution of the metal was examined by determin[illegible]he increase in weight of each ring after electrolysis. The results are given in which the ratios

$$\frac{'g_n'}{'g_0'} = \frac{\text{increase in weight of a given ring}}{\text{means increase in weight}} \left(\text{where } 'g_0' = \frac{\text{total increase in weight of cathode}}{\text{number of rings}}\right)$$

are plotted against the corresponding number of rings. The increase in weight of metal obtained from each of the 7 nickel electrolytes is much greater at both ends (ring No. 1 and ring No. 10) than in the central part (ring No. 5 and ring No. 6) of the cylindrical cathode as is expected for electrolytes with poor throwing power. The increase in weight of the metal on the bottom ring No. 10 obtained from all the nickel solutions is greater than the increase in weight of the top ring No. 1. This can be explained by the presence of convection currents arising in electrolytes from the bottom up-

Card 2/64

Distribution of metal ...
S/080/60/033/012/013/024
D209/D305

wards. The 7 nickel electrolytes used in practice could be set in the following sequency according to the uniformity of nickel deposit: electrolyte No. 2, 6, 1, 3, 4, 5, 7. Although for different nickel solutions many factors such as composition, concentration, pH, temperature and current density vary considerably, the distribution of metal is nearly the same. These factors have little influence on the throwing power of solution and cannot be changed without impairing the quality of deposit. The throwing power of nickel solutions can be improved only by changing the 'geometric factors': dimensions form and relative positions of electrodes taking into account the convection currents in electrolytes as they influence the throwing power. The table gives the composition of the electrolytes and the operating conditions. There are 1 table, 2 figures and 11 references: 8 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: R. Harr, Trans. Electroch. Soc. 34, 698, 1938; G.E. Gardam, Trans. Faraday Soc. 68, 425, 1936.

Card 3/4

Distribution of metal ... S/080/60/033/012/013/024
D209/D305

ASSOCIATION: Institut fizicheskoy khimii AN SSSR; sel'skohkhozyaystve institut Armyanskoy SSR (Institute of Physical Chemistry AS USSR; Agricultural Institute Armenian SSR)

SUBMITTED: April 18, 1960

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Table. Composition of electrolytes (in g/liter) and operating conditions.

Legend: 1 - Components and operating conditions; 2 - electrolytes; 3 - nickel sulphate $NiSO_4 \cdot 7H_2O$; 4 - sodium sulphate $Na_2SO_4 \cdot 10H_2O$; 5 - magnesium sulphate $MgSO_4 \cdot 7H_2O$; 6 - nickel chloride $NiCl_2 \cdot 6H_2O$; 7 - potassium chloride; 8 - sodium chloride; 9 - boric acid; 10 - ammonium sulphate; 11 - cobalt sulphate $CoSO_4 \cdot 7H_2O$ 12 - potassium fluoride; 13 - sodium formate; 14 - 2.6 or 2.7-naphthalenedisulphonic acid; 15 - formaldehyde 40 %; 16 - acidity (pH); 17 - temperature (in °C); 18 - current density (in amp/dm^2); 19 - current efficiency of metal (in %).

Card 4/~~5~~4

VAGRAMYAN, N.T.

Metal distribution on the electrode surface during deposition by the reversing current. Izv. AN Arm. SSR. Khim nauki 16 no.6: 521-525 '63 (MIRA 17:8)

1. Armyanskiy sel'skokhozyaystvennyy institut, kafedra obshchey khimii.

VAGRAMYAN, P. P.

PA 193T25

USSR/Chemistry - Electrodeposition of Metals — Oct 51

"Porosity of Electrolytically Deposited Nickel,"
A. A. Sutyagina, P. P. Vagramyan

"Zhur Prik Khim" Vol XXIV, No 9, pp 945-950

Found that number of pores of electrodeposited Ni decreases with increasing thickness of coating to certain point, then remains nearly const; that curve for number of pores against cd passes through min; and that some surface-active admixts increase, some decrease number of pores in comparison to electrolyte without admixts.

193T25

VAGRANYAN, Z.A.

Investigation of the conduction of the stimulation impulse through the region of the bilateral hemisections of the spinal cord. Zhur. eksp. i klin. med. 4 no.2:9-14 '64. (MIRA 17:8)

1. Institut fiziologii imeni L.A. Orbeli AN ArmSSR.

VAGSELLYEI, ISTVAN

A fuves vetesforgo szerkezetenek vizsgalata, figyelemmel annak magyarorszagi alkalmazasara. Budapest, Mezogazdasgi Kiado (1955) 62 p. (Budapest, Magyar Agrartudomanyi Egyetem. Agrakozgazdasgi Kar. Agrarkozgazdasagi Kar kiadvanyai 1955. evi, 1. sz.) (Analysis of the rotation of grassy crops with reference to its applications in Hungary. German and Russian summaries. illus., maps., bibl., tables.)

SO: Mohthly Index of East European Accessions (EEAI) LC. Vol. 7, no.4,
April 1958

VAGSELLYEI, I.

Investigation of the structure of grass crop rotation with regard to its application in Hungary; a fragment of a candidate's thesis. p. 466.
(MAGYARMEZOGADASAG. Vol. 9, no. 4, 1956. Hungary)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 6, June 1957. Uncl.

VAGSHAL', D.S.

Practice in using gravity surveying for exposing troughs in prospecting for silicate-nickel deposits in the Central Urals. Trudy Inst.geofiz.UFAN SSSR no.3:31-34 '65.

(MIRA 18:8)

VAGSHUL', I., inzh;; LAGUTIN, K., arkhitektor

Pay more attention to the construction of underground structures in cities. Zhil.-kom. khoz. 10 no.8:10-11 '60. (MIRA 13:9)
(Sewarage) (Water-supply engineering)

MAMAYCHUK, M.I., dots.; MANDRYKINA, L.D., biolog; VAGSHUL', I.I.

Case of food poisoning of staphylococcal etiology. Gig. i san. 24 no.2:82-84 F '59. (MIRA 12:3)

1. Iz kafedry mikrobiologii Pyatigorskogo farmatsecticheskogo instituta i Pyatigorskoy sanitarno-epidemiologicheskoy stantsii.
(FOOD POISONING, etiol. & pathogen.
Micrococcus pyogenes (Rus))
(MICROCOCCAL INFECTIONS, case reports
food pois. (Rus))

VAGU, P., candidate in stiinte economice

Correlation between the increased labor productivity and the automation of production. Probleme econ 14 no.10:34-47 '61.

VAGU, P., candidat in stiinte economice

Aspects of the plundering of Rumania's bourgeois-landlord oil resources by the international monopolies. Probleme econ 15 no.9:143-149 S '62.

VAGU, P., candidat in stiinte economice

Situation of oil industry workers in Rumania during the 1929-1933 period.
Probleme econ 16 no.2:55-64 F '63.

VAGUJFALVI, Dezso; TYIHAK, Erno

Daily change in the prochamazulene content of camomile (Matricaria chamomilla L.) Botan kozl 49 no.1/2:64-70 '61.

1. Gyogynovenykutato Intezet, Budapest XII., Daniel ut 40.

VAGUJFALVI, Dezso (Budapest,XII.,Daniel ut 40)

The effect of gibberellic acid depending on the amount of nutrients in the plant. Botan kozl 49 no.3-4:221-232 '62.

VAGUJFALVI, Dezso

Mineral nutrition of Datura innoxia. Pt.3. Botan kozl
50 no.1:42-49 My '63.

1. Gyogynoveny Kutato Intezet, Budapest, XII., Daniel ut 40; Magyar Biologiai Tarsasag Botanikai Szakosztalya valasztmanyi titkara; "Botanikai Kozlemenyek" szerkeszto bizottsagi tagja.

VAGUJFALVI, Dezso; TYIHAK, Erno

Essential oil components as universal plant substances. Botan kozl 51 no.1:41-49 '64

1. Medicinal Plant Research Institute, Budapest, XII., Daniel ut. 40.

USSR.

Sugar content and yield of grapes in relation to the active temperature sum during vegetation. J. Vagulāns (Horticulture Exptl. Sta. Pure, Latvia). *Latvijas PSR Zinātņu Akad. Vēstis* **1954**, No. 12 (Whole No. 89), 55–65(Russian summary 65–6).—In growing grapes in the open, as well as in greenhouses, it was found that yield and sugar content increased, while the acid content decreased consistently with increase in amt. of heat available during the vegetation. Heat was measured as sum of temp. over days when temp. exceeded +10°, and varied in tests between 1800 and 4100°. Importance of micro-climate in the exact location of the plants is stressed. Andrew Dravnicks

VAGULIN, G., ekonomist (Leningrad)

This method will simplify measuring the surface of patterns.
Prom.koop. 14 no.8:11 Ag '60. (MIRA 13:8)
(Cloting industry--Technological innovations)

FUKAL, R., MUDr.; BEHUNEK, J., MUDr.; VAGUNDA, S., MUDr.

Case of giant neurinoma. Cesk. neur. 19 no.4:268-270 Nov 56.

1. Z neurolog. odd., chir. odd. a prosektury KUNZ Gottwaldov
Prednostove: Prim. Dr. E. Muller, prim. Dr. V. Loutocky, prim.
E. Vanecek.
(NEURILEMMOMA, case reports,
sciatic nerve, giant case (Cz))
(NERVES, SCIATIC, neoplasms,
neurilemmoma, giant case (Cz))

VAGUNDA, Simon; REZAC, Milos; WEBER, Jaromir

Gastric cancer in a 12-year-old boy. Cesk.pediat.15 no.10:913-916 O'60.

1. Patologicko-anatomicke oddeleni, prednosta prim.dr. S.Vagunda Centralni rtg oddeleni, prednosta prim.dr. E. Sanda. Chirurgicke oddeleni, prednosta prim.dr. Fr. Kudlac.
(STOMACH NEOPLASMS in inf & child)

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SOV/155-58-6-22/36

AUTHOR:	Vagurtova, M.M.
TITLE:	A Pair of Applied Surfaces Where the Curvature Lines of One of Them Change to Asymptotic Lines of the Other
PERIODICAL:	Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 6, pp 139-141 (USSR)
ABSTRACT:	The author shows that, along with the minimal surfaces which are developed upon their conjugate surfaces, there are pairs of surfaces with the property of being developable upon another, whereby the lines of curvature of the one surface change over into the asymptotic lines of the other surface. The solution contains four arbitrary constants. The author thanks Professor S. Finikov for the guidance of the paper. - There are 2 Soviet references.
ASSOCIATION:	Moskovskiy pedagogicheskiy institut imeni V.P. Potemkina (Moscow Pedagogical Institute imeni V.P. Potemkin)
SUBMITTED:	October 20, 1958

X

Card 1/1

5(2) SOV/78-4-10-7/40

AUTHORS: Breusov, O. N., Vagurtova, N. M., Novoselova, A. V., Simanov, Yu. P.

TITLE: On the Thermal Decomposition of Ammonium-fluoro-beryllate $(NH_4)_2BeF_4$

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10, pp 2213-2219 (USSR)

ABSTRACT: Since the reaction under review represents the principal method for the production of crystalline beryllium fluoride, the course of this process was investigated. The authors mention in brief the publications available so far on this problem and especially point out the paper by A. V. Novoselova and M. Ya. Averkova (Ref 14) who first obtained the ammonium-meta-fluoroberyllate NH_4BeF_3 in addition to the ammonium-ortho-fluoroberyllate $(NH_4)_2BeF_4$. The thermal decomposition of the ortho-compound in the inert gas current gives only low yields, wherefore this reaction was investigated under decreased pressure. Figure 1 shows the decomposition curve at continuous increase in temperature where no breaks can be seen. On gradual heating

Card 1/2

SOV/78-4-10-7/40

On the Thermal Decomposition of Ammonium-fluoro-beryllate $(NH_4)_2BeF_4$

up to 165, 180, 205, 220 and 240° (Figs 2 and 3) it becomes evident that the decomposition takes place in three stages: $(NH_4)_2BeF_4 \rightarrow NH_4BeF_3 \rightarrow NH_4Be_2F_5 \rightarrow BeF_2$. Table 1 presents the analysis of $(NH_4)_2BeF_4$, table 2 that of $NH_4Be_2F_5$. The lattice constants of $NH_4Be_2F_5$ were calculated on the basis of a radiogram obtained by means of the RKU-86 chamber and found to belong to the hexagonal syngony (Table 3). In the same way the corresponding lattice constants were calculated from the radiograms of KBe_2F_5 (Table 4) and α-$CsBe_2F_5$ (Table 5). The radiograms are shown in figure 4. Table 6 presents the data for the compounds of the $Me^{I}Be_2F_5$ type, table 7 compares the lattice constants of $NH_4Be_2F_5$, KBe_2F_5 and α-$CsBe_2F_5$. There are 4 figures, 7 tables, and 12 references, 8 of which are Soviet.

SUBMITTED: June 19, 1958

Card 2/2

KOCHETKOV, N.K.; SOKOLOV, S.D.; VAGURTOVA, N.M.; NIFANT'YEV, E.Ye.

Organomagnesium compounds of the isoxazole series. Dokl. AN SSSR 133 no.3:598-601 Jl '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Predstavleno akad. A.N.Nesmeyanovym.
(Magnesium organic compounds)
(Isoxazole)

KOCHETKOV, N.K.; SOKOLOV, S.D.; VAGURTOVA, N.M.

Isoxazole series. Part 12: Iodination and bromination of isoxazoles. Zhur.ob.khim. 31 no.7:2326-2333 Jl '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Isoxazole)

KOCHETKOV, N.K.; SOKOLOV, S.D.; YAGURTOVA, N.M.

Radical halogenation of isoxazoles. Zhur. ob. khim. 32 no.1:325-326 Ja '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Isoxazole) (Halogenation)
(Radicals (Chemistry))

VAGVOLGYI, J.

On the fauna of the springs of Hungary. I. Mts. Dunazug. In English. p.377.
(Magyar Nemzeti Muzeum Termezettudomanyi Muzeum Evkonyve, Vol. 7, 1956,
Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 9, Sept. 1957. Uncl.

VAGVOLGYI, J.

Malaco faunistic data. In English. p.451.
(Magyar Nemzeti Muzeum Termzettidomanyi Muzeum Evkonyve, Vol. 7, 1956,
Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 9, Sept. 1957. Uncl.

VAGVOLGYI, J.

Problems of relationships between the Baradla and Beke caves from the zoological viewpoint. p.427. Vol 4, No.4. FOLDRAJZI ERTESITO
Budapest, Hungary.

So: Eastern European Accession. Vol 5, No4, April 1956

VAGVOLGYI, L.

After the conference held in Hek.

p. 2 (Allami Gazdasag) Vol.9, no. 10, Oct. 1957, Budapest, Hungary

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

VAGVOLGYI, T.

Cenological examination of the mollusks of the Torek Marsh. In English. p. 197
Vol. 6, 1955 MAGYAR NEMZETI MUZEUM TERMESZETTUDOMANYI MUSEUM EVKONYVE. ANNALES HISTORICO-NATURALES MASEI NATIONALIS HUNGARICI. Budapest, Hungary.

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

VAGRAMYAN, A. T.

Mechanism of the Electrodeposition of Metals from Cyanide Solutions. A. T. Vagramyan and N. N. Balashova (*Trudy Soveshchan~~iya po Elektrokhimii~~ 1950*, 1953, 237–242).—[In Russian]. Curves showing the dependence of the cathode potential on the time of polarization were obtained for $AgNO_3$, AgCN/KCN, and AuCN/KCN soln. V. and B. conclude from the results that in soln. of cyanides the electrode is in an active condition and the metal is deposited as a result of the discharge of complex ions adsorbed on the surface. This explains the prodn. of fine-grained deposits from cyanide baths.—G. V. E. T.

MG

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V GRAMYAN, A.T

"Investigation of Cathodic Polarization During Simultaneous Discharge of Iron and Tungsten Ions. [illegible] and [illegible] 1954 [illegible] [illegible] took place at [illegible] and [illegible] mV. resp. The lowering of the deposition potentials with respect to deposition potentials of pure W and Fe was 320 and 109 mV. at ~20° C. and 430 and 298 at 70° C. The decrease of the deposition potential during simultaneous deposition of W and Fe points to the formation of an intermetallic compound of the Fe_2W type. The absence of the periodic oscillations of the p.d. during electrodeposition of Fe-W alloy disproved the theory advanced by Holt and Vaaler (*Trans. Electrochem. Soc.*, 1948, **94**, 50; see *M.A.* **16**, 203) which stated that Fe and W were deposited on the cathode in alternating layers and not simultaneously.

S. K. L.

VAGRAMYAN, A.T.

USSR/Chemistry - Physical chemistry

Card 1/

Authors : Popkov, A. P., and Vagramyan, A. T.

Title : Electrode processes during deposition and solution of Ag in cyanide solutions

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 966-971, Nov-Dec 1954

Abstract : Certain processes occuring on a silver electrode during polarization with alternating and pulse currents are discussed. A simple method was developed for the study of nonstationary electrode processes which take place within short time intervals. It is shown that the cathode and anode polarizations during the deposition and solution of Ag in cyanide solutions are basically concentrational.

Institution : Acad. of Sc., USSR, Institute of Physical Chemistry

Submitted : April 3, 1954

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 966-971, Nov-Dec 1954

Card 2/2 [illegible]

VAGRAMYAN, A. T.
USSR/Chemistry

Card 1/1

Authors : Vagramyan, A. T., and Popkov, A. P.

Title : The Theory of Electrolytic Rectifiers.

Periodical : Zhur. Fiz. Khim. Vol. 28, Ed. 4, 752-756, Apr 1954

Abstract : Studies of the speed of deposition of nickel in a nickel sulfate during the alternate (cathode and anode) polarization of electrodes. Also mentioned is the rectification of A. C. current during its flow through a $Ni/NiSO_4/Ni$ system. Three references; table; graphs.

Institution : Institute of Physical Chemistry of the AS of the USSR, Moscow.

Submitted : August 24, 1953

VAGRAMYAN, A. T.

USSR/ Chemistry Physical chemistry

Card : 1/1

Authors : Vagramyan, A. T., and Solovyeva, Z. A.

Title : Method of studying the rate of electrochemical reactions

Periodical : Zhur. fiz. khim. 28, Ed. 6, 1153 - 1157, June 1954

Abstract : A method of studying the rate of electrochemical reactions, based on complex investigation of relations between polarization and current density, between polarization and time at constant current density and between current intensity and time at constant cathode potential, is described. A more complete and accurate understanding of the processes taking place on the electrode during electro-deposition of metals can be obtained only through study of above mentioned relations. Four USSR and 2 German references. Graphs, drawing.

Institution : Acad. of Sc. USSR, Institute of Physical Chemistry, Moscow

Submitted : December 27, 1953

VAGRAMYAN, A.T.

USSR/ Chemistry - Physical chemistry

Card 1/1 : Pub. 22 - 25/49

Authors : Vagramyan, A. T., and Usachev, D. N.

Title : Electrodeposition of chromium

Periodical : Dok. AN SSSR 98/4, 605-607, Oct. 1, 1954

Abstract : The processes occurring during the reduction of chromic acid, widely used for electrodeposition of Cr, are described. The problems of current distribution between the various reduction processes, changes in rate of reaction in its relation to the electrode potential and nature of polarization, are discussed. The methods by which the rate of cathode reaction was investigated are explained. The intensity of electrolyte mixing and concentrated polarization and their effects on the rate of reduction of hexavalent Cr into tri-and divalent state are analyzed. Three references: 2-USSR and 1-German (1893-1953). Graphs.

Institution : Academy of Sciences, USSR, Institute of Physical Chemistry

Presented by : Academician A. N. Frumkin, April 16, 1954

VAGRAMYAN, A.T.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 29/47

Authors : Vagramyan, A. T., and Tsareva, Yu. S.

Title : Internal stresses of electrolytic nickel depositions and their porosity

Periodical : Dok. AN SSSR 98/5, 807-809, Oct 11, 1954

Abstract : The effect of surface-active substances and alternating current on the internal stresses and porosity of electrolytic coatings was investigated. The effect of 2,6 - 2,7-naphthalindisulfonic acid and paracresol, on the porosity of an electrolytic Ni-deposition, is explained. The extent to which the value of internal stresses is affected by the addition of the above mentioned substances is discussed. The parallelism between the effect of surface-active substances and variable current on the internal stresses indicates that the porosity of electrolytic depositions is due mostly to the stresses in these depositions. Two USSR references (1951 and 1952). Graphs.

Institution : ...

Presented by : Academician A. N. Frumkin, May 21, 1954

VAGRAMYAN, Ashot Tigranovich; IL'INA-KAKUYEVA, Tat'yana Borisovna; SEMIN,V.M., redaktor; KAMAYEVA,O.M., redaktor; ATTOPOVICH, M.K., tekhnicheskiy redaktor

[Current distribution on surface electrodes during electrodeposition of metals] Raspredelenie toka na poverkhnosti elektrodov pri elektroosazhdenii metallov. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 66 p. (MIRA 9:3)

(Electroplating)

VAGRAMYAN, A.T.; SOLOV'YEVA, Z.A.; ALEKSEYEV, V.A., redaktor; SHEVCHENKO, G.N., tekhnicheskiy redaktor

[Research methods in the processes of electrolytic precipitation of metals] Metody issledovaniia protsessov elektroosazhdeniia metallov. Moskva, Izd-vo Akad. nauk SSSR, 1955. 250 p. (MLRA 8:7)
(Electroplating)

VAGRAMYAN, A.T.

USSR/Chemistry - Electrolysis

Card 1/2 Pub. 147 - 20/26

Authors :	Tsareva, Yu. S.; Solokhina, V. G.; Kudryvtsev, N. T.; and Vagramyan, A. T.
Title :	Effect of surface active substances on the mechanical properties of electrolytic Cu-depositions
Periodical :	Zhur. fiz. khim. 29/1, 166-173, Jan 1955
Abstract :	It was established experimentally that surface active substances added some times to an acid copper sulfate solution for copper plating produce different effects on the mechanical properties of the deposit. It was found that surface active substances can cause internal contraction and expansion stresses depending upon the nature and concentration of the substance and the current density.
Institution :	Academy of Sciences USSR, Institute of Physical Chemistry, Moscow
Submitted :	June 9. 1954

Periodical : Zhur. fiz. khim. 29/1, 116-173, Jan 1955

Card 2/2 Pub. 147 - 20/26

Abstract : It was established that copper deposits obtained from electrolytes containing thiourea and naphthalindisulfonic acid possess sufficient plasticity, high micro-hardness and small internal stresses. An instrument is described which records automatically any changes in internal stresses of electrolytic deposit in electrolysis processes. Nine USSR references (1935-1951). Table; graphs; drawing.

VAGRAMYAN, A.T.

USSR/Chemistry - Electrolysis

Card 1/2 Pub. 147 - 22/26

Authors : Vagramyan, A. T., and Tsareva, Yu. S.

Title : Internal stresses of electrolytic metal deposit

Periodical : Zhur. fiz khim. 29/1, 185-193, Jan 1955

Abstract : The basic factors resulting in internal stresses in electrolytic metal deposit were found to be: changes in lattice parameters, changes in the distances between the deposition crystals, amalgamation or enlargement of deposition drystals and the formation of chemical compounds between the metal and the admixtures included in it. A thorough study of the internal stresses of electrolytic metal depositions showed a parallelism between the internal stresses originating in the deposition and overstrain.

Institution : Academy of Sciences USSR, Institute of Physical Chemistry, Moscow

Submitted : June 9, 1954

Periodical : Zhur. fiz. khim. 29/1, 185-193, Jan 1955

Card 2/2 Pub. 147 - 22/26

Abstract : The electrolysis conditions and the composition of the electrolyte were found to have a definite effect on the internal stresses. Eleven references: 6 USSR; 3 German and 2 USA (1922-1954). Tables; graphs.

VAGRAMYAN, A.T

USSR/Chemistry-Physical Chemistry

Card 1/1 Pub. 22 - 28/59

Authors	: Vagramyan, A. T., and Popkov, A. P.
Title	: Electropolishing of silver
Periodical	: Dok. AN SSSR 102/2, 297-300, May 11, 1955
Abstract	: A new method allowing simultaneous registration of changes in the electrode polarization and luster uccurring directly in the process of electropolishing of metals, is described. The mechanism of smoothing during electrolytic polishing of silver is explained. The change in luster of the electrode surface was found to be closely connected with the speed and nature of the individual electropolishing processes. The basic facter aiding the smoothing and consequently increasing the luster of the polished surface is the formation and solution of Ag_2O which is realized through brief connection and disconnection of the current. Graphs; diagram.
Institution	: Acad. of Sc., USSR, Inst. of Phys. Chem.
Presented by	: Academician P. A. Rebinder, December 3, 1954

VAGRAMYAN, A.T.

E-5

Category : USSR/Solid State Physics - Phase transformation of solid bodies

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1171

Author : Vagramyan, A.T., Popkov, A.P.
Title : On the Mechanism of Electric Polishing of Zinc

Orig Pub : Dokl. AN SSSR, 1955, 102, No 3, 547-549

Abstract : Simultaneous recording to the variation in the polarization in the brightness of the electrode directly in the electric polishing process was used to study the mechanism of electric polishing of zinc by pulse current (current density 1a/cm^2, polarization time 11 seconds, time of exposure without current 2.3 seconds) in 2n. $ZnSO_4 \cdot 7H_2O$. The surface of the zinc is smoothed by the formation of more saturated solution in the cavities of its surface, thus causing preferred solution of the projecting sections. Comparison of the electric polishing mechanism of zinc and that of silver shows that in the case of electric polishing the decisive reactions take place on the anode.

Card : 1/1

VAGRAMYAN, A.T., professor.

Conference on electrochemistry at the Polish Academy of Sciences. Izv.AN SSSR.Otd.khim.nauk no.2:260-262 F '56. (MLRA 9:7)
(Warsaw--Electrochemistry)

VAGRAMYAN, A.T., professor, otvetstvennyy redaktor; KUDRYAVTSEV, N.T., professor, otvetstvennyy redaktor; SHLUGER, M.A., kandidat tekhnicheskikh nauk, otvetstvennyy redaktor; YEGOROV, N.G., redaktor izdatel'stva; PAVLOVSKIY, A.A., tekhnicheskiy redaktor

[Theory and practice of electrolytic chromium plating] Teoriia i praktika elektroliticheskogo khromirovaniia. Moskva, 1957. 231 p. (MLRA 10:9)

1. Akademiya nauk SSSR. Institut fizicheskoy khimii
(Chromium plating)

137-58-6-12951

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 252 (USSR)

AUTHORS: Vagramyan, A.T., Usachev, D.N., Chervova, G.I.

TITLE: Polarization of the Cathode During the Electrolytic Deposition of Chromium (Polyarizatsiya katoda pri elektroosazhdenii khroma)

PERIODICAL: V sb.: Teoriya i praktika elektrolit. khromirovaniya. Moscow, AN SSSR, 1957, pp 8-26

ABSTRACT: The polarization of the cathode during electrolytic precipitation was studied, and a quantitative study of the different reactions taking place on the electrode was made. Data in the literature concerning the dependence of cathode polarization on the cathode cd are contradictory. It is shown that during reduction of CrO_3 reproducible results may be obtained only with a constant current intensity I in the circuit or with strictly constant electrode potential $\mathcal{E}$: 1) when I = const, the polarization curve consists of two stable segments wherein the ascending and descending branches do not coincide; there is a sharply defined hysteresis loop; 2) when $\mathcal{E}$ = const, the polarization curve has an anomalous shape; viz., if the polarization of the

Card 1/2

137-58-6-12951

Polarization of the Cathode (cont.)

electrode is raised, beginning at a certain value, the intensity of the current falls sharply; the ascending and the descending branches then coincide. It is shown that the reduction of Cr^{6+} to Cr^{3+} corresponds to the first segment of the curve. The rate of this reaction is dependent upon the diffusion of Cr^{6+} toward the cathode. On the last segment three reactions take place simultaneously: separation of H_2, reduction of Cr^{6+} to Cr^{3+} and reduction to metallic Cr. Polarization curves for a constant ε value in the presence and in the absence of H_2SO_4 differ sharply from one another. The presence of H_2SO_4 favors the reduction of Cr^{6+} to Cr^{3+} on the first segment of the curve and sharply inhibits the reduction on the second segment. It is shown that upon an increase of concentration of H_2SO_4 the rate of reduction of H^+ decreases, whereas the rate of reduction of H_2CrO_4 to Cr increases sharply, and the rate of incomplete reduction increases steadily. Upon studying the changes in I with ε = const per unit of time it was established that a film forms on the cathode during electrolysis, which film is destroyed so soon as the current is switched on.

L.A.

1. Chromium--Electrodeposition 2. Cathodes (Electrolytic cell) --Polarization

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137-58-6-12946

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 252 (USSR)

AUTHORS: Vagramyan, A.T., Usachev, D.N.

TITLE: Investigation of the Mechanism of Electrolytic Deposition of Chromium by the Method of Tagged Atoms (Issledovaniye mekhanizma elektroosazhdeniya khroma metodom mechenykh atomov)

PERIODICAL: V sb.: Teoriya i praktika elektrolit. khromirovaniya. Moscow, AN SSSR, 1957, pp 27-30

ABSTRACT: An investigation was carried out with the object of verifying the mechanism of the discharge of the Cr^{6+} ion during its reduction to metallic Cr. Use of the tagged atom of Cr^{51} afforded a means for the determination that the reduction of chromic acid to Cr takes place directly without formation of an intermediate Cr^{-3} (sic!) ion.

L.A.

1. Chromium--Electrodeposition 2. Chromium ions--Properties
3. Chromium isotopes (Radioactive)--Applications

Card 1/1

137-58-6-12945

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 251 (USSR)

AUTHORS: Chervova, G.I., Vagramyan, A.T.

TITLE: Distribution of Metal on the Electrode During the Electrolytic Deposition of Chromium (Raspredeleniye metalla na elektrode pri elektroosazhdenii khroma)

PERIODICAL: V sb.: Teoriya i praktika elektrolit. khromirovaniya. Moscow, AN SSSR, 1957, pp 208-214

ABSTRACT: Work on the determination of the relative character of the distribution of the metal on the cathode in existing Cr baths is described. The distribution of the metal was determined by weighing a cylindrical cathode assembled from 10 metal disks. It is shown that during electrolytic depositions of Cr a change in the content of electrolyte does not have any substantial effect on the uniformity of the distribution of metal on the cathode surface. The best results were obtained in a bath of the following composition (in g/liter) CrO_3 250, H_2SO_4 1.2, H_2SiF_6 12. Contrary to the statement of Farber and Blyum it was shown that as cathode cd was increased from 10 to 50 amp/dm^2 in an

Card 1/2

137-58-6-12945

Distribution of Metal (cont.)

electrolyte containing 250 g/liter of CrO_3 and 2.5 g/liter of H_2SO_4 at 50°C the uniformity of the coating decreases. A certain improvement of distribution appears at small cathode cd but it is not significant.

P.S.

1. Chromium--Electrodeposition 2. Cathodes (Electrolytic cell)--Properties
3. Cathodes (Electrolytic cell)--Test results

Card 2/2

VAGRAMYAN, A. T. and PETROVA, Yu. S.

"Untersuchung der physikalisch-mechanischen Eigenschaften galvanischer Uberzuge."

paper submitted for the Congress on Corrosion, Budapest, 24-30 Sept 1958.

Physikalisch-/Chemisches Institut der Akademie der Wissenschaften der UDSSR, Moscow.

SOV/122-58-7-3/31

AUTHOR: Vagramyan, A.S., Candidate of Technical Sciences

TITLE: A New Method of Measuring Temperature at the Friction Surface of Dissimilar Metals (Novyy metod izmereniya temperatury na poverkhnosti treniya raznorodnykh metallov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 7, pp 13 - 15 (USSR)

ABSTRACT: The theoretical and experimental research into the temperature field adjoining friction surfaces is said to be still in a state of uncertainty due to the absence of a reliable method to measure local temperatures. A variant of the natural thermocouple method introduced in 1936 by Bowden and Ridler (Proc. Roy. Soc. A, 1936, Vol 154, p 640) is proposed. It consists of arranging a steel disc to rotate whilst two specimens, one above the other, are pressed against the cylindrical surface of the disc. The thermoelectric e.m.f. between the two specimens depends only on the temperature at the friction surface and the materials of the two specimens, whilst the disc acts only as a conductor. In a friction test rig, a variable speed drive rotates a chuck on a vertical shaft pointing downwards. A steel disc at the end of a shank is clamped in the chuck and rotates with it. The disc is immersed in an oil bath

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SOV/122-58-7-3/31

A New Method of Measuring Temperature at the Friction Surface of Dissimilar Metals

which can be raised or lowered. The friction specimens are mounted in a block at the end of a swinging arm and are pressed by a weight, exerting a torque on the axle of the swinging arm, against the rotating disc. The specimens are easily interchangeable, being mounted by clamping in specimen holders inserted in the block. Each specimen holder finishes with a plunger which compresses a liquid in a bore into which the plunger fits. The other end of the bore is plugged but the bores of both specimen holders communicate with each other and a pressure gauge. Thus the two pressures are equalised and measured. The specimens are calibrated against each other statically. To obtain the e.m.f. against temperature, combinations of carbon steel, bronze, babbit, cast iron and aluminium were tested. Figure 4 shows the relation between the temperature and the pressure for various pairs at a sliding speed of 3.6 m/sec. An empirical formula for each pair relates the temperature and the speed.

Card2/3

SOV/122-58-7-3/31

A New Method of Measuring Temperature at the Friction Surface of Dissimilar Metals

There are 4 figures and 8 references, 7 of which are Soviet and 1 English.

Card 3/3

5(4)

SOV/62-58-11-6/26

AUTHORS: Popkov, A.P., Gevorkyan, V.M.,
Vagramyan, A.T.

TITLE: Overvoltage During Electrodeposition of Antimony
(Perenapryazheniye pri elektroosazhdenii sur'my)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 11, pp 1310 - 1314 (USSR)

ABSTRACT: In the present paper the authors investigated polarization during the electrodeposition of antimony by means of a rapid method. This made it possible to consider the displacement of the equilibrium potential and to estimate more precisely the quantity of the overvoltage. Preliminary results have shown that in antimony tartaric acid solutions fine crystalline deposits with a current yield of practically 100 % can be obtained. In figure 1a a photo of an oscillogram with polarization curves can be seen which have been plotted by means of the rapid method. The more slowly the curve is plotted the more the equilibrium potential of the electrode is displaced in the positive direction. This is apparently in connection with the fact that a low current density as well as with values $i_k = 0$ an oxidation of the antimony surface takes place. Apparently the overvoltage quantity (η_k)

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