APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7

1ST AND 2ND ORDERS | 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

2

Polarographic calculation method. Ya. P. Gokhshtein. *Zhur. Anal. Khim.* 2, 147-52(1947); cf. *C.A.* 35, 7860^e; 36, 5410^1. —A method for calcg. the av. diffusion current coeff. from diffusion measurements without making polarograms is discussed. The diffusion current coeff. (K) is given by the Ilkovic equation: $K = i_d/c = 605n.F.D^{1/2}.m^{2/3}t^{1/6}$, where i_d is the diffusion current, c is the concn., n is the no. of electrons involved in the reaction of 1 g. equiv., F is the Faraday unit, D is the diffusion coeff., m is the quantity of Hg dropping in 1 sec., and t is the time in which Hg drops. When n and D are known, K can be calcd. If n is unknown, the D_{ion} permits calcn. of n. However, D_{ion} can be calcd. only if the relation between it and D_{salt} are known. A *microdiffusometer* was constructed for detg. D_{salt} in the absence of an inert salt. For detg. D_{salt} in the presence of an inert salt a Pasynskii type app. was used. For calcg. the relation between D_{salt} and D_{ion} was used the Nernst equation which for $CdCl_2$ is $D = 3.1\,D^{++}.D^{-}/(0.86\,D^{-} + 2.4\,D^{++})$. The diffusion coeff. of one of the ions (Cl) was calcd. from the Onsager equation for ionic conductance and this value substituted in the Nernst equation. After detn. of D_{salt} for 2 concns., 1.5×10^{-4} M and 8×10^{-4} M of $CdCl_2$ and calcn. of D_{Cl^-}, $D_{Cd^{++}}$ was calcd. from the Nernst equation. When values of D were substituted in the Onsager-Fuoss equation (*C.A.* 27, 1258) two equations with 2 unknowns were solved for A and B. The solution of these equations for dil. solns. was used to calc. D for moderately concd. and concd. solns. The coeffs. of diffusion were thus calcd. for $CdCl_2$ concns. of 0.15 to 10.00 millimol. per l. The values of D for salt and ions decreased as the concn. of $CdCl_2$ increased. The decrease in D for the salt, bivalent and univalent ion was approx. 14.0, 15.5, and 11.8%, resp. The calcd. data were compared with exptl. data. The av. difference in the calcd. and exptl. values of K was approx. 7%. Generally, the exptl. values were higher than the calcd. ones. The effect of other electrolytes on K_{Cd} was studied with KCl, $BaCl_2$, $LaCl_3$, and $Al_2(SO_4)_3$. In the presence of salts of the type 1-1 or 2-1, having the same anion, the values of K calcd. from diffusion measurements are reliable. In the presence of other salts, a correction must be made.

M. Hosch

Acad. of Sci. USSR, Inst. of Geochemistry and Analytical Chem., Moscow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

PA 75T12

GOKHSHTEYN, YA.P.

USSR/Chemistry - Electrodes, Mercury
(Dropping)
Chemistry - Electrodes, Mercury
Capillary

May/Jun 1948

"Multicapillary Mercury Dropping Electrode," Ya. P. Gokhshteyn, Inst of Geochem and Analytical Chem, Acad Sci USSR, 3 pp

"Zhur Analit Khimii" Vol III, No 3

Subject electrode was proposed for determining very small concentrations of reducible ions on a mercury dropping cathode. Shown that with use of electrode diffusion currents of reducible ions conform to Il'kovich equation. Submitted Jan 1948.

75T12

Diffusion of electrolytes and a method of calculating the diffusion
coefficient of the ions constituting a salt. Ya. P. GOKHSHTEYN (Inst.
Geochemistry and Anal. Chem., Acad. Sci. U.S.S.R., Moscow). Zhur.
Fiz. Khim. (J. Phys. Chem.) 22, 871-84 (1948).- The diffusion was
measured by 3 optical methods using total internal reflection, Lamm's
striae, and diffraction, resp. The diffusion coeff. D (in 10^{-5} sq. cm./
sec.) is 1.92, 1.89, 1.87, 1.84, 1.83, 1.88, 1.93, and 2.01 for 0.005,
0.01, 0.02, 0.05, 0.1, 0.2, 0.5, and 1 N KCl, and 1.21, 1.18, 1.14,
1.12, 1.22, and 1.42 in 0.02, 0.05, 0.1, 0.2, 0.5, and 1 N $BaCl_2$ in water
at 25°. These values are not in agreement with the equations of Onsager
and Fuoss, C.A. 27, 1258, and the values for $BaCl_2$ do not agree also
with the equation of Davtyan (C.A. 41, 22b, 331d). Davtyan's formula
for MeX_2 salts is modified by introducing an empirical correction which
takes care of the difference between the mobilities in an elec. and
a diffusion field. The modified equations allow calcn. of the diffu-
sion coeffs. of ions appearing in Ilkovic's formula of polarography.
The calcd. values agree with G.'s exptl. results for Tl^{+} (D = 1.96 X
10^{-5}), Cd^{++} (0.68 x 10^{-5}), and IO_3 - (1.05 X 10^{-5} sq. cm./sec.).

J. J. Bikerman

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

2

(A

Diffusion of ions and polarographic calculation method. Ya. P. Gokhshtein. *Trudy Komissii Anal. Khim., Otdel. Khim. Nauk, Akad. Nauk S.S.S.R.* **2** (5), 5-33(1949); cf. *C.A.* **43**, 5664i.—A formula was derived that connects the diffusion of an ion in H_2O (D_w) in the absence of an extraneous electrolyte and external elec. field, and the diffusion of an ion (D_e) in an extraneous electrolyte under the influence of an external field. Thus, D_e corresponds to conditions encountered in polarography $D_e = 1.542 D_w - 0.5 \times 10^6 (D_w)^2$. This relation is applicable only when the valency of the extraneous electrolyte is 1-1 and the diffusion coeff. of the ion is less than 1×10^{-5} sq. cm./sec. Insertion of the value of D_e in the Ilkovic formula gives an equation relating the diffusion coeff. of the ion in H_2O and the diffusion current const. of the reduced ion $K = 605Z[1.542D_w - 0.5 \times 10^6(D_w)^2]^{1/2}m^{2/3}t^{1/6}$. The modified Ilkovic formula was used for calcg. diffusion consts. of some ions: Pb, Zn, Cd, Cu, IO_3^-, and CrO_4^{--}. The calcd. values differed from those detd. by not over ±3%. Next were detd. diffusion coeffs. of some complex ions of Cu, Zn, Cd, and Pb, and the data were used for calcg. their approx. mol. wts. by using the Riecke formula (*Z. Phys. Chem.* **6**, 564(1890)). This permitted calcn. of the degree of hydration of Cu, Zn, and Cd; Pb did not hydrate. The use of the av. diffusion coeff. of ions simplifies polarographic work considerably. M. Hosch

Reduction of oxygen-containing anions on a dropping-mercury electrode. V. P. [illegible]. *Trudy Komissii Anal. Khim., Otdel. Khim. Nauk, Akad. Nauk S.S.S.R.* 2(5), 54-61(1949). The anions studied were CrO_4^{2-} and MoO_4^{2-}. The former is best studied in 1N KOH soln. at which concn. the wave is best. The exptl. results obtained with the aid of the Ilkovic formula indicated that the reduction proceeds according to $CrO_4^{2-} + 3e^- + 4H_2O \rightarrow Cr(OH)_3 + 5OH^-$. MoO_4^{2-} could be reduced only in acid media. It is suggested that at pH approx. 1.5 is formed the anion $H_2Mo_6O_{21}$ aq^{4-}. This anion is adsorbed on the surface of Hg. At a potential of −0.45 v. this anion splits off 2H⁺ which react at the Hg surface according to: $H_2Mo_6O_{21}$ aq^{4-} + 2e⁻ → $[HMo_6O_{21}$ aq$]^{5-}$ + H. This reduction produced 1 polarographic wave. At a pH 1.8 the hexamolybdenum anion changes into a low mol. wt. cation having a greater diffusion ability. Thus, at pH 1.8 both the anion and cation are reduced causing a sharp increase in the height of the Mo polarographic wave.

M. Hosch

Polarographic analysis in ferrous metallurgy. Y. I. [illegible]okhshtein and A. M. Dymov. *Trudy K[illegible] [illegible] Khim., Otdel. Khim. Nauk, Akad. Nauk* [illegible] 2, 50, 157 81(1949). Review with [illegible] references.

M. Ho[illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

USSR/Chemistry - Diffusion Feb 52

"Study of the Diffusion of Electrolytes With the Aid of a Diffraction Micromethode," Ya. P. Gokhshteyn, Inst of Geochem and Analyt Chem imeni V. I. Vernadskiy, Moscow, Acad Sci USSR

"Zhur Fiz Khim" Vol XXVI, No 2, pp 224-234

Designed a diffraction microdiffusion meter which permits study of the diffusion of strong electrolyte in dil solns. Investigated for the 1st time diffusion of strong electrolytes of valencies 2-1 (e.g. $Pb[NO_3]_2$; $BaCl_2$) and 1-1 (e.g. KNO_3) at

211T47

concns 0.003-0.1 M. Proposes new method of calcg diffusion coeffs which permits computation of the distribution of diffusing substance along the height of a liquid column at any given moment. Showed that diffraction phenomena produced by $Pb(NO_3)_2$ radically differ from those produced by KNO_3; that there is proportionality between concn and number of diffraction spots. Measured changes of diffraction coeffs of $Pb(NO_3)_2$ and KNO_3 with concn. Detd for the 1st time coeffs of diffusion of Pb^{++} and NO_3^- in extraneous electrolytes used in polarography.

211T47

USSR/Chemistry - Polarography

Mar 52

"Diffusion of Electrolytes and the Polarographic Method," Ya. P. Gokhshteyn, Inst of Geochem and Analyt Chem imeni V. I. Vernadskiy, Acad Sci USSR

"Zhur Fiz Khim" Vol XXVI, No 3, pp 336-345

A study of diffusion of electrolytes shows that the limiting current of the ion being reduced includes a supplementary current (not accounted for by Ilkovich's formula) in the presence of an excess of an extraneous electrolyte. Heyrovskiy and Illkovich's theory on the effect of the concn of an indifferent electrolyte on the limiting current is shown to be inapplicable. Kolthoff, Lingane, and MacGillavry's

213T28

eqs did not describe the phenomena correctly. An empirical eq which is more accurate has been formulated. The deposition of lead ions as well as reduction and oxidation of Fe ions on a stationary Pt microelectrode have been investigated. Kolthoff and Lingane's eq is specifically inapplicable in the case of a stationary electrode; a semiempirical eq connecting the limiting current of an ion being reduced or oxidized with its diffusion coeff in a soln contg an excess of an indifferent electrolyte is proposed.

213T28

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

Analytical Abst.
Vol. 1 No. 3
Mar. 1954
General Technique and Laboratory Apparatus

631. Diffusion of electrolytes and the polarographic method. The limiting current of a reducible ion on the dropping-mercury cathode. Ya. P. [illegible] (J. Anal. Chem., U.S.S.R., 1953, 8 [illegible] The validity of the diffraction method for [illegible] coeff. of diffusion is demonstrated [illegible] data illustrate the effect of base electrolyte [illegible] on the true diffusion const. The [illegible] current of a reducible ion in presence of [illegible] of base electrolyte on the [illegible] consists in the diffusion current and [illegible] current. The additional current, not [illegible] Ilkovič equation, is on the average [illegible] the mean [illegible] diffusion current [illegible] drop times 2 to 7 sec are used. [illegible] that the Ilkovič equation [illegible] modification to $i_m = 744{\cdot}2\, zD^{\frac{1}{2}}m^{\frac{2}{3}}$ for [illegible] and anions of the type $HPbO_2^-$, [illegible] 1650 [illegible] for anions of the type [illegible]. The equation of Strehlow and [illegible] (Z. Elektrochem., 1950, 54, 51) does not [illegible] with the experimental data. G. S. Smith

GOKHSHTEYN, Ya. P.

3

1746. **Oscillographic polarography.** Ya. P. Gokhshteyn and Ya. V. Surkov (*J. Anal. Chem., U.S.S.R.*, 1953, **8** (6), 323-332). — The construction and use of a new oscillographic polarograph are described, and the effect of various factors on the oscillograms is studied. The experimental results show significant deviations from the results calculated from Randles's equation (*Trans. Faraday Soc.*, 1948, **41**, 327). The method is considerably more sensitive than the normal polarographic method and 10^{-7} M solutions can be analysed. G. S. Smith

Inst. Geochem. & Anal. Chem. im. V. I. Vernadskiy, AS USSR, Moscow

GOKHSHTEYN, Ya. P.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 147 - 8/21

Authors : Gokhshteyn, Ya. P.

Title : Diffusion of electrolytes investigated with the aid of the diffraction micro-method. Part 2.- Differential diffusion coefficients of $CdCl_2$, $CdSO_4$, KIO_3, Cd^{++} and JO_3 in various media.

Periodical : Zhur. fiz. khim. 8, 1417-1426, Aug 1954

Abstract : Data on the determination of differential diffusion coefficients of $CdCl_2$, $CdSO_4$ and KIO_3, are presented. The effect of the nature and concentration of a foreign electrolyte on the value of the diffusion coefficient of Cd^{++} and JO_3, is explained. The results obtained (see tables) were found to be entirely different from the results calculated in accordance with the Onzager-Fuoss theory. Six references: 5-USSR and 1-USA (1945-1953). Tables; diagrams.

Institution : Acad. of Sc. USSR, The Vernadskiy Institute of Geochemistry and Analytical Chemistry, Moscow

Submitted : October 3, 1953

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

GOKHSHTEYN, YA. P.

USSR/Chemistry - Polarographic analysis

Card 1/1 : Pub. 145 - 1/10

Authors : Gokhshteyn, Ya. P.; Sinyakova, S. I.; and Yukhtanova, V. D.

Title : Adaptation of oscillographic polarography for quantitative determination of Ti

Periodical : Zhur. anal. khim. 9/5, 255-264, Sep-Oct 1954

Abstract : A method for polarographic or oscillographic determination of Ti in the presence of Fe, V, Cr, Ni and other metals, was developed. The mechanism of reduction of Ti complexes and the stability factors of tartrate, citrate and oxalate Ti complexes in 1-2 N sulfuric acid, are explained. An acid medium saturated with sodium oxalate was found to be most suitable for Ti determination. The effect of Fe, V, Cr, Ni and Mo on the magnitude of maximum Ti current, is elucidated. Eleven references: 6-USSR; 1-USA; 1-Belgian and 3-Czech (1932-1953). Tables; graphs; illustrations.

Institution : Acad. of Sc. USSR, The V. I. Vernadskiy Institute of Geochemistry and Analytical Chemistry, Moscow

Submitted : March 13, 1954

GOKHSHTEYN, Ya. P.

USSR

2031. **Oscillographic polarography.** Ya. P. Gokhshtein and Yu. A. Surkov (*Zh. Anal. Khim., SSSR*, 1954, **9** (6), 319-343).—Methods of oscillographic polarography, including those of Matheson and Nichols, Randles, Delahay, Delahay as modified by the authors (*Anal. Abstr.*, 1954, **1**, 1740), Snowden and Page, Cruse and Heberle (*Z. Elektrochem.*, 1953, **57**, 579), Sevick and Heyrovsky, are reviewed and its advantages over ordinary polarography are discussed. Results of experiments with a saw-tooth wave are compared with theoretical results derived from the equations of Randles and of Sevick, and a semi-empirical equation is proposed to replace these equations.

G. S. Smith

62

(1)

PH

GOKHSHTEYN

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

USSR

Oscillographic polarography. Ya. P. Gokhshtein and Yu. A. Surkov. *J. Anal. Chem. U.S.S.R.* 9, 355-8 (1954) (Engl. translation).—See *C.A.* 49, 5156e.

H. L. H.

GOKHSHTEYN, Ya.P.

On the remarks of K. Micka and A.A. Vclek concerning the article "Diffusion of electrolytes and polarography." Zhur.anal.khim. 10 no.3:192-198 My-Je '55. (MIRA 8:8)
(Electrolytes) (Polarography) (Micka, K.) (Vclek, A.A.)

GOKHSHTEYN, Ya.P.

Electrolyte diffusion and the polarographic method; reply to K.Micka and A.A.Vlček. Zhur.anal.khim.11 no.4:513-516 Jl-Ag
(MLRA 9:10)

1. Institut geokhimii i analiticheskoy khimii imeni V.V.Vernadskogo AN SSSR, Moskva.
(Electrolytes) (Micka, K.) (Vlček, A.A.)

GOKHSHTEYN, YA. P.

Chem Phys

Oscillographic polarographic method of determining niobium in the presence of large amounts of titanium. Ya. P. Gokhshtein. *Zavodskaya Lab.* 22, 38-44(1956).—Nb produces a well-defined wave in an oscillographic polarograph, and the wave can be measured readily. A linear relation exists between the max. Nb current and its concn. Ti and Nb produce waves in 23*N* H_2SO_4 at different potentials, which permits their detn. if both are present. A small addn. of Ti raises the Nb wave by 25-30%, greater addns. (above 10-fold) decreases the max. current. The decrease depends on $C_{Ti}:C_{Nb}$ and on the Nb concn. An equation was derived permitting the Nb detn. in the presence of large amounts of Ti, by means of $I_{max.}$ for Nb. W. M. S.

Inst. Geochem. + Analytical Chem. im. Vernadskiy, AS USSR

GOKHSHTEYN, Ya.P., kandidat khimicheskikh nauk.

New dwvice in oscillographic polarography. Vest.AN SSSR 26 no.12:49-52 D '56.
(MIRA 10:1)

(Polarography)

USSR/Electrochemistry B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26326

Author : Ya.P. Gokhshteyn
Title : Electrolyte Diffusion and Polarographic Method. Diffusion Factors of Lead and Cadium in Aqueous Solutions of KCl and KNO_3 of Various Concentrations, $D_{Cd^{2+}}$ in 0.1 of H_2SO_4. Checking of Shevchik's equation for Maximum Current of Oscillograph Wave.

Orig Pub : Zh. fiz. khimii. 1956, 30, No 7, 1584-1590

Abstract : i_dPb^{2+} in 0.01 - 3 M of KCl and 0.01 - 2 M of KNO_3 and i_dCd^{2+} in 0.01 - 2 M of KCl and in 0,1 M of H_2SO_4 were measured. The diffusion factors (D) of Pb^{2+} and Cd^{2+} were computed from these data by Hans's equation (RZhKhim, 1956, 9475). These magnitudes of D agree well with D-s determined by the earlier described diffusion micromethod (RZhKhim, 1956, 6477), and disagree with D-s determined by other methods. The equation of Shevchik for the maximum current of the oscillograph wave of Pb^{2+} and Cd^{2+} in KCl and KNO_3 of various concentrations was checked by substituting D-s determined by various methods. It is shown that the equation of Hans gives values that are more close to the authentic ones.

Card : 1/1

AUTHOR GOKHSHTEYN, Ya. P., KUZ'MIN S.V., VOLKOV A.F., YANCHEVSKIY V.Ya. 32-8-45/61

TITLE Oscillographic Polarograph "Geokhi". (Ostsillograficheskiy polyarograf "Geokhi",- Russian)

PERIODICAL Zavodskaya Laboratoriya 1957, Vol 23, Nr 8, pp 988-992 (U.S.S.R.)

ABSTRACT A new highly sensitive device for carrying out analyses is concerned here. The experiments of the quantitative determinations of small contents of Bi, Sb, Cd, and Pb at high content of uranium are given as examples. The radiotechnical scheme of the apparatus is given here which shows that to the main part of the apparatus there belongs the generator scheme with two tubes, a pentode with reversed negative binding in the cathode; in the wiring circuit of the second stage there is potentiometer which regulates the amplitude of the saw-tooth-like oscillations which are then recorded by the generator by means of a capacitor. The next tube (3) has an oscillation limiter the treshold of which is regulated by an alternating resistance. The oscillations are received by the next tube (4) which has an electrolytical cell and a cathode repeater, after which they are transmitted to the next tube (5) with the cascade

CARD 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7

Electrolyte diffusion with the polarographic [illegible] **Zn++ diffusion coefficient in various concentrations of** [illegible] **and KNO$_3$-water solutions.** [illegible] Vernadskii Inst. Geochem. and Anal. Chem., Acad. Sci. U.S.S.R., Moscow). *Zhur. Anal. Khim.* [illegible]; cf. *C.A.* 49, [illegible] Zn++ diffusion in [illegible] and KNO$_3$ solns. was studied by the authors' diffusion microelectrode, under conditions similar to those used in polarographic analysis, and the results were compared with results obtained by other methods and with the [illegible] the use of the equation of [illegible] *et al.* (*C.A.* 49, [illegible]) and Stackelberg, *et al.* (*C.A.* 47, [illegible]). The [illegible] obtained by the diffraction method agreed well with [illegible] results, but differed from Stackelberg's by 4-[illegible]% in KCl solns. and by 28-80% in KNO$_3$ soln. The values for D$_{Zn^{++}}$ obtained by the capillary method differed considerably from the results obtained by the diffusion and polarographic methods, and from results obtained by the use of Onsager's theory (*C.A.* 40, 5971) except for values for 0.1*N* KCl and 0.05*N* KNO$_3$ solns.

W. M. Sternberg

AUTHOR: [illegible], [illegible]. [illegible]. [illegible]

TITLE: The Application of Oscillographic Polarography in Quantitative Analysis
(Primeneniye ostsillograficheskoy polyarografii v kolichestvennom analize).
Communication I. The Influence Exerted by Atmospheric Oxygen Dissolved in the Electrolyte Upon the Value of the Capacity Current of the Indifferent Electrolyte and Upon the Maximum Current of Reducible Ions.
(Soobshcheniye I. Vliyaniye rastvorennogo v elektrolite kisloroda vozdukha na velichinu yemkostnogo toka fona i maksimal'noye znacheniye toka vosstanavlivayushchikhsya ionov)

PERIODICAL: Zhurnal Analiticheskoy Khimii, [illegible], [illegible], [illegible] 12, [illegible] 36-42 (USSR).

ABSTRACT: In usual polarography maxima of first and second order occur in a volt-ampere diagram (i - φ) in the current, owing to which the performance of quantitative determinations is disturbed. For suppressing the maxima various surface-active substances causing an inhibition of the electrochemical processes and leading to the formation of "false" polarographic waves are added to the solution to be investi-

Card 1/4

The Application of Oscillographic Polarography in Quantitative Analysis
Communication 1. The Influence Exerted by Atmospheric Oxygen Dissolved in the Electrolyte Upon the Value of the Capacity Current of the Indifferent Electrolyte and Upon the Maximum Current of Reducible Ions.

75-1-5/26

gated (ref. 1). In oscillographic polarography no maxima occur, as toward the end of the increase in the drop, when the polarogram is taken, the motion of the surface becomes more slow. It is further known that in ordinary polarography the atmospheric oxygen dissolved in the electrolyte exercises considerable influence upon the waves of the ions to be reduced and therefore disturbs quantitative determination, by the example of the electrolysis of an 1n - KCl-solution it was shown that the oscillographic curve of this electrolyte is identical with the curve which represents the connection existing between the differential capacity of the mercury dropping electrode and the potential. The presence of oxygen in the 1n-KCl-solution leads to a decrease in the capacitive current in the beginning of the oscillogram. At more negative values of the potential no influence of the dissolved oxygen upon the curve $i - \varphi$ manifested itself. In order to determine the influence exerted by the dissolved oxygen upon the $i - \psi$ curves, tests for the quantitative determination of the ions Pb^{2+} and Cd^{2+} and Zn^{2+} (separate and to-

Card 2/4

gether) were performed. It became evident that in the sole presence of Cd^{2+} in a 1n - HCl-solution the dissolved oxygen reduces the maximum value of the current of cadmium. In the case of a potential which is near to the potential of the peak of Cd^{2} a second wave occurs which is caused by the reduction of $Cd(OH)_2$ and which disappears upon acidification of the solution. In the presence of Pb^{2+} and Zn^{2+} the second wave does not occur and the influence of the dissolved atmospheric oxygen becomes very small. This may be explained by the fact that the Pb^{+}-ion prevents the formation of $Cd(OH)_2$ on the electrode. The accompanying ions exert great influence upon the value of the maximum current for the Cd^{2+}-ion. The connection between the concentration and the maximum current of cadmium, however, remains linear. This linear connection is maintained as well in the presence as well as in

Card 3/4 the absence of oxygen dissolved in the electrolyt. It is there-

APPROVED FOR RELEASE: Thursday, September 26, 2002

The Application of Oscillographic Polarography in Quantitative Analysis. Communication 1. The Influence Exerted by Atmospheric Oxygen Dissolved in the Electrolyte Upon the Value of the Capacity Current of the Indifferent Electrolyte and Upon the Maximum Current of Reducible Ions.

[illegible]-5/26

fore possible to perform quantitative analyses without separation of the oxygen, which, in comparison to normal polarography, is of great advantage.
There are 8 figures, and [illegible] references, [illegible] of which are Slavic.

ASSOCIATION: Institute for Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, AS USSR, Moscow (Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moskva)

SUBMITTED: July 1[illegible], 1956.

AVAILABLE: Library of Congress.

1. Electrolytes - Effects of oxygen 2. Electrolytes - Polarographic analysis 3. Ions - Quantitative analysis

Card 4/4

AUTHOR: Gokhshteyn, Ya. P. SOV/76-32-7-7/45

TITLE: Oscillographic Polarography (Ostsillograficheskaya polyarografiya) I. The Importance of the Parameters of the Electrolytic Cell (Znacheniye parametrov elektroliticheskoy yacheyki)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 7, pp. 1481-1489 (USSR)

ABSTRACT: Continuing earlier papers the author carried out an analysis of oscillograms which had been obtained as result of an interaction between the cellular elements and the apparatus. In the introduction explanations are given of the capacitive current of the increasing mercury drop at the polarogram on the basis of an equation; then the author passes to the interpretation of the oscillograms. Two cases of the equivalent chain are distinguished: one which corresponds to potentials in which no electrochemical transformations take place and the other for voltage intervals in which this is not the case. It is found that the periodicity of the voltage pulses does not only influence the oscillogram in the case of irreversible processes but that it also occurs to a considerable extent in the initial

Card 1/3

data. The saw-tooth and triangular pulses are stretched and are explained by a number of equations. Using a derived equation and the oscillogram of the capacitive current the capacity of the double layer can be determined, with a difference being made between the oscillogram of an a. c. amplifier and that of an apparatus with a d. c. amplifier, for the case that an electrochemical reaction takes place. A graph of the diffusion current calculated under the assumption that capacitive and diffusion current do not depend on each other is given; it is pointed out that in the calculation of the diffusion current the ratio between the resistance of the solution and the active part of the Faraday-impedance must in any case be taken into account. The author gives examples for the determinations of the differential capacity in solutions of 0,1 M KCl and 0,1 M KCl + 10^{-4} M $CdCl_2$, 1 N H_2SO_4 (free of oxygen) by the oscillographic method, with the data satisfactorily agreeing with those obtained by Grahame (Ref 9). From the results obtained may be seen that the solutions containing Cd^{2+} have a little higher values of differential capacity

Oscillographic Polarography. I. The Importance of the Parameters of the Electrolytic Cell SOV/76-32-7-7/45

than the other solutions. The author gives data on the determination of the electrolysis resistance according to the angle of inclination of the curve of current versus voltage. There are 8 figures, 3 tables, and 9 references, 6 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo (Institute of Geochemistry and Analytical Chemistry, imeni V.I. Vernadskiy, AS USSR)

SUBMITTED: February 15, 1957

1. Electrolytic cells--Analysis 2. Oscillograms--Analysis 3. Electrochemistry 4. Electrolytes--Electrical properties

Card 3/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

AUTHORS: Gokhshteyn, A. Ya., Gokhshteyn, Ya. P. SOV/20-120-4-37/67

TITLE: The Investigation of Films on a Mercury Electrode (Issledovaniye plenok na rtutnom elektrode)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4. pp. 825 - 826 (USSR)

ABSTRACT: The following method is, apart from the determination of capacitance (Refs 1,2,5) and of surface tension useful for the investigation of films on anodes and cathodes: The electrolyzer with the solution to be examined is wired into an ordinary polarographic circuit. If the potential of the dropshaped mercury electrode in the circuit is kept constant discreet changes of amperage take place in the circuit. Amperage quickly increases to a certain value, after which it slowly decreases to zero. The ranges of potential in which this effect occurs and the form and intensity of the pulse differ in the case of different substances: In some solutions there are no pulses at all, and in others pulses occur within range of the anode or within range of the anode and cathode. The potentials of vanishing and occurring differ, and in both cases the change

Card 1/3

The Investigation of Films on a Mercury Electrode SOV/20-120-4-37/67

takes place with a certain lag. The good reproducibility of measurements speaks for a statistical law governing the destruction of the film, which is always valid. The processes which take place in different solutions seem, with respect to time, to continue in the same way. The current pulses are due to the formation of a film on the growing mercury drop. This film becomes deformed and bursts after having reached the point of critical tension. A simplified method, which is discussed in short, makes it possible qualitatively to explain the change (with respect to time) of the amplitude and frequency of the current pulses. An expression is derived for the time dependence of amperage i(t). The measurements satisfactorily prove the proportionality between the initial concentration C_0 and the maximum amperage in the current pulse for concentrations below 0,1 N. The authors render their thanks to A.N.Frumkin, Member, Academy of Sciences, USSR, for his assistance. There are 3 figures 1 table, and 6 references, 2 of which are Soviet.

Card 2/3

The Investigation of Films on a Mercury Electrode SOV/20-120-4-37/67

PRESENTED: February 1, 1958, by A.N. Frumkin, Member, Academy of Sciences, USSR

SUBMITTED: January 22, 1958

1. Mercury films--Analysis 2. Mercury films--Properties
3. Mercury electrodes--Polarographic analysis

Card 3/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

PHASE I BOOK EXPLOITATION SOV/3818

Postoyannyy mezhinstitutskiy kollokvium po tverdym fazam peremennogo sostava

Kachestvo materialov dlya poluprovodnikovoy tekhniki (Quality of Materials for Semiconductor Technology) Moscow, Mettallurgizdat, 1959. 192 p. (Series: Its: Trudy, 1957-1958, vyp. 8-30) 3,600 copies printed.

Sponsoring Agencies: USSR. Sovet Ministrov. Gosudarstvennyy komitet po khimii; Akademiya nauk SSSR. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

Ed. (Title Page): B.F. Ormont, Professor; Ed. (Inside Book): Yu.V. Yakovlev; Ed. of Publishing House: L.M. El'kind; Tech. Ed.: P.G. Islent'yeva; Editorial Board of Series: I.P. Alimarin, Corresponding Member, Academy of Sciences USSR, Geochemistry Institute, M.V. Grigor'yev, Scientific Research Institute, Committee on Radioelectronics, E.P. Lastovskiy, Professor, Institute of Chemical Reagents, Chemistry Committee, B.F. Ormont, Professor, Academy of Sciences USSR, Institute of Physics and Chemistry imeni L.Ya. Karpov, B.L. Paroshenko, State Rare Metals Scientific Research Institute, N.P. Sazhin, Corresponding Member, Academy of Sciences USSR, State Rare Metals Scientific Research Institute, G.Ya. Tarasov, Scientific Research Institute, Committee on Radioelectronics, Yu.V. Yakovlev, (Resp. Secretary of the Board) Institute of Geochemistry, Academy of Sciences USSR.

PURPOSE: This book is intended for technical personnel engaged in the manufacture and utilization of semiconductors.

COVERAGE: This book treats methods of obtaining quality semiconductor materials and presents current standardized specifications for semiconductors and auxiliary materials. The book is divided into three parts. Part I consists of 16 reports delivered at two conferences in January 1957 and December 1958 at the Fiziko-khimicheskiy institut imeni L.Ya. Karpova (Institute of Physics and Chemistry imeni L.Ya. Karpov) by members of 36 participating institutes and industrial plants. The reports deal with the standardization of characteristics of pure semiconductor materials and describe spectral and spectrochemical analysis, and chemical, vacuum-fusion, polarographic, and radioactivation methods for studying semiconductor materials and determining impurities in them, along with the equipment used.

PART I. REPORTS ON METHODS FOR THE DETERMINATION OF MICROIMPURITIES IN SEMICONDUCTOR MATERIALS PRESENTED AT THE CONFERENCES ON THE QUALITY OF SEMICONDUCTOR MATERIALS

r/

GORBACHEV, S. V.

5(4) PHASE I BOOK EXPLOITATION [illegible]

Soveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.
Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodeposition and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Gokhshteyn, Ya. P. (Institut geokhimii i analiticheskoy khimii AN SSSR imeni V.I. Vernadskogo - Institute of Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy, Academy of Sciences, USSR). Diffusion of Electrolytes and the Polarographic Method [illegible]

Rosenfel'd, I.L., and K.A. Zhigalova (Institute of Physical Chemistry, Academy of Sciences, USSR). Diffusion of Oxygen Through Thin Films of Electrolytes [illegible]

Discussion [O.S. Ksenzhek, Yu. A. Chizmadzhev, Yu. A. Vdovin, G.B. Khachaturyan and contributing authors] [illegible]

PART VIII. ELECTROCHEMICAL PROCESSES IN NONFERROUS METALLURGY [illegible]

Stender, V.V. (Dnepropetrovsk Institute of Chemical Technology imeni F.E. Dzerzhinskiy; Institute of Chemistry, Academy of Sciences, KazSSR). Electrolysis as a Means of Combining

Card 27/34

Several Metallurgical and Chemical Production Processes (Some New Processes of Hydroelectric Metallurgy) [illegible]

Kozlovskiy, M.T. (Kazakh State University, Academy of Sciences, KazSSR). Some Problems of Amalgam Metallurgy - Cementation of Metals With Amalgams [illegible]

Delimarskiy, Yu. K., B.F. Markov, I.D. Panchenko, Ye. B. Gitman, and A. V. [illegible] (Institute of General and Inorganic Chemistry, Academy of Sciences, UkrSSR). Electrolytic Purification of Lead From Fused Salts [illegible]

Chizhikov, D.M., and V.N. Kopylova (Institute of Metallurgy, Academy of Sciences, USSR). Investigation of the Potentials and Anodic Polarization of Metallic Sulfides and Their Alloys [illegible]

Levin, I.I., and I.A. [illegible] (Deceased) (Vsesoyuznyy nauchno-issledovatel'skiy institut tsvetnykh metallov - All-Union Scientific Research Institute of Nonferrous Metals). Special

Card 28/34

Features of the Anode Process During the Purification of a Copper-Nickel Anode in a Sulfate-Chloride Electrolyte [illegible]

Zaretskiy, S.A., I.G. [illegible] (Deceased), and I.A. Bogdanova. Anodic Behavior of Manganese and Its Alloys [illegible]

GOKHSHTEYN, YA.P.

AUTHOR: Bilimovich, G. N.

SOV/75-14-4-30/30

TITLE: Section of Analytical Chemistry of the VIII Mendeleyev Congress on General and Applied Chemistry

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 4, pp 511-512 (USSR)

ABSTRACT: Approximately 300 persons participated in the work of the Department of Analytical Chemistry, among them representatives of various scientific research institutes, higher schools and industrial enterprises in Russia, scientists from China, Bulgaria, the ČSR, Poland, Hungary, and Italy. Approximately 70 reports were heard. In his opening speech I. P. Alimarin reported on the achieved results and on modern problems of analytical chemistry. I. V. Tananayev reported on the application of physico-chemical analysis in heterogeneous systems for the solution of a series of problems of analytical chemistry. V. I. Kuznetsov reported on modern aims in the use of organic reagents; A. K. Babko showed at the example of halide and thiocyanate complexes the correlation between the stability of complexes and the position of the corresponding central atoms in the periodic system. V. M. Peshkova and [illegible] lectured on the stability of oximates of Cu, Co, and Ni as depending on the structure of the oxime molecule. [illegible] lectured on the double character of reaction of azo compounds in the formation of complexes. The problem of the application of heteropolyacids in analytical chemistry was dealt with in the lectures of [illegible] Shakhova and co-workers, and A. I. Kororin and N. A. Polotebnova. A large number of lectures dealt with the use of new organic reagents in analysis: A. I. Busev and M. I. Ivanyutin reported on the application of dialkyl and diaryl dithiophosphoric acid for the separation of elements, A. I. [illegible] used aryl arsonic acid and aryl phosphinic acid. R. P. Lastovskiy and his co-workers treated some properties of new complexons. The lectures of [illegible] and A. [illegible] dealt with the photometric determination of a series of elements using fluorine derivates. A. [illegible] lectured on the use of halochromation in analytical chemistry. [illegible] and [illegible] Malyutina lectured on the determination of tantalum using differential spectrophotometry. [illegible] and [illegible] Stolyarova reported on new highly sensitive analysis methods using an ultraviolet microscope. Several lectures dealt with methodical and theoretical problems of spectrum analysis (M. F. Zakhariy and G. A. [illegible]; [illegible] Fayngshteyn and co-workers). N. S. Poluektov and [illegible] Nikonova treated the perfection of flame photometry. Several lectures dealt with the determination of elements by polarography ([illegible]; [illegible] Kozlitsalyanskaya and [illegible]; Ya. P. Gokhshteyn), new results in using fixed electrodes were reported by [illegible] Panchenko and Yu. S. Lyalikov and co-workers. The lecture of [illegible] and [illegible] treated the use of amperometric titration with two electrodes in the chemistry of uranium and thorium. M. M. Senyavin showed possibilities of predicting the conditions of chromatographic separation of elements based on their position in the periodic system. [illegible] reported on the use of ion exchange in the investigation of the state of substances in solutions. A. [illegible] and V. [illegible] lectured on the chromatographic separation of a series of elements, [illegible] Polyanskiy reported on adapting the properties of ion exchanger resins, [illegible] and associates reported on the chromatographic [illegible] of sulfonilamide preparations in liquids of the organism. [illegible] and associates treated the application of high polymers in chromatographic analysis. The lecture of A. A. [illegible] and [illegible] Turkel'taub, G. Shay dealt with gas chromatography. Several lectures treated the use of radioactive isotopes for [illegible] investigation of complex formation ([illegible] and associates), for the investigation of the coprecipitation mechanism of ions of rare metals with sulfides ([illegible]) and for determining rare elements by means of [illegible] dilution ([illegible] Alimarin, [illegible] Bilimovich). In the field of [illegible] the lectures of [illegible] and V. A. Klimova with associates have to be [illegible], who treated the elaboration of rapid micro-methods for the simultaneous determination of several elements from one [illegible], fluorine and [illegible].

Card 1/4

Card 2/4

Card 3/4

5(4)

AUTHOR: Gokhshteyn, Ya. P. SOV/20-126-3-39/69

TITLE: A General Equation for Oscillographic Polarography, Reversible Processes in Cathodic and Anodic Polarization (Obshcheye uravneniye ostsillograficheskoy polyarografii, obratimyye protsessy pri katodnoy i anodnoy polyarizatsii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 23, Nr 3, pp 598-601 (USSR)

ABSTRACT: The proof of the dependence of the electric current of reversible processes on the potential of the electrodes on which these processes occur follows from the solutions of the boundary problems for the system of two parabolic equations. These equations are given, and obtaining the electrochemical current is considered to be the aim to be achieved by solving this problem. The solution is carried out according to the method suggested by A. Sevčik. It is assumed that the function of the concentration on the surface is known, in which case the problem may be divided into two boundary problems. The solution is obtained by means of Abel's integral. The validity of the equation thus obtained is confirmed by several examples. First, the electrochemical current for a constant potential, next for a linearly varying potential with cathodic polarization, then for a linearly varying potential with

Card 1/2

A General Equation for Oscillographic Polarography, Reversible SOV/20-126-3-39/69
Processes in Cathodic and Anodic Polarization

anodic polarization, and finally for a periodically varying potential is calculated. There are 5 references, 3 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences, USSR)

PRESENTED: January 28, 1959, by A. N. Frumkin, Academician

SUBMITTED: January 27, 1959

Card 2/2

28(4)

AUTHORS: Gokhshteyn, Ya. P., Volkov, A. F., Kuz'min, S. V., Yanchevskiy, V. A.

SOV/32-25-8-39/44

TITLE: A New Model Oscillographic Polarograph

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 8, pp 1008-1012 (USSR)

ABSTRACT: A new type cathode-ray polarograph was designed which makes possible the detection of low concentrations of elements and organic compounds, the determination of the capacity of the binary electrical layer on dropping and solid electrodes, the impedance of the electrolytic cell, the velocity and the reversibility of the electrode reactions and the study of surface and adsorption phenomena. The instrument operates with an accuracy of ± 2% at concentrations of 10^{-3} - 10^{-5} mol/l and of ± 3% at 10^{-6} - 10^{-7} mol/l. The scheme of the instrument permits a periodical and a unique development of the various fixed velocities of the potential variations and this way both an Hg-dropping electrode and a stationary Hg-electrode can be used and the sensitivity can be considerably increased. One

Card 1/3

can operate simultaneously with two cells which are reversed by a polarized relay. The polarographic cell receives simultaneously a constant negative tension and a positive sawtooth-shaped tension which eliminates the deformation of the curves by the current intensity. The radiotechnical wiring of the instrument was designed based on electron-ray tube type 13LO-36 and consists of the following main units (Fig 1): a generator for the linear-varying tension (the potential variations are determined by means of a magneto-electric loop-oscillograph N-10) with a thyratron cathode TG1-0.1/0.3, a compensator for the load resistance of the cell (with a network 12Zh1L) and a compensator of the capacity current, a synchronizer and a single vibrator (6N8) for the delay of the impulse (synchronized with the dropping period of the Hg), an amplifier for the vertical ray declination (with networks 6Zh4, 12Zh1L) and a current feeder unit. The article gives data on the sensitivity (Table) of the instrument and examples of investigations made with oscillograms obtained at the electrolysis of a 1 n KCl-solution, which contained 5.0 γ/ml of Pb^{2+} and Cd^{2+}, and a 1 n HCl-solution containing 0.5 γ/ml of Sb^{3+} and Bi^{3+} and a 1 n KCl-solu-

A New Model Oscillographic Polarograph

SOV/32-25-8-39/44

tion with 0.1 γ/ml of Cd^{2+}. There are 5 figures, 1 table, and 1 Soviet reference.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences, USSR)

Card 3/3

5(2)

SOV/32-25-9-6/53

AUTHORS: Gokhshteyn, Ya. P., Genkina, L. A., Demkin, A. M.

TITLE: Determination of Niobium in Tantalum Niobium Alloys According to the Method of Oscillographic Polarography

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1042-1046 (USSR)

ABSTRACT: No distinct waves for niobium (I) in sulphuric medium on the curves "current - potential" can be obtained with the photo-recording polarograph according to Heyrovsky'. For this reason an oscillographic polarograph GEOKhI (Ref 7) was used for quantitative (I)-determinations in the presence of larger quantities of tantalum (II) and impurities of iron and titanium. The potentials of the peak φ_p and half peak $\varphi_{p/2}$ are given with respect to the saturated calomel electrode. The potential difference between a φ_{cathode} and a $\varphi_{\text{auxiliary cathode}}$ was measured by means of an electron scheme, specially constructed for the measurement of the equilibrium electromotive force. The experiments were carried out with different sulphuric acid concentrations (23n, 15n, 10n, and 5n H_2SO_4), and

Card 1/3

Determination of Niobium in Tantalum Niobium Alloys According to the Method of Oscillographic Polarography SOV/32-25-9-6/53

the oscillograms obtained were plotted (Figs 1-3). (I)-Solution was not used for the analysis since it is unstable in 5n H_2SO_4. Preliminary experiments showed that dissolved oxygen does not disturb the (I)-determination. Results of experiments on the dependence of the maximum current for (I) on the (I)-concentration (Table 1) show that with low (I)-concentration the current appears approximately as a linear function of the (I)-concentration. With higher (I)-concentrations a deviation from this proportionality can be observed in 15n and 10n H_2SO_4, which may, however, be weakened by a shorter waiting time. The influence of (II) upon the maximum current of (I) in the electrolysis of Nb^{5+}-solutions was investigated. It was found that only a slight influence is exerted upon the first cathode wave of (I) as well as upon anode polarization, as may be seen from data on the dependence of maximum current for (I) on the (I)-concentration with an excess of (II) (20 : 1 = Ta : Nb) (Table 2). It was also ascertained that a 50fold excess of

Card 2/3

Determination of Niobium in Tantalum Niobium Alloys According to the Method of Oscillographic Polarography SOV/32-25-9-6/53

titanium, as well as impurities of iron, exert no influence upon the (I)-current in H_2SO_4-solutions. A course of analysis is given, where in 23n H_2SO_4 the computation takes place from the first cathode wave, or the anode wave, and in 15n and 10n H_2SO_4 from the anode wave of (I). Mechanical mixtures of (I) and (II) as well as alloys were investigated according to the method described, along with 3 other methods. The results were compared (Table 3). There are 2 figures, 3 tables, and 9 references, 7 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii Akademii nauk SSSR i Moskovskiy elektrolampovyy zavod (Institute of Geochemistry and Analytical Chemistry of the Academy of Sciences, USSR, and Moscow Electric Bulb Factory)

Card 3/3

5(4) SOV/76-33-5-15/33

AUTHOR: Gokhshteyn, Ya. P. (Moscow)

TITLE: The Diffusion of Electrolytes and the Polarographic Method (Diffuziya elektrolitov i polyarograficheskiy metod). The Diffusion Coefficients of Antimony and Bismuth Ions in Aqueous HCl Solutions of Varying Concentration (Koeffitsiyenty diffuzii ionov sur'my i vismuta v vodnykh rastvorakh HCl razlichnoy kontsentratsii)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 5, pp 1053 - 1058 (USSR)

ABSTRACT: In this paper the diffusion of ions is investigated under conditions prevailing in polarography. The motion of an ion which does not result in a shift of an ion with opposite charge is understood by diffusion of an ion. Neutrality is maintained if several electrolytes with the same anion are present in a solution. The diffractometrical method was used for determining the diffusion coefficients of the trivalent ions of Bi and Sb in HCl of varying concentration (according to Ref 1). Table 1 shows the effect of the HCl concentration on the limit current and the diffusion coefficient of

The Diffusion of Electrolytes and the Polarographic Method. The Diffusion Coefficients of Antimony and Bismuth Ions in Aqueous HCl Solutions of Varying Concentration SOV/75-13-3-15/33

Bi^{3+} at 25°; table 3 shows the corresponding results for Sb^{3+}. The values obtained by means of the diffractometrical method are in good agreement with those determined by means of the Hans equation (Ref 2), whereas differences occur upon comparison with the values determined according to D. Ilkovič's formula. There are 4 tables and 3 references, 1 of which is Soviet and 1 Czechoslovakian.

ASSOCIATION: Akademiya nauk SSSR Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo (Academy of Sciences USSR, Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy)

SUBMITTED: October 11, 1957

Card 2/2

5.4600
~~5(4)~~ 5.4300

66181

AUTHORS: Gokhshteyn, Ya. P., Gokhshteyn, A. Ya. SOV/20-128-5-35/67

TITLE: Consecutive Electrochemical Reactions in Oscillographic Polarography

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5, pp 985-988 (USSR)

ABSTRACT: By determining quantitative relationships between consecutive current waves and the constants of reactions proceeding in various stages the kinetics of the latter may be investigated. The authors investigated such relationships for the ionic reaction $n_{ip}\theta + \sigma_i \rightleftarrows \sigma_p$ (σ = Ion, $i,p = 1,2\ldots m$). $n_{ip} = z_i - z_p$ is the number of electrons reacting in one stage ($n_{ip} = -n_{pi}$). A system of conditions at the boundary between the electrode and the solution is set up, and $\varphi_i(t)$, the equation for the course of the polarographic current, is deduced. The resultant relationships were practically applied to the reduction of Nb^{5+} in 23-n sulphuric acid, the development of which has not been explained as yet. Figure 1 shows the oscillogram, figure 2 the currents computed

Card 1/2

4

66181

Consecutive Electrochemical Reactions in Oscillographic Polarography SOV/20-128-5-35/67

for the two-stage reduction Nb^{5+} - Nb^{4+} - Nb^{3+}. The height of the current waves is proportional to the square root of the velocity of potential variation. The experimental data are in good agreement with the theoretical relationships. There are 3 figures, 1 table, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences, USSR)

PRESENTED: June 1, 1959 by A. N. Frumkin, Academician

SUBMITTED: April 16, 1959

Card 2/2

GOKHSHTEYN, Ya.P.; VOLYNETS, M.P.; YUKHTANOVA, V.D.

Determining the presence of copper, lead, zinc, nickel, iron and silver in high purity metallic germanium by oscillographic polarography method. Trudy Kom. anal. khim. 12:5-24 '60. (MIRA 13:8)
(Germanium--Analysis) (Polarography)

RYABCHIKOV, D.I.; GOKHSHTEYN, Ya.P.; BORISOVA, L.V.

Method of direct determination of lead, cadmium, bismuth, antimony and tin in molybdenum by means of oscillographic polarography. Trudy Kom. anal. khim. 12:265-280 '60. (MIRA 13:8)
(Molybdenum--Analysis) (Polarography)

S/075/60/015/005/006/026/XX
B002/B056

AUTHOR: Gokhshteyn, Ya. P.

TITLE: The Use of Immobile Mercury Electrodes in Oscillographic Polarography

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 5, pp. 541 - 549

TEXT: A number of determinations was carried out with immobile mercury electrodes in which the dissolved oxygen was not removed from the electrolyte. All measurements were made with the oscillographic polarograph of the GYeOKhI (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy). For the determination of a liquid at rest, a cylindrical cell with two immobile mercury electrodes was used (Fig. 1). A glass cylinder of 0.56 cm diameter, which was filled with mercury, served as polarized electrode, while as non-polarized electrode the mercury layer at the bottom of the vessel (4.5 cm diameter) was used. The amount of the electrolyte was 8 ml. The following determinations

Card 1/4

The Use of Immobile Mercury Electrodes ... S/[illegible]/XX
Oscillographic Polarography B002/B056

were carried out. Pb^{2+} and Cd^{2+} in [illegible] N HCl (Fig. [illegible]) Nb^{5+} and $Ti^{[illegible]}$ in [illegible] N H_2SO_4 (Figs. 3a and 3b, Table [illegible]), U^{6+} in [illegible] N HNO_3 (Fig. 4, Table 2). The concentrations investigated were between about 30 and 300 g/l. Furthermore, a cell was designed for continuous measurement of the concentrations of solutions passing through it (Fig. 5). The following substances were determined: Cd^{2+} in [illegible] N HCl (Fig. 6, Table 3), Cd^{2+} and Pb^{2+} in [illegible] N HCl (Fig. 7a, Table 4), Cd^{2+} and In^{3+} in [illegible] N HCl (Fig. 7b), U in [illegible] N HNO_3 in the presence of Fe^{3+} (Fig. 8, Table 5). It was found that also after a several days' contact of the mercury with the solution a quantitative determination is possible (Tables 3 and 5). Finally, it is stated that oscillographic polarography may be used for the automatic control of industrial solutions. There are 8 figures, 5 tables, and 12 references: 6 Soviet

Card 2/4

The Use of Immobile Mercury Electrodes in Oscillographic Polarography

S/075/60/015/005/008/026/XX
B002/B056

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moskva (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR, Moscow)

SUBMITTED: September 1, 1959

Card 3/4

S/075/60/015/005/008/026/XX
B002/B056

Legend to Fig. 5:
Cell for the analysis of solutions flowing through it.
1) three-way cock

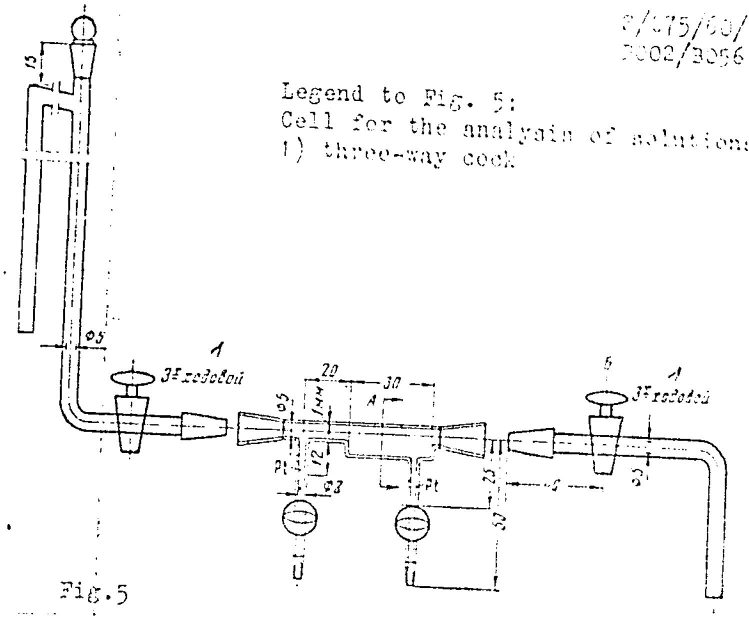

Fig.5

Card 4/4

GOKHSHTEYN, Ya.P. (Moskva)

Attachment to the oscillographic polarograph constructed by the Institute of Geochemistry and Analytical Chemistry, used in determining the instantaneous difference of potential between the test electrode and the reference electrode. Zhur.fiz.khim. 34 no.5:1138-1139 My '60. (MIRA 13:7)

1. Akademiya nauk SSSR, Institut geokhimii i analiticheskoy khimii.
(Polarograph) (Electrodes)

GOKHSHTEYN, Ya.P.; GOKHSHTEYN, A.Ya.

Oscillographic polarography. Equation for the descending branch of the polarographic wave and for its approximation. Zhur.fiz.khim. 34 no.7:1654-1657 Jl '60.
(MIRA 13:7)

1. Akademiya nauk SSSR, Institut geokhimii i analiticheskoy khimii im. V.I.Vernadskogo.
(Polarography)

S/076/60/034/010/014/022
B015/B064

AUTHORS: Gokhshteyn, Ya. P., Genkina, L. A. and Demkin, A. M.

TITLE: Kinetics of Cathode and Anode Polarization for Solutions of Niobium in Various Media

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 10
pp. 2308-2314

TEXT: The mechanism of niobium reduction and the oxidation of its electrolysis products on a dropping mercury electrode was studied in sulfuric acid (5, 10, 15, and 23 N) and in a weakly acid medium to which Trilon B (pH = 3-3.2) or citric acid (pH = 1) were added as complex formers. The investigations were carried out by means of an oscillographic polarograph which had been supplied by the institute mentioned under "Association". Figs. 1-8 give the anode and cathode waves obtained. Data on the effect of the rate of potential change upon the maximum current I of niobium indicate that the reduction of Nb (V) on the electrode proceeds irreversibly. In the 23 N H_2SO_4 solution, niobium is stepwise reduced.

Card 1/3

Kinetics of Cathode and Anode Polarization for Solutions of Niobium in Various Media

S/076/60/034/010/014/022
B015/B064

and the oscillogram shows two waves. The anode and cathode currents of niobium are directly proportional to the niobium concentration. A comparison between two cathode waves of niobium shows that the reduction proceeds in the following two stages: Nb(V) ⟶ Nb(IV) ⟶ Nb(III). The velocity constants of the direct electrodic process and the reversible process, as well as the free activation energies of niobium were calculated from Matsuda's equation (Ref. 6) for the first stage of reduction Nb(V) in 23 N H_2SO_4. From the oscillograms it may be seen that the H_2SO_4 concentration exerts a noticeable influence upon the reduction of Nb(V). In 23 N H_2SO_4, niobium obviously forms a complex ion with sulfuric acid. From the values on the influence of the rate of potential change upon the peak potential and the I-value in the 0.1 M Trilon B solution it may be seen that the complex ion of Nb(V) in Trilon B is irreversibly reduced on the dropping mercury electrode. The oscillograms of anode polarization obtained in citric acid solutions show a peak at $\varphi_p = 0.981$ v and a half peak at $\varphi_{p/2} = -1.098$ v with I = 5.04 μa, which means that the anodic process is reversible. Since for the cathode wave $\varphi_p = -1.041$ v and is,

Card 2/3

GOKHSHTEYN, Ya. P.

Doc Chem Sci - (diss) "New methods in the theory and practice of oscilloscopic polarography." Moscow, /Pub. Academy of Sciences USSR/, 1961. 30 pp with illustrations; (Academy of Sciences USSR, Inst of Electrochemistry); 270 copies; free; list of author's works at end of text; (KL, 6-61 sup. 196)

S/078/61/006/001/006/019
B017/B054

AUTHORS: Gokhshteyn, Ya. P., Gao Tsay - shen

TITLE: Kinetics of Cathodic and Anodic Polarization of the Phosphoric Acid Solution of the Uranyl Ion

PERIODICAL: Zhurnal neorganicheskoy khimii, 1961, Vol. 6, No. 1, pp. 157 - 161

TEXT: The authors studied the reduction mechanism of UO_2^{2+} in hydrogen atmosphere on a dropping mercury electrode in a solution of 1 mole of H_3PO_4 + 0.25 moles of K_2SO_4 at 25°C. They applied a constant voltage of $U_= = 0.17$ v and a sawtooth voltage of $U_\sim = 0.95$ v. The wave of hexavalent uranium was clearly shown in the oscillogram (Fig.1). Fig.2 shows the oscillogram of the adsorption wave in anodic polarization ($U_= = -0.48$ v, $U_\sim = 0.95$ v). Fig.3 shows the change in wave height as a function of the uranium concentration in anodic polarization. It was found that the reduction process U(VI) was irreversible to U(IV). Table 1 lists the

Card 1/2

Kinetics of Cathodic and Anodic Polarization of the Phosphoric Acid Solution of the Uranyl Ion

S/078/61/006/001/006/019
B017/B054

results of investigation of the effect of velocity changes of the potential on the I_p wave of uranium in 1 mole of H_3PO_4 + 0.25 moles of K_2SO_4 at 25°C. The authors calculated the velocity constants and the free activation energy for the single-stage electrode process in cathodic polarization of UO_2^{2+} in 1 mole of H_3PO_4 + 0.25 moles of K_2SO_4; results are given in Table 2. There are 3 figures, 2 tables, and 10 references: 6 Soviet, 1 US, 1 British, 1 Chinese, and 1 German.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo Akademii nauk SSSR (Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy of the Academy of Sciences USSR)

SUBMITTED: April 12, 1960

Card 2/2

GOKHSHTEYN, Ya.P.; GAO TSAY-SHEN

Kinetics of cathodic and anodic polarization in sulfuric acid solutions of UO_2^{2+}. Zhur.neorg.khim. 6 no.8:1821-1830 Ag '61.
(MIRA 14:8)

1. Institut geokhimii i analiticheskoy khimii imeni V.I.Vernadskogo AN SSSR.

(Uranyl ion) (Polarization (Electricity))

AUTHORS. [illegible]

TITLE [illegible]

PERIODICAL [illegible]

[illegible]
Determination [illegible]
elements [illegible]
tions depends [illegible] was [illegible]
in the oscill[illegible]graph ГЕОХИ М [illegible]
graphic [illegible]
calomel reference [illegible]
were obtained [illegible]
Ch analit [illegible]
[illegible]ing uranium
[illegible]
[illegible]

Card 1/9

[illegible]

The sample is [illegible]

[illegible]

after [illegible]

[illegible]

is diss[illegible]

[illegible]

S/[illegible]
[illegible]

Quantitative [illegible]

[illegible] acid. The residue [illegible]

with hydrazine sulfate, boiled for a few minutes. After [illegible] polarographic [illegible] and simple [illegible] after separation of the [illegible]. In the analysis [illegible] an arbitrary [illegible], the [illegible] of the [illegible] standard [illegible]. Subsequently, the [illegible] are measured as usual (Ref. 10) [illegible]. The relative error [illegible] exceed ±[illegible]; concentrations of [illegible] can be measured. It is evident that uranium [illegible] determined in [illegible] polarographic [illegible] separation of [illegible] elements. There are [illegible] references: [illegible] Soviet-[illegible] and [illegible]-Soviet. [illegible] English-language publication[illegible] reads as follows: [illegible] S[illegible]

Card [illegible]/6

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

[illegible]

ASSOCIATION: [illegible] SSSR [illegible] SSSR

SUBMITTED: [illegible]

[illegible] SSSR [illegible]

APPROVED FOR RELEASE: Thursday,

GAO TSAY-SHEN; GOKHSHTEYN, Ya.P. (Moskva)

Diffusion of electrolytes and the polarographic method. Diffusion coefficients of the uranyl ion in aqueous solutions of HCl of various concentration. Zhur. fiz. khim. 35 no.2:404-406 F '61.
(MIRA 16:7)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo.
(Uranyl) (Diffusion)

GOKHSHTEYN, Ya.P.; GAO TSAY-SHEN [Kao TS'ai-shêng]

Oscillographic polarography. Kinetics of anodic and cathodic polarization for UO_2^{2+} in a perchloric acid solution. Zhur. fiz. khim. 35 no.7:1611-1615 Jl '61. (MIRA 14:7)

1. Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR.

(Uranyl-ion) (Polarography)

S/076/61/035/008/003/016
B101/B218

AUTHORS: Gokhshteyn, Ya. P., and Kao Ts'ai-sheng (Moscow)

TITLE: Kinetics of cathodic and anodic polarization of hydrochloric acid solutions of UO_2^{2+}

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 8, 1961, 1699-1705

TEXT: The kinetics of the following redox processes were studied by oscillographic polarography:
$UO_2^{2+} + e \rightleftharpoons UO_2^+$; $UO_2^+ + 2H^+ + 2e \rightarrow UO^+ + H_2O$; $UO^{2+} + e \rightleftharpoons UO^+$. The oscillograms were recorded on the dropping mercury electrode by the oscillographic polarograph of GEOKhI. The potential φ_p of the peak and the potential $\varphi_{p/2}$ of the "half peak" were measured. The values were reduced to the normal calomel electrode (auxiliary electrode). The potential difference between dropping electrode and auxiliary electrode was measured by a special electronic circuit (described in: Ya. P. Gokhshteyn, Zh. fiz. khimii, 34, 1138, 1960). Measurements were made in 0.1 N HCl containing 10^{-3} moles of

Card 1/6

UO_2Cl_2. The following values are given for the polarographic waves. First cathodic wave: rate v of the potential of change 3.41 v/sec; delay of the voltage pulse after break away of the drop: 9.4 sec; $U_{=} = 0.01$ v; $U_{\sim} = 0.949$ v; $\varphi_p^I = -0.230$ v; $\varphi_{p/2}^I = -0.182$ v. Second cathodic wave: $U_{=} = -0.4$ v (other conditions unchanged), $\varphi_p^{II} = -0.954$ v; $\varphi_{p/2}^{II} = -0.872$ v. First anodic wave: ($U_{=} = -0.70$ v), $\varphi_{p-I} = -0.17$ v; $\varphi_{p/2} = -0.215$ v. Second anodic wave: ($U_{=} = -1.2$ v): $E_p^{-I} = -0.848$ v; $E_{p/2}^{II} = -0.902$ v. Table 1 shows the influence of the rate v of the potential change upon I_p of the waves, and the values calculated according to J. E. B. Randles (see below) and P. Delahay (see below). According to Ya. P. Gokhshteyn (Second International Congress on Polarography, Cambridge, England, August 1959), the barrier coefficient a was found to be 0.43 which is in good agreement with the experimental value (0.44). The cathodic and anodic peak of the first wave are reversible in 0.1 N HCl. The second cathodic wave is irreversible. The second anodic peak is caused by oxidation of UC^{+} to UC^{2+}. For the second cathodic wave and different v, the following values are given: I_p, the rate constant $k^{0}_{f,h}$, and the free activation energy ΔG_f of the direct electrodic process:

v (v/sec)	I_p, v	$k^{0}_{f,h} \cdot 10^{13}$ cm/sec	ΔG_f, kcal/mole
3.41	-0.708	15.08	99.60
6,23	-0.752	4.46	102.65
12.65	-0.798	1.33	105.73

Table 3 shows the effect of HCl concentration upon the maximum currents. Based on these data, the authors show that it is possible to use oscillographic polarography for a quantitative study of the kinetic of electrochemical processes if the latter are accompanied by a catalytic reaction. The catalytic component of the current may be suppressed by shortening the duration of electrolysis. Thus, data for calculating the electrochemical process proper are obtained. There are 5 figures, 3 tables, and 20 references: 11 Soviet-bloc and 9 non-Soviet-bloc. The two most important references to English-language publications read as follows: J. E. B. Randles, Trans. Faraday Soc., 44, 327, 1948; P. Delahay, J. Amer. Chem. Soc., 75, 1190, 1953.

ASSOCIATION: Akademiya nauk SSSR, Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo (Academy of Sciences USSR, Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy)

SUBMITTED: October 23, 1959

Table 1. Effect of the rate of potential change upon I_p of the first and second waves of uranium in 0.1 N HCl at 25°C.
Legend: 1) v in v/sec; 2) found for the first cathodic wave of uranium, I_p, μa; 3) found for the first anodic wave of uranium, I_p, μa; 4) peak current, calculated according to the Randles equation ($n = 1$), I_p, μa; 5) found for the second cathodic wave of uranium, I_p, μa; 6) calculated for

GOKHSHTEYN, A.Ya.; GOKHSHTEYN, Ya.P.

New oscillographic polarographs. Vest. AN SSSR 32 no.5:90-95 My '62. (MIRA 15:5)

(Polarograph)

GOKHSHTEYN, A.Ya.; GOKHSHTEYN, Ya.P.

Device for automatic reproduction and removal of stationary drop electrodes. Zhur. fiz. khim. 36 no.3:651-655 Mr '62. (MIRA 17:8)

1. Institut elektrokhimii AN SSSR i Institut geokhimii i analiticheskoy khimii imeni Vernadskogo AN SSSR.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7

L 17192-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG
ACCESSION NR: AR3004188 S/0081/63/000/009/0153/0153

SOURCE: RZh. Khimiya, Abs. 9G97

57

AUTHOR: Gokhshteyn, Ya. P.; Genkina, L. A.; Demkin, A. M.

TITLE: Determination of niobium in tantalum-niobium alloys using oscillographic polarography

21 21

CITED SOURCE: Teoriya i praktika polyarogr. analiza, Kishinev, Shtiintsa, 1962, 34-39

TOPIC TAGS: niobium, niobium-tantalum alloy, tantalum, oscillographic polarography, cathode wave, titanium, iron, quantitative analysis

TRANSLATION: An oscillographic method was developed for determining Nb in Ta-Nb alloys against a background of 23 N H_2SO_4. Against this background, Nb forms two waves at -0.579 (with respect to saturated calomel electrode) and -0.770 V (E_π -0.470 and -0.712 V, respectively), due to the irreversible reduction Nb (+5) → Nb (+4) and Nb (+4) → Nb (+3). In the case of anode polarization, one 2-electron wave was detected at -0.384 V (E_π -0.429 V). The reduction current

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

L 17192-63
ACCESSION NR: AR3004188

0

for Nb is proportional to its concentration in the range 5-800 γ/ml. The current of the first cathode wave is proportional to Nb concentration in the presence of a 20-fold excess of Ta; the second wave is distorted in the presence of a 10-fold excess of Ta. A 40-fold excess of Ti and Fe does not interfere with the determination of Nb. To determine Nb, 0.1 gram of the alloy is dissolved in a mixture of HF + H_2SO_4 with heating in an air muffle; an acidity of 23 N with respect to H_2SO_4 is created, and the mixture is polarographed. The relative error of the method is ~5% at an Nb content up to 30%; absolute error ~2% at a Nb content up to 80%. Duration of analysis ~one hour. G. Prokhorova.

DATE ACQ: 19Jun63 SUB CODE: CH ENCL: 00

GOKHSHTEYN, Ya.P.

Diffraction micromethod for measuring ionic diffusion coefficients under conditions prevailing in polarography. Zhur. fiz. khim. 37 no.12:2640-2647 D '63. (MIRA 17:1)

1. Institut vysokikh temperatur, Moskva.

GOKHSHTEYN, Ya.P.

Use of the method of oscillographic polarography for fast quantitative analysis of refractory materials. Teplofiz. vys. temp. 3 no.2:238-243 Mr-Ap '65. (MIRA 18:7)

1. Nauchno-issledovatel'skiy institut vysokikh temperatur, Moskva.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

00043-66 EWT(m)/EWP(b)/EWP(t) IJP(c) JD

ACCESSION NR: AP5023715 UR/0075/65/020/008/0864/0867

543.253

43
40
B

AUTHOR: Demkin, A. M.; 44,55 Gokhshteyn, Ya. P. 44,55

TITLE: Use of an instrument with automatic reproduction and removal of stationary mercury 27,44,55

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 8, 1965, 864-867

TOPIC TAGS: germanium, gallium, cadmium, lead, copper, indium, trace analysis, polarographic analysis 27 27 27 27

ABSTRACT: The paper reports the results obtained in amalgam polarography with an EYa-1 cell (including a needle valve) in which the formation of the new mercury drop and removal of the preceding one is accomplished automatically on command from an oscillographic polarograph. The two instruments were used to determine microimpurities in metals of high purity. Differential anodic oscillograms of 1×10^{-5} M solutions of cadmium and lead in 1 N HCl and of cadmium and indium in 1 N HCl (Cd:In = 5:1) after accumulation showed an excellent reproducibility and a linear dependence of the current on the indium concentration. Copper (5.5×10^{-6}%), lead (1.4×10^{-5}%) and indium (2×10^{-6}%) were thus determined in gallium.

Card 1/2

L 00043-66

ACCESSION NR: AP5023715

3

Lead (4×10^{-6}%) and copper (3×10^{-6}%) were determined in germanium. Orig. art. has: 4 figures.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. L. Vernadskogo AN SSSR, Moscow (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

44,55

SUBMITTED: 25Apr63 ENCL: 00 SUB CODE: GC

NO REF SOV: 002 OTHER: 006

KC

Card 2/2

[illegible]

[illegible]

[illegible]

GOKHTUNI, N.G.

Koturvan fossil flora. Izv. AN Arm.SSR Nauki o zem. 17 no.2: 3-16 '64. (MIRA 17:8)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov Armyanskoy SSR.

1. GOKHVAT, L. YA., ENG.

2. USSR (600)

4. Machine Tools

7. Bar-type forming tools. Podshipnik no. 8, '52.

9. Monthly List of Russian Accessions, Library of Congress, January 1953, Unclassified.

L 44696-66 EWT(d)/EWT(m)/EWP(c)/EWP(k)/T/EWP(v)/EWP(t)/EWP(l)/ETI IJP(c) MW/JD/DJ

ACC NR: AR6010656 SOURCE CODE: UR/0276/65/000/010/B182/B182

AUTHOR: Gokhvat, L. Ya.

15 17 50 B

TITLE: Some characteristics of the process of grinding slots in rings by the rocker method

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 10B1235

REF SOURCE: Tr. Seminara po vopr. progressivn. metodov shlifov. i dovodki detaley, obespech. vysok. i stabil'n. tochnost' i dolgovechn. podshipnikov kacheniya. M., 1964, 147-150

TOPIC TAGS: slotting machine, antifriction bearing, grinding

ABSTRACT: The author considers characteristics of the process of grinding slots which should be kept in mind when analyzing errors observed during ring inspection. 14 It is shown that the index of accuracy in adjustment of the process is the wheel profile which should be kept constantly symmetric during grinding. The section of the wheel closest to the sides is most intensely worn at the beginning of the slot grinding process, while the center section shows more wear at the end of the process. 4 illustrations. L. Romancheva. [Translation of abstract]

SUB CODE: 13

UDC: 621.923:621.822

Card 1/1 hs

[illegible], L. Ya., Eng.

Metal Cutting

New design of a socket for cutting holes in thin-walled pipes, Podshipnik No. 1, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

GOKHVAT, L.

YEGOROV, M.Ye., doktor tekhn. nauk, prof.; GOKHVAT, L.Ya., inzh.; ZEL'BET,
B.M., inzh.

Optimum allowances in grinding antifriction bearing rings. Vest.
mash. 38 no.4:51-55 Ap '58.
(Bearings (Machinery)) (Grinding and polishing)

L 44698-66 EWT(d)/EWT(m)/EWP(c)/EWP(k)/EWP(h)/T/EWP(v)/EWP(t)/EWP(l)/ETI IJP(c)

ACC NR: AR6010658 WW/DJ/JD SOURCE CODE: UR/0276/65/000/010/B186/B186

53
52
13

AUTHOR: Gokhvat, L. Ya.

TITLE: Dark spots on the working surfaces of bearing rings

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 10B1267

REF SOURCE: Tr. Seminara po vopr. progressivn. metodov shlifov. i dovodki detaley, obespech. vysok. i stabil'n. tochnost' i dolgovechn. podshipnikov kacheniya. M., 1964, 198-204

TOPIC TAGS: metal polishing, antifriction bearing, bearing race, METAL SURFACE, SURFACE FINISHING

ABSTRACT: Two types of flaws are observed on the polished or lapped surfaces of slots in bearing rings: 1) spots originating in the metal and 2) spots which appear after etching the rings for detecting skin burns. The first type of flaws are gas bubbles, microscopic pores, nonmetallic inclusions, etc. Studies made on the 1GP3 showed that the number and depth of spots originating during etching depend on the etching process, initial surface finish and properties of the metal. The depth of spots which appear during etching in an alcohol solution of nitric acid is 6-15 μ for ShKh 15 steel. After the rings have been etched, comets may appear on the finished surface of the slots during polishing with abrasives mixed with binders and in the free state. These comets are due to abrasive grains getting into the pores on the surface of the metal when the

UDC: 621.923.7:621.822

Card 1/2

L 44608-66

ACC NR: AR6010658

dimensions of these pores exceed those of the grains. It is recommended that etching for skin burn detection should be replaced by nondestructive inspection methods and that metal removal should be stabilized during slot polishing by substituting mechanical finishing for manual polishing to reduce rejects due to dark spots. 3 illustrations, bibliography of 2 titles. L. Tikhonova. [Translation of abstract]

SUB CODE: 13

hs

BARSHTEYN, V.A., [illegible]; [illegible], [illegible]; [illegible] [illegible], inzh.; POPIK, V.N., inzh.

[illegible] the contact tra[illegible] of [illegible] resistance of potentiometers. Priborostroenie no.6:19 [illegible] '64. (MIRA 18:7)

GOKINAYEVA, L.I.

Treatment of tuberculous lupus with small doses of vitamin D_2; injection method. Vest. vener. no.2:40-42 Mar-Apr 1951. (CLML 20:9)

1. Candidate Medical Sciences. 2. Of the Clinic for Skin Diseases (Head of Staff--Prof. O.N. Podvysotskaya, Active Member of the Academy of Medical Sciences USSR), First Leningrad Medical Institute imeni Academician I.P. Pavlov (Director--I.Ye.Kashkarov).

GOKINA

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7"

Effect of vitamin D₂ on some functions of the organism. L. I. Gokhneva (I. P. Pavlov Med. Inst., Leningrad). *Vestnik Venerol. i Dermatol.* 30, No. 4, 20-23(1956).—Prolonged intake of vitamin D₂ generally improves the reparative processes in various patients. Admn. with the vitamin is advised preoperatively for patients with skin tuberculosis for the purpose of more rapid healing. The vitamin appears to have a regulative effect on the nervous system, the glands and the vascular system. G. M. Kosolapoff

Met

GOKINAYEVA, L.I., dotsent

[illegible]

Pemphigus in the newborn; materials on clinical aspects, etiology, pathogenesis and epidemiology. Vest.ven. i derm. 30 no.6:14-18 N-D '56.
(MLRA 10:2)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zav. deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR prof. O.N.Podvysotskaya) Leningradskogo meditsinskogo instituta imeni akad. I.P.Pavlova.

(PEMHIGUS, in inf. and child
in newborn)
(INFANT, NEWBORN, dis.
pemphigus)

GOKINAYEVA, L.I., dotsent

On the effect of vitamin D_2 on the human sexual function.
Akush. i gin. no.2:18-20'63. (MIRA 16:10)

1. Iz kafedry kozhnykh bolezney (zav. A.N. Araviyskiy) I Leningradskogo meditsinskogo instituta imeni I.P.Pavlova.
(VITAMINS --D) (SKIN -- TUBERCULOSIS)
(GENERATIVE ORGANS, FEMALE)

GOKIYELI, A., doktor ekonomicheskikh nauk.

The subject matter of the science of finance in the U.S.S.R.
Fin.SSSR 15 no.11:16-27 N'54. (MIRA 8:2)
(Finance--Study and teaching)

S/194/62/000/006/016/232
D413/D308

AUTHORS: Shapiro, A.M., Mtvarelidze, I.D., Kachibaya, G.A., and Gokiyeli, D.G.

TITLE: Computers for automatic control of mixture composition and heat regime of a cupola furnace

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, abstract 6-1-124 u (V sb. Primereniye vychisl. tekhn. dlya avtomatiz. proiz-va, M., Mashgiz, 1961, 266-278)

TEXT: Two specialized continuously-operating computers are described. The first composes under industrial conditions mixtures containing up to 10 different components. The corresponding mathematical problem reduces to the solution of 10 linear algebraic equations, whose coefficients are determined from the results of chemical analyses, the type of cast-iron, and the characteristics of the furnace. A transformer circuit is used for solving the system of equations. Automatic computation of waste is carried out by means of an electronic bridge circuit. The final results are printed on

Card 1/2

S/194/62/000/006/016/232
Computers for automatic control of ... D413/D308

paper tape in numerical form. The second computer is designed to evaluate the parameters that stabilize the thermal operating conditions of the furnace. It computes the coke consumption for given liquid cast-iron temperatures and gas consumptions, and also the air consumption for a given gas composition. The computer simulates the operations of division and evaluation of the non-linear function to which the solution of the problem reduces. It is observed that as a result of experimental model tests in 1958 it has been possible to proceed to prolonged tests under industrial conditions. 11 figures, 5 references. [Abstracter's note: Complete translation.

GOKIYELI, L.P.

O tak nazyvayemykh "soderzhatel'nykh aksiomakh". Matematicheskoy logiki, I.
tbilisi, soobshch. Gr. fil. an, 1(1940), 421-428.
O tak nazyvayemykh "soderzhatel'nykh aksiomakh" matematicheskoy logiki, IV.
tbilisi, soobshch. An GrSSR, 2(1941), 51-58.
O ponyatii sushchestvovaniya v matematike, I. Tbilisi, Soobshch. AN GrSSR,
2(1941), 881-888.
O ponyatii sushchestvovaniya v matematike, II. Tbilisi, Soobshch. AN GrSSR,
3(1942), 111-118.
O ponyatii sushchestvovaniya v matematike. Tbilisi, Trudy matem. IN-TA AN
GrSSR, 11(1942), 23-51.
O ponyatii sushchestvovaniya v matematike, III Tbilisi, Trudy matem. IN-TA AN
GrSSR, 13(1944), 153-201.
K probleme aksiomatizatsii logiki. Tbilisi. Izd. AN GrSSR (1947), 86 Str.
Matematicheskiye rukopisi marksa. Tbilisi. Izd. Gr. Fil. IMEL (1947) 1-111.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.
Markushevich, A.I.
Rashevskiy, R.K.
Moscow-Leningrad, 1948

GOKIEL

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7

*Gokieli, L. P. K Probleme Aksiomatizacii Logiki. [On the Problem of the Axiomatization of Logic]. Izdatel'stvo Akademii Nauk Gruzinskoi SSR, Tbilisi, 1947. iii+80 pp.

The author tries to prove by philosophical arguments that a formalization of logic is impossible. The book has no mathematical content. *A. Heyting* (Amsterdam).

Source: Mathematical Reviews, 1948, Vol 9, No. 3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610006-7

Gokiel

***Gokieli, L. P.** Matematičeskie Rukopisi Karla Marksa i Voprosy Obosnovaniya Matematiki. [The Mathematical Manuscripts of Karl Marx and Questions of the Foundations of Mathematics]. Izdatel'stvo Akademii Nauk Gruzinskoi SSR, Tbilisi, 1947. iv+111 pp.

: Mathematical Reviews, 1948, Vol 9, No. 3

Mathematical Reviews
Vol. 14 No. 8
Sept. 1953
Foundations

Gokieli, L. P. On paradoxes of the theory of sets. Soobščeniya Akad. Nauk Gruzin. SSR 9, 3-10 (1948). (Russian)

The author contends that the paradoxes are easily solved by the philosophy of K. Marx, which affirms the unity of a general notion with its particular instances. The discussion is entirely philosophical; formalism, and, as it seems, also formalization, is rejected as the expression of a "bourgeois" philosophy which [illegible] the notion of a set.

A. Heyting (Amsterdam).

Go Kiyeli, L.P.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. Vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

Section on Mathematical Logic and the Foundations of Mathematics

Card 16/34

GOKIYELI, L.P.

Nikolai Ivanovich Muskhelishvili. Mat. v shkole no.4:72-74 Jl-Ag '61. (MIRA 14:8)
(Muskhelishvili, Nikolai Ivanovich, 1891-)