Tur'yan, Ya.I.

USSR/ Analytical Chemistry - Analysis of Inorganic Substances   G-2

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12088

Author   : Tur'yan Ya.I., Teper G.E., Redchenko L.F.
Inst   : Commission on Analytical Chemistry of the Academy of
             Sciences USSR
Title   : Polarographic Determination of Nickel- and Cobalt-Ions
             in Absolute Ethanol

Orig Pub : Tr. Komis. po analit. khimii AN SSSR, 1956, 7(10),
             162-169

Abstract : In 0.1 M solution of NH_4NO_3 in absolute C_2H_5OH it was
             not possible to observed normal polarographic waves of
             Ni and Co. In 0.5 M solution of $CaCl_2$, elongated waves
             were obtained for Ni which are unsuitable for quantita-
             tive determinations. The Co wave is better defined. A
             direct proportionality was noted between diffusion cur-
             rent and concentration of Co. In 1 M solution of
             NH_4SCN the Co in contradistinction to Ni produces no

             Kishinev State U.

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USSR/ Analytical Chemistry - Analysis of Inorganic Substances   G-2

Abs Jour   : Referat Zhur - Khimiya, No 4, 1957, 12088

polarographic wave. Ni wave is very well defined. A direct proportionality was noted between diffusion current and Ni concentration. The process of electric reduction of the thiocyanate complex of Ni is irreversible. With a pyridine background waves of Ni and Co are very well defined. In both instances there is a direct proportionality between diffusion current and concentrations of the metals. Processes of electric reduction of pyridine complexes of Ni and Co are reversible. Half-wave potential of Co is lower by 0.22v than that of Ni, which makes it possible to observe distinct waves. Addition of pyridine to a solution of $CaCl_2$ in C_2H_5OH results in a conversion of the chloride complexes of Ni and Co to pyridine complexes. In all of the investigated solutions, except for 0.1 M NH_4NO_3, the polarograms of Ni and Co showed no maxima although no substances that eliminate the maxima were added.

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Cd(NO₃)₂ in ethanol the complexes [CdCl]' (insta-
bility const. 3.60×10^{-10}), [CdH₃]' (instability
const. 1.86×10^{-11}) and CdSCN₂ (instability
const. 0.97×10^{-9}) are formed in 0.1 to 0.99 M
Cd'Cl with 0.11 to 1.1 M CaCl₂ 0.03 to 0.9 M

TUR'YAN, Ya.I.

Once more on the polarographic determ ation of the composition
and stability of complex ions in a sol. ion during stepwise
complexing. Zhur.ob.khim. 26 no.7:2084-2086 Jl '56.   (MIRA 9:10)

1. Kishenevskiy gosudarstvennyy universitet.
      (Polarography)   (Compounds, Complex)

TUR"YAN, YA.I.

USSR/Physical Chemistry - Electrochemistry, B-12

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61170

Author: Tur'yan, Ya. I., Goldshteyn, I. S.

Institution: None

Title: Oxygen Overvoltage of a Nickel Electrode at High Current Densities

Original
Periodical: Zh. prikl. khimii, 1956, 29, No 3, 379-384

Abstract: As a continuation of previous work (Fiseyskiy, V. N., Tur'yan, Ya. I., Zh. fiz. khimii, 1950, 24, 567) investigated was the overvoltage $(\eta)O_2$ at Ni-anode in 7.5 N KOH at i 0.04-10 a/cm^2 and temperatures of 0°-85°. Measurement of potentials stabilized in time with the given i was carried out on rotating electrode. Comparison of the derived curves $(\eta, \lg i)$ for different temperatures with data of previous work (see reference above) permits to reach the conclusion of the presence upon the curves within the region of i 10^{-5} - 10 a/cm^2, of 4 different sections. The linear sections within the region of high i, the length of which decreases with rise

Card 1/2   Koshinov State U.

USSR/Physical Chemistry - Electrochemistry, B-12

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61170

Abstract: of temperature, have an inclination coefficient close to the theoretical value 2.3 $RT/\alpha F$ (with α ≈ 0.45) corresponding to the slowed down discharge of OH^- ions. Sharp increase of i beyond the linear sections of $(\eta, \lg i)$ curves in the region of high i is correlated by the authors with the beginning of the formation of a higher oxide of Ni, in comparison with NiO_2, which determines the lower limits of the linear sections.

Card 2/2

TIIT IVAN YE, T

rent densities. Va I (ur jan 1955 (English trans-
1956 Chem   B M R.

TUR'VAN, VA. I.

haven had a weak used in the presence of 0.1 M LiCl in EtOH with the supporting electrolytes present, the half-wave potential was independent of C_{ppr}. The "polaro-graphic H-overvoltage" (the half-wave H potential against H electrode) (value C of 49, 5158a) in EtOH and MeOH in

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AUTHORS: Tur'yan, Ya. I. and Serova, G.F.

TITLE: Polarographic Investigation of the Composition and Stability of Complex Ions at Low Concentrations of the Complex-Forming Substance. Halide and Thiocyanate Complex Compounds of Cadmium. (Polyarograficheskoe Issledovanie Sostave i Ustoychivosti Kompleksnykh Ionov pri Maloy Kontsentratsii Kompleksoobrazuyushchevo Veshestva. Galogenidnye i Rodanidnye Kompleksnye Soedineniya Kadmiya).

ABSTRACT: The equation of Yatsimirskiy[4], relating the half-wave potential of a complex ion to that of the simple ion, to the concentration of the complex-forming substance and to the complex-ion instability and dissociation constants should be especially useful at low concentrations. In the investigation described a visual polarographic-installation with potentiometric setting of the drum and a normal calomel reference electrode was used to study the behaviour at $25 \pm 0.30°C$ of cadmium at low concentrations (0.001-0.1 mol) of complex forming substances (KCl, KI and KCNS). Oxygen was removed by passing hydrogen. The range in which only two types of ions were dominant: Cd^2 and one of the following $[CdCl]^+$, $[CdI]^+$ and $[CdCNS]^+$. For these conditions the Yatsimirskiy[4] and De Ford-Hume[5] equations gave identical results, but the simplicity of the

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Polarographic Investigation of the Composition and Stability of Complex Ions at Low Concentrations of the Complex-Forming Substance. Halide and Thiocyanate Complex Compounds of Cadmium. (Cont.)

former makes it preferable. From an analysis of the Yatsimirskiy[4] equation it was shown that when simple M and complex MX ions are dominant the half-wave potential corresponding to the concentration of any addendum is numerically equal to the instability constant of the MX ion, more negative than that of the simple ion by $\frac{RT}{nF}$ ln 2 volts.

This rule was found to apply to the complex ions $[CdCl]^+$, $[CdCNS]^+$ and $[CdI]^+$. Using Yatsimirskiy's[4] method the instability constants for the complex ions $[CdI_2]$, $[CdI_3]^-$ formed at KI concentrations >0.03 mol. In contrast to A.M. Golub's[11] polarographic results, the instability-constant values found agree well with those in the literature, including Golub's[11] potentiometric ones.

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Polarographic Investigation of the Composition and Stability
of Complex Ions at Low Concentrations of the Complex-Forming
Substance. Halide and Thiocyanate Complex Compounds of
Cadmium. (Cont.)

There are 15 references, 9 of them Russian.

Ref.4 is K.B. Yatsimirskiy, Zhurnal Ob. Khimii, I,193, (1953).
Ref.5 is D.D.De Ford and D.N.Hume, J.Amer.Chem.Soc.73,5321,
  (1951).
Ref.11 is A.M.Golub. Naukovi Zapiski Kievskogo gos.Un-Ta. XIV,
  4, 61, (1955).

5 Figures, 2 Tables.

Kishinevskiy University.   Received 28 Sept.
                                              1956.

Card 3/3

TUR'YAN, YA. I.

USSR/Physical Chemistry - Electrochemistry.   B-12

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7320.

Author : Ya. I. Tur'yan.
Inst   : Kishinev University.
Title   : Polarographic Characteristics of Thallium, Cadmium and Zinc
          in Aqueous-Oxane Solvent.

Orig Pub: Uch. zap. Kishinevsk. un-ta, 1957, 27, 149-157.

Abstract: The polarographic reduction of Tl^+, Cd^{2+} and Zn^{2+} in dioxane
          (I) - H_2O mixtures (from 15 to 75% by volume of I) on the back-
          ground of 0.01 M of LiCl is reversible. A linear dependence
          between i_d and the concentration is observed at concentrations
          from 0.191 to 0.905 . 10^{-3} M. $E_{\frac{1}{2}}$-s shift to the positive side
          with the rise of I concentration and the constants of the dif-
          fusion current decrease. See also RZh-Khim, 1956, 6505.

Card   : 1/1   -17-

TUR'YAN, Ya.I.; SEROVA, G.F.

Polarization in the polarography of the pyridine complexes of
nickel and cobalt [with summary in English]. Zhur.fiz.khim. 31
no.9:1976-1982 S '57.   (MIRA 11:1)

1.Kishinevskiy gosudarstvennyy universitet.
          (Nickel compounds) (Polarography) (Cobalt compound)

TUR'YAN, YA. I.

76-10-5/34

AUTHORS: Tur'yan, Ya.I., Serova, G.F.

TITLE: A Polarographic Investigation of the Composition and the Instability Constants of Pyridine Complexes of Nickel (Polyarograficheskoye issledovaniye sostava i konstant nestoyosti piridinovykh kompleksov nikelya)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 10, pp. 2200-2205 (USSR)

ABSTRACT: The results of the former paper of the authors in Zhurnal Fizicheskoy Khimii, 1956, 31, pp. 1976, on the basis of 0,1 and M KNO$_3$ without gelatine are exploited here for the determination of the composition and the instability constants of the pyridine complexes of nickel. The measuring temperature was $25 \pm 0,3°$ C. The here found relation between the potential of the half-wave ($\varphi^1/20$) and the logarithm of the complexformer (pyridine) concentration is a curve, a fact which proves the simultaneous electro-reconstruction of some types of the complex ion as well as of the simple (hydration) nickel ions. For the determination of the composition of complex ions and of the corresponding instability constants two methods were applied here, one of Deford and

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76-10-5/34

A Polarographic Investigation of the Composition and the Instability Constants
of Pyridine Complexes of Nickel

Hume (Journ. Amer. Chem. Soc., 73, 5321, 1951) and the other of
K.B. Yatsimirskiy (Sb. Statey po obshchey khimii, 1, 193, 1953).
It is shown that in the pyridine concentration region of 0,01 -
- 0,5 M ($c_{NiSO_4} \approx$ 0,2 mol/litre) pyridine complexes of the ni-
ckel of the composition: $[NiPy^{2+}]$, $[NiPy_2^{2+}]$ and $[NiPy_3^{2+}]$
with the corresponding instability constants $K_1 = 6,7.10^{-2}$,
$K_2 = 1,1 . 10^{-2}$, and $K_3 = 3,3 . 10^{-4}$ (0,1 M KNO_3) are formed. The
instability constants which were obtained according to both meth-
ods agree according to order of magnitude. A certain development
of Yatsimirskiy admitted to carry out the computation of the
instability constants without using the potential of the half-
wave of the simple ion. This is very important especially in the
case of the irreversible electroreconstruction of simple ions
(Ni^{2+}, CO^{2+}, and others more). There are 6 figures, 3 tables,
4 Slavic references.

ASSOCIATION: Kishinev State University (Kishinevskiy gosudarstvennyy universitet)
SUBMITTED: May 17, 1956
AVAILABLE: Library of Congress

Card 2/2

TUR'YAN, YA. I.

AUTHOR: Tur'yan, Ya.I. (Kishinev)

76-11-6/35

TITLE: Investigation of Polarization in the Polarography of Thiocyanate Complexes of Nickel (Issledovaniya polyarizatsii pri polyarografirovanii rodanistykh kompleksov nikelya)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 11, pp. 2423-2427 (USSR)

ABSTRACT: Polarization in the polarography of thiocyanate complexes of nickel was investigated in dependence on potassium thiocyanate concentration. It was shown that, in the case of smaller thiocyanate concentrations (0.002-0.02 M) three nickel waves are formed: The first two (in the case of more positive potentials) correspond to a restoration of nickel thiocyanate complexes, the third - to the electro-restoration of simple (hydrated) nickel ions. With the increase of c_{KCNS} the first wave became larger, the second and third became smaller. At $c_{KCNS} \geqslant 0.1$ M only one (the first) polarographic nickel wave was observed. The reason for the occurrence of three waves in the case of a low thiocyanate concentration is the deceleration of the process in which the nickel thiocyanate complexes form on the surface of the electrode. The $\psi_{1/2}$ - c_{KCNS} curve passes through a minimum. ($\psi_{1/2}$ - potential

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Investigation of Polarization in the Polarography of Thiocyanate Complexes of Nickel

of the half wave). A shifting of $\varphi_{1/2}$ towards the positive side with an increase of c_{KCNS} is explained by the decrease of electrode polarization which is sometimes connected with the deceleration of the process of nickel thiocyanate complexes. The shifting of $\varphi_{1/2}$ towards the negative side with the increase of c_{KCNS} is characteristic of reversible processes, although in this case the process is still, in a certain sense, irreversible. By means of extrapolation of the right branch of the $\varphi_{1/2} - c_{KCNS}$ curve for the value $c_{NCNS} = 0$ the reversible potential amount for the half wave of the simple nickel ion, and herefrom the normal nickel potential was found. The amount of the latter is approximately the value mentioned in publications. There are 3 figures, 1 table, and 6 references, 3 of which are Slavic.

ASSOCIATION: State University of Kishinev (Kishinevskiy gosudarstvennyy universitet)

SUBMITTED: May 3, 1956

AVAILABLE: Library of Congress

Card 2/2

PA - 3164

AUTHOR   TUR'YAN, Ya.I.,
TITLE   The Polarization Mechanism in the Pollarography of Simple Ions
            of Nickel and Kobalt.
            (Mekhanizm polyarizatsii pri polyarografirovanii prostykh ionov nikelya
            i kobal'ta - Russian)

PERIODICAL Doklady Akademii Nauk,SSSR, 1957, Vol 113,Nr 3, pp 631-634,
            (U.S.S.R.)   Reviewed 8/1957
            Received 6/1957

ABSTRACT   In order to subject the theory of retarded discharge to a fur-
             ther examination the influence of nature and of the concentra-
             tion of the basis was investigated. Investigations were carried
             out on a visual plant with a normal calomel-comparison-electrode.
             In the case of nickel the obtained results make it possible to
             explain the inconvertibility of the polarographic wave Ni^{2+} by
             the retardation of ion-discharge. The equations established by
             Frumkin A.N.(Zs. phys. Chem.(A) 164, 121, 1933 and "Kinetics of
             electrode-processes",1952) are confirmed by the experimental re-
             sults. A series of facts prove the applicability of the theory
             of retarded-discharge and explains the inconvertibility of the
             polarographic wave of simple cobalt-ions. There exists,however,
             a small difference between the polarographic behavior of Co^{2+}
             and that of Ni^{2+}; the Co^{2+} wave is not symmetrical on the nitra-
             te- and perchlorate basis. On the whole, the Co^{2+} -wave is more

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PA - 3164

The Polarization Mechanism in the Polarography of Simple Ions of Nickel and Cobalt.

inclined than the Ni^{2+} -wave.
(2 illustrations, 2 tables and 5 citations from Slavic publications)

Association   State University of Kischinev. (Kishinevskiy gosudarstvennyy universi
Presented by Frumkin,A.N., Member of the Academy, 15.9.1956
Submitted   7.10.1956
Avaailable
Card 2/2

AUTHORS: Tur'yan, Ya. I., Gorodetskiy, Yu. S.   20-4-31/52

TITLE: The Oscillographic Investigation of Oxides Which are Formed
on a Nickel Anode With the Electrochemical Separation of
Oxygen (Ostsillograficheskoye issledovaniye okislov,
obrazuyushikheya   na nikelevom anode pri elektrokhimicheskom
vydelenii kisloroda).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 655-657 (USSR)

ABSTRACT: In order to discover the mechanism of an overvoltage caused
by oxygen, both the nature and concentration of those oxides
which are formed on a smooth nickel anode in a basic solution,
must be known. First, several previous works dealing with this
subject are mentioned. The authors developed methods for the
oscillographic investigation of a smooth nickel anode. This
made the determination of the quantity of stable oxide and
also of the quantity of unstable oxide, possible. The essential
feature of this methodics is explained here by means of a
graph. The elaborate investigation was carried out here with
an oscillograph of the type МПO-2 with 8 loops and photo-
graphic recording. A spectroscopically pure nickel anode was
investigated. The approximate course of the "complete" curves
of discharge (of the first one and of the one following up

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The Oscillographic Investigation of Oxides Which are Formed   2-4-31/52
on a Nickel Anode With the Electrochemical Separation of Oxygen.

to the complete reduction of the oxides) is shown in a dia-
gram. The upper horizontal part section on the first curve
corresponds to the polarizing current still switched on. The
point of current-decrease is obtained at the moment of switch-
ing off the polarizing current, then the middle horizontal
section follows and subsequently the current intensity de-
creases down to the lower horizontal sectional part. The lower
part-section corresponds to the presence of NiO on the sur-
face. The middle horizontal part-section part corresponds to
the reduction of NiO_2 and Ni_2O_3. The decrease of the amperage
from the middle to the lower horizontal part-section part
takes place comparatively slowly. The quantity of electricity
corresponding to the "complete" curve of discharge depended
only very little on the intensity of the polarization current,
but increased with increasing duration of polarization. The
"incomplete" curve of discharge reproduced in a further dia-
gram, had no upper horizontal part-section, because the polar-
izing current was switched out prior to the switching on of
the vibrator. The surface of the "incomplete" curve of
discharge was smaller than the surface of the "complete" curve
Card 2/3   of discharge. After a very brief period of "recovery" (some

The Oscillographic Investigation of Oxides Which are Formed   20-4-31/52
on a Nickel Anode With the Electrochemical Separation of Oxygen.

seconds) this reduction of the surface increased with de-
creasing duration of the "recovery". A quantity of $\sim 3NiO_2$-
-layers resulted from this reduction of surface. This confirms
the complete covering of the surface of the nickel anode by
the highest oxide within the range of great current densities.
After a polarization lasting 5 minutes, there exist already
~ 17 layers of Ni_2O_3 and after a hour polarization of one hour
there are already ~ 30 layers. There are 3 figures and 11
references, 5 of which are Slavic.

ASSOCIATION: Kishinev State University (Kishinevskiy gosudarstvennyy
               universitet).

PRESENTED: May 21, 1957, by A. N. Frumkin, Academician.

SUBMITTED: April 20, 1957

AVAILABLE: Library of Congress

Card 3/3

TURYAN Ya.I.

TURYAN Ya.I.

SOV/153-58-3-30/38

AUTHORS: Vasil'yev, V. P., Korableva, V. D.,
Talnikraiy, K. B.

TITLE: Conference Discussion on the Methods of Investigating the
Complex Formation in Solutions (Soveshchaniye-diskussiya
po metodam izucheniya kompleksoobrazovaniya v rastvorakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i
khimicheskaya tekhnologiya, 1958, Nr 3, pp 173 - 174 (USSR)

ABSTRACT: From February 18 to 21, 1958 a conference discussion took
place at the town of Ivanovo. It dealt with the subjects
mentioned in the title. It was called on a decision of the
VIIth All-Union Conference on the Chemistry of Complex
Formation. More than 200 persons attended the conference,
among them 103 delegates from various towns of the USSR.
At the conference methods of determining the composition of
the complexes in solutions were discussed, as well as the
methods of calculating the instability constants according
to experimental data and problems concerning the influence
of the solvent upon the processes of complex formation.
In the lecture by A. K. Babko and
N. M. Tananayko, "Physical and Chemical Analysis of the
System With Colored Complexes in the Solution", the results
of a systematic investigation in copper-quinoline-salicylate,
as well as in copper-pyridine-salicylate systems by means of
the optical method were dealt with.   In the lecture by Ya. I.
Fialkov the idea of a further investigation of the complex
formation processes in solutions was developed. Besides the
determination of the composition and stability of the complexes
also the structure and chemical properties, the chemical nature
and the structure of the complex compounds must be investi-
gated.

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Alekseyeva and K. B. Talnikraiy in their lecture "Investiga-
tion of the Polymerization of Iso-Poly Acids in Solutions"
mentioned experimental results of the investigation of the
polymerization in solutions of molybdic acid. The authors
proved that especially the molybdic acid within a certain
range of the pH value and the concentration exists as a
number of compounds that can be expressed by an overall formula
$Mo_x(MoO_4)^{n-2}$.   In the lecture by E. V. Aksel'rud and V. J.
Spitkovskiy investigation results on hedic acid taking into
account the complex formation in solutions by means of the
potentiometric method were mentioned for systems with zinc,
cadmium and indium.   In the evaluation of their results the
authors employed the method of the table difference.   The
calculation of the consecutive constants was carried out
according to the interpolation formula by Heston.   M. A.
Chaplerasky held a lecture on the "pH Measurement Method of
the Solutions in Combination With the System Analysis of the
Stability Diagram of the System Cu^{2+}—HCl — H_2O in investiga-

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ting Complex Copper Compounds in Saturated Solutions".   It
was found that the substance at the bottom of the liquid is
more basic than the substance at the bottom of the liquid is
more basic than the solution; furthermore, the increased
acidity of the solution from the viewpoint of the formation
of hydroxo-chloro complexes in the solution was explained.
V. I. Kumetsov opened the discussion with his lecture; he
pointed out the necessity of utilizing the concepts worked
out in the investigations of the polymerization in organic
chemistry in the chemistry of polynuclear complexes. A. A.
Grinberg thinks that the new approach of the hydrolysis

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Conference Discussion on the Methods of
Investigating the Complex Formation in Solutions

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Conference Discussion on the Methods of
Investigating the Complex Formation in Solutions

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507/153-58-3-30/30

Conference Discussion on the Methods of
Investigating the Complex Formation in Solutions

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Conference Discussion on the Methods of
Investigating the Complex Formation in Solutions

stability of the 'pyridinates' is changed in dependence on
the solvent. Ya. I. Tur'yan in his lecture "The Influence
of the Solvent Upon the Composition and Stability of Complex
Ions" discussed the polarographic investigation method of
the chloride and thiocyanate complexes of lead in aqueous
ethanol solutions at different ionic strength. A step-wise
character of the complex formation was found as well as the
instability constants of the complexes. The influence of
the dielectric constant of the solution on the stability of
the investigated complexes was proved. In the lecture by
V. F. Vasil'yev on the "Investigation of Aquo-Complexes in
Mixed Solvents" the main attention was devoted to the necessity
of the qualitative recording of the solvation effects
in the complex formation. The applicability of the polaro-
graphic method in the determination of the composition and
stability of the aquo complexes in mixed solvents was proved
and experimental material on the thermodynamics of the
dissociation of the cadmium-aquo complexes in aqueous ethanol
solutions was mentioned. V. I. Tolmachev, V. I. Kuznetsov

Card 15/16

and I. V. Tananayev stressed in their lecture the necessity
of a more complete and general investigation of the solvation
processes. A. K. Babko and A. M. Golub pointed out the
great importance of the investigations of the complex forma-
tion equilibria in non-aqueous solutions, and made several
critical comments on the lecture by Ya. I. Tur'yan. The
following scientists took part in their discussion: L. P.
Adamovich, O. I. Khotsyanovskiy, A. I. Moskvin and A. G.
Stromberg. At the final meeting of the conference V. I.
Shlenskaya, Corresponding Member, AS USSR, said in his speech
that such a conference was very urgent. A detailed discus-
sion of the determination methods of the composition of the
complexes, as well as of the method used in the study of the
quantitative characteristics of the stepwise complex forma-
tion was extremely useful for all who attended this conference.

Card 16/16

5(4)
AUTHOR: Tur'yan, Ya. I.

TITLE: Once More on the Question of the Dissociation of the Aquo-complexes (Yeshche raz k voprosu o dissotsiatsii akvokompleksov)

SOV/153-2-2-29/31

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 2, pp 299-300 (USSR)

ABSTRACT: The author argues against the paper by V. P. Vasil'yev (Ref 1) wherein the attempt is made to determine the composition and stability of the aquo-complexes of Cd^{2+}, Pb^{2+}, and Tl^+ in water-ethanol-solutions by means of the polarographic characteristics by the author (Ref 2). The potentials of the half-wave of these and some other ions in water-methanol- and water-acetone-solutions were shifted in a positive direction in absence of the complex-forming agents, when the concentration of the non-aqueous solvents increased (up to 65 %). This result must be interpreted in a general way as an energetic effect of at least four factors. When discussing his results (Refs 2-4), the author considered from these four factors only the reduction of the dielectric constant, neglecting the remaining three as unimportant. Vasil'yev has

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Once More on the Question of the Dissociation of   SOV/153-2-2-29/31
the Aquo-complexes

interpreted these results in a different way (Ref 1). Of the
mentioned four factors he only considers the dehydration
process of the aquo-ions in the state of polarography during
the concentration-increase of the non-aqueous solvents. The
author is of the opinion that on no account should it be
assumed that the dehydration takes place also without the
superimposition of the persolvation-process, viz if one
assumes that the formation of coordinatively unsaturated ions
takes place. In such a case it remains to be clarified
whether the influence of the change of the dielectric
constant of the solution may be neglected. The author is of
the opinion that all his results allow anything else
rather than neglecting the last-mentioned change of the
constant. There are 7 Soviet references.

ASSOCIATION: Lisichanskiy filial gosudarstvennogo nauchno-issledovatel'-
                skogo i proyektnogo instituta azotnoy promyshlennosti i
                produktov organicheskogo sinteza (Lisichansk Branch of the
                State Scientific Research- and Planning   Institute for the
Card 2/3   Nitrogen-industry and for Products of Organic Synthesis)

5(4)
AUTHORS: Tur'yan, Ya. I., Chebotar', N. G.   SOV/78-4-3-19/34

TITLE: Polarographical Investigation of the Lead Chlorine Complexes in Aqueous, Methanol- and Ethanol-aqueous Solutions (Polyarograficheskoye issledovaniye khloristykh kompleksov svintsa v vodnom, vodnometanol'nykh i vodnoetanol'nykh rastvorakh)

ABSTRACT: Composition and stability of the lead chlorine complex in aqueous, methanol- and ethanol-aqueous solution were investigated by the polarographical method at various concentrations of the organic solvents and at an ionic strength $= 2$. With increased concentration of the solvent apart from the complexes $[PbCl]^+$, $[PbCl_2]$, $[PbCl_3]^-$ and also the complex $[PbCl_4]^{2-}$ forms (at 30 and 60 % $CH_3OH/30$ % C_2H_5OH). The composition of the complexes in 80 % CH_3OH and 60 and 80 % C_2H_5OH corresponds to that in aqueous solution. In 100 % CH_3OH exist only the complexes $[PbCl]^+$ and $[PbCl_2]$.

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Polarographical Investigation of the Lead Chlorine   SOV/78-4-3-19/34
Complexes in Aqueous, Methanol- and Ethanol-aqueous Solutions

In the formation of the complexes two factors act at the same
time: by reduction of the dielectricity constants in the
solution an increase in the affinity between central atom
and addenda occurs; thus the simple complexes are stabilized.
On the other hand, the impact strength among the addenda in
the complex increases, which results in the destruction of
the stabilized simple complexes. Thus, it is explained that
in 100 % CH_3OH no negatively charged lead complex $[PbCl_4]^{2-}$
exists in spite of a sufficient concentration of addenda.
Tables 4 and 5 give the stoichiometric stability constant
and the composition of the lead chlorine complexes in aqueous,
methanol- and ethanol-aqueous solutions. With increasing
concentration of the organic solvent the constants are
reduced. The dominating influence of the variation of the
dielectricity constants of the solvent upon the stability
constant of the complex is shown. A linear dependence exists
between the logarithms of the stoichiometric stability
constants (K_1, K_2, K_3) and the reciprocal values of the

Card 2/3

Polarographical Investigation of the Lead Chlorine   SOV/78-4-3-19/34
Complexes in Aqueous, Methanol- and Ethanol-aqueous Solutions

dielectricity constants of the mixed solvent. The stoichio-
metric stability constant of $[PbNO_3]^-$ was determined in
aqueous, methanol- and ethanol-aqueous solution. There are
2 figures, 6 tables, and 14 references, 5 of which are Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State
University)

SUBMITTED: December 26, 1957

Card 3/3

5(2)

AUTHORS: Tur'yan, Ya. I., Shtipel'man, R. Ya.

TITLE: Polarographic Investigation of the Lead Thiocyanate Complexes
                in Aqueous, Aqueous Methanolic, and Aqueous Ethanolic Solution
                (Polyarograficheskoye issledovaniye rodanistykh kompleksov
                svintsa v vodnom, vodnometanol'nykh i vodnoetanol'nykh rastvorakh)

ABSTRACT: The polarographic method was used to investigate the composition
                and stability of the lead thiocyanate complexes in aqueous,
                aqueous methanolic, and aqueous ethanolic solutions with a
                constant ionic strength of 2 and at 25°. The results are given
                in tables 1 and 2. The reversibility of the electrode process
                and the diffusion character of the limit current permit a
                determination of the composition and the stability constants of
                the lead thiocyanate complexes to be made. The compositions of
                the complexes and the stoichiometric stability constants in
                aqueous methanolic and aqueous ethanolic solutions of varying
                composition are summarized in tables 4 and 5. It is apparent
                that the amount of the thiocyanate complex passes through a

Card 1/3

Polarographic Investigation of the Lead Thiocyanate Complexes in Aqueous,
Aqueous Methanolic, and Aqueous Ethanolic Solution

maximum in relation to the methanol concentration. In 100% CH_3OH
the maximum coordination number is lower than in aqueous solu-
tion. In aqueous ethanolic solutions the formation of the thio-
cyanate complex increases with an increase in the ethanol con-
centration to 30 and 60% C_2H_5OH. The stability constants of
the complexes decrease with an increase in the non-aqueous
solvent. For corresponding complexes in aqueous-ethanolic and
aqueous methanolic solution have the straight line $pK \sim \frac{1}{\varepsilon}$
(ε...dielectric constant) in common. This fact shows the dominat-
ing effect of ε upon the stability constant K. The stoichiometric
stability constants of $[Pb(NO_3)]^+$ were determined in aqueous
methanolic and aqueous ethanolic solutions at an ion strength
of 2 (Table 6). The constant likewise decreases with an increase
in the concentration of the non-aqueous solvent, but in lesser
amount than the constant K_1 of the complex $[Pb(CNS)]^+$. Table 3
gives the relationship between the limit current of the lead
ions and the height of the mercury reservoir in aqueous methan-
olic and aqueous ethanolic solutions. There are 2 figures,

Card 2/3

Polarographic Investigation of the Lead Thiocyanate Complexes in Aqueous, Aqueous Methanolic, and Aqueous Ethanolic Solution

SOV/78-4-4-16/44

6 tables, and 2 Soviet references.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State University)

SUBMITTED: December 26, 1957

Card 3/3

SOV/78-4-4-17/44

5(4)
AUTHOR: Tur'yan, Ya. I.

TITLE: The Dependenc of the Instability constants of Complex Ions
              Upon the Dielectric Constant of the Solvent (Zavisimost'
              konstant nestoykosti kompleksnykh ionov ot dielektricheskoy
              postoyannoy rastvoritelya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 813-817
              (USSR)

ABSTRACT: The electrostatic theory of solvation was used to explain the
              dependence of the logarithm of the thermodynamic and stoichio-
              metric stability constants at higher ion strengths upon the
              reciprocal of the value of the dielectric constant ($\frac{1}{\varepsilon}$) of
              compound solvents. The similarity in the sizes of the effective
              ionic radii r_{Cd}, r_{Pb}, r_{Cl}, r_{Br}, r_J, r_{CNS}, r_{CdCl}, r_{PbCl}, r_{PbBr}
              and $r_{Pb(CNS)}$ was noted. The linear relationship between pK and
              $\frac{1}{\varepsilon}$ is explained on one side by the electrostatic theory and on
              the other side by the linear relationship between log f and $\frac{1}{\varepsilon}$
              (f ... activity coefficient). There are 12 references, 10 of
Card 1/2   which are Soviet.

I 12/20

The Dependenc of the Instability Constants of Complex Ions Upon the Dielectric Constant of the solvent

SOV/78-4-4-17/44

ASSOCIATION: Kishinevskiy josudarstvennyy universitet (Kishinev State University)

SUBMITTED: January 11, 1958

Card 2/2

SOV/78-4-5-21/46

5(4)

AUTHORS: Tur'yan, Ya. I., Bondarenko, N. I.

TITLE: The Polarographical Investigation of the Thiocyanate Complex
             of Cadmium in Aqueous and Aqueous-methanolic Solutions (Polyaro-
             graficheskoye issledovaniye rodanistykh kompleksov kadmiya
             v vodnom i vodno-metanol'nykh rastvorakh)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5,
             pp 1070-1076 (USSR)

ABSTRACT: The composition and the stoichiometric stability constants
             of the thiocyanate complexes of cadmium in aqueous and aqueous-
             methanolic solutions were investigated by the polarographic
             method at various CH_3OH-concentrations and an ionic strength 2.
             The polarographical character of cadmium in aqueous and aqueous-
             methanolic solutions with 2 molar $NH_4NO_3 + NH_4CNS$ is shown in
             table 1. In an aqueous solution the following four cadmium-
             thiocyanate complexes were found: $[Cd(CNS)]^+$, $[Cd(CNS)_2]$,
             $[Cd(CNS)_3]^-$ and $[Cd(CNS)_4]^{2-}$. The stability constants of these
             complexes agree well with the data of reference 8. Table 2
             shows the angle coefficient of the straight line $\varphi = \log \frac{i}{i_d - i}$

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SOV/78-4-5-21/46

The Polarographical Investigation of the Thiocyanato Complex of Cadmium in Aqueous and Aqueous-methanolic Solutions

in an aqueous and aqueous-methanolic solution in 2-molar NH_4NO_3 + + NH_4CNS. The dependence of the diffusion current of cadmium upon the level of the mercury reservoir in 2-molar NH_4CNS was investigated, and the results are given by table 2. The dependence of the potential of the cadmium-semiwave on the logarithm of the concentration of addenda in an aqueous and aqueous-methanolic solution is shown by figure 1. It was shown that with an increase of the methanol concentration the stability of the complex ions increases. The dependence $pK - \frac{1}{r}$ of the complex $Cd(CNS)$, $Cd(CNS)_2$ and $Cd(CNS)_3$ is indicated by a line, the inclination of which increases with an increase of the coordination number. The dependence of the logarithm of the stoichiometric stability constants in the cadmium-thiocyanate complexes $Cd(CNS)$, $Cd(CNS)_2$ and $Cd(CNS)_3$ upon the reciprocal value of the dielectric constant of the aqueous-methanolic solution is given by figure 2. The composition and the stability constants of the thiocyanate complexes of cadmium in an aqueous and aqueous-methanolic solution with an ionic strength

Card 2/3

The Polarographical Investigation of the Thiocyanate Complex of Cadmium in
Aqueous and Aqueous-methanolic Solutions

SOV/78-4-5-21/46

2 are shown by table 2. The composition of the cadmium-thio-
cyanate complexes in an aqueous solution is given by table 5.
There are 2 figures, 5 tables, and 17 references, 10 of
which are Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet
(Kishinev State University).
Kishinevskiy sel'skokhozyaystvennyy institut
(Kishinev Agricultural Institute)

SUBMITTED: February 15, 1958

Card 3/3

SOV/78-4-8-23/43

5(2)
AUTHORS: Migal', P. K.,   Grinberg, N. Kh., Tur'yan, Ya. I.

ABSTRACT: The solutions $Cd(NO_3)_2$ + $NaClO_4$ + $Na_2S_2O_3$ are investigated at
                different ionic concentrations which were kept constant in
                the individual experiments. In order to suppress the maximum
                0.01% gelatin was added to the polarographically investigated
                solutions. Oxygen was removed by the passage of hydrogen. A
                calomel standard electrode served as comparison cathode. The
                polarographic measuring results are shown by table 1. The
                dependence of the potential of the semiwave on the logarithm
                of the concentration of the thiosulphate ion is shown by
                figure 1. A step-wise complex formation was observed which the
                other research workers (Refs 2,4) had neglected. With low ionic
                strength only the complexes $[Cd(S_2O_3)]$ and $[Cd(S_2O_3)_2]^{2-}$ are

Card 1/2

The Polarographic Investigation of the Composition and the Stability of the Cadmium Thiosulphate Complexes in Aqueous Solution

SOV/78-4-8-23/43

formed. In the case of high ionic strength the complex $[Cd(S_2O_3)_3]^{4-}$ is observed. The stoichiometric instability constant was computed according to various methods (Refs 6,7) and showed good agreement. The instability constant of $Cd(S_2O_3)$ increases with increasing ionic strength. The constants for $[Cd(S_2O_3)]^{2-}$ and $[Cd(S_2O_3)_3]^{4-}$ pass a maximum at $\mu = 1$. The thermodynamical instability constant (Table 3) is in agreement with the values found according to the solubility method (Ref 3). There are 2 figures, 3 tables, and 10 references, 5 of which are Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State University)

SUBMITTED: April 30, 1958

Card 2/2

SOV/76-33-4-30/32

5(4)
AUTHOR: Tur'yan, Ya. I.

TITLE: Oxygen Overvoltage on the Nickel Anode (Kislorodnoye perena-
               pryazheniye na nikelevom anode)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 4, pp 948-952(USSR)

ABSTRACT: The theory of oxygen overvoltage cannot be further developed
               without first submitting to criticism the various investiga-
               tion results on the nickel anode, since some papers contain
               most dubious assumptions. In his previous papers (Refs 1-4)
               the author had obtained an exact polarization curve (Figure
               of the curve for 25°) that can be divided into four segments.
               Two of the segments are straight lines and may be represented
               by equations (1) and (2). Proceeding from these data the mechan-
               ism of the oxygen overvoltage was explained (Refs 1-4), which
               in the present case is likewise carried out on the basis of
               the above mentioned curve. Next, the investigation results
               (Refs 7-10) concerning the curve section I are explained and
               it is further stated that the retardation process (7) men-
               tioned in references 7-10 is inaccurate and the limiting stage
               (3) or (4) suggested in references 1-4 is right, which is
               also confirmed by the calculation results in reference 12.
               The authors (Ref 13) committed an error in the consideration

Card 1/2

Oxygen Overvoltage on the Nickel Anode

SOV/76-33-4-30/32

of the kinetics of oxygen separation on an uncompletely charged nickel oxide electrode in the derivation of the equation for the limiting stage (Refs 11-13). The authors (Ref 5) arrive at a wrong kinetic equation (15) instead of the right one (16) while reference 14 derived a kinetic equation (18) which does not agree with the experiment. The fact is pointed out that a number of authors do not consider the dependence of the process on time when studying the oxygen overvoltage on nickel anodes, so that wrong values are given (table of the values from reference 20) as compared to those from references 21 and 1, 2. There are 1 figure, 1 table, and 22 references, 14 of which are Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet
(Kishinev State University)

SUBMITTED: June 28, 1957

Card 2/2

5 (1)

AUTHORS: Tur'yan, Ya. I., Serova, G. P.   SOV/20-125-3-36/69

TITLE: Polarographic Kinetic Currents Caused by the Retarded
            Formation of Rhodanic Complexes of Nickel (Polyarograficheskiye
            kineticheskiye toki, obuslovlennyye zamedlennym obrazovan'ye
            rodanistykh kompleksov nikelya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 3,
            pp 595-598 (USSR)

ABSTRACT: In order to find out the nature of the three waves of the
            rhodanic complexes of nickel (which was investigated in previous
            research — —   Ref 1) the authors investigated the

            dependence of the height of the waves at $C_{Ni}^{0}2+$ = const

            (0.140 mol/l) on the concentration of KCNS (μ = 1:KCNS + KNO$_3$)

            and also on the concentration of nickel at C_{CNS}^{-} = const

            (12.6 mmol/l). The capillary tube has the characteristic

            $m^{2/3}t^{1/6}$ = 1.81 mg$^{2/3}$sec$^{-1/2}$ (t = 2.4 sec). i_k and $\sum i_u$

Card 1/4   denote the kinetic currents, and i_d the diffusion current.

Polarographic Kinetic Currents Caused by the
Retarded Formation of Rhodanic Complexes of Nickel

SOV/20-125-3-36/63

The following fact results from a previous paper (Ref 2) in which the constants of the instability of rhodanic complexes of nickel were determined. In the range of concentration of KCNS under investigation, only the ions Ni^{2+} and $[NiCNS]^+$ take part, in essential, in the diffusion to the electrode. The authors assume the following schemes of the electrode processes which determine the maximum current:

first wave:
$$Ni^{2+} \xrightarrow[k_s]{diff} Ni^{2+} + CNS^- \underset{k_2}{\overset{k_1}{\rightleftarrows}} [NiCNS]^+ + CNS^- \xrightarrow{k_3} [Ni(CNS)_2]$$

$$[NiCNS]^+ \xrightarrow[k_c]{diff}$$

first + second wave:
$$Ni^{2+} \xrightarrow[k_s]{diff} Ni^{2+} + CNS^- \xrightarrow{k_1} [NiCNS]^+ \xrightarrow{reduction}$$

$$[NiCNS]^+ \xrightarrow[k_c]{diff}$$
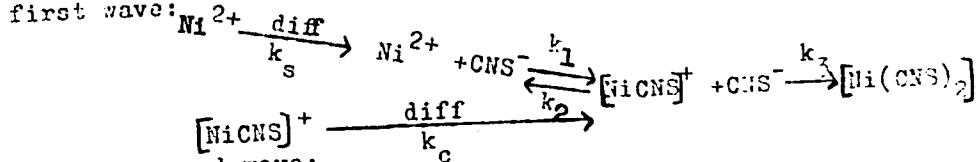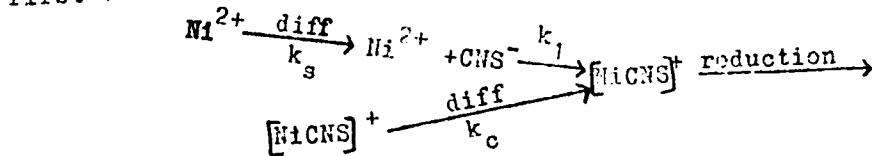
Card 2/4

Polarographic Kinetic Currents Caused by the Retarded   SOV/20-125-7-?? ??
Formation of Rhodanic Complexes of Nickel

first + second + third wave:

$$Ni^{2+} \xrightarrow[k_s]{diff} Ni^{2+} \xrightarrow{reduction}$$

$$[NiCNS]^+ \xrightarrow[k_c]{diff} [NiCNS]^+ \xrightarrow{reduction}$$
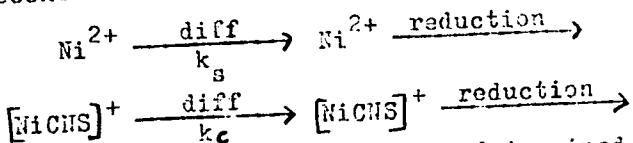
The total height i_d of the wave must be determined by the
diffusion velocity which was observed also experimentally. The
equations which describe the dependence of the kinetic
currents i_k and $\sum i_k$ on C_{CNS^-} are found according to the
approximate theory of R. Brdička and K. Wiesner (Ref 4). The
constant of the rate of addition of CNS^- to $[NiCNS]^+$ is
considerably higher than the constant of the rate of addition
of the ion to the ion Ni^{2+}. A formula is then given for i_k
as a function of C_H^0. According to the computations of the
present paper, the kinetic current and C_H^0 are proportional,

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Polarographic Kinetic Currents Caused by the Retarded ....
Formation of Rhodanic Complexes of Nickel

which was observed also experimentally. The authors used
also the more exact equations of J. Koutecky (Ref) for
various diffusion coefficients. The equations derived for
this case agree with the experimental results, i.e. also
the more exact theory confirmed the assumed mechanism of the
generation of the second kinetic wave. There are ' figures,
1 table, and 10 references, 9 of which are Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State
                University)

PRESENTED: December 10, 1958, by A. A. Grinberg, Academician

SUBMITTED: December 6, 1958

Card 2/'

S/064/60/000/01/13/024
B022/B008

AUTHORS: Tur'yan, Ya. I., Candidate of Technical Sciences,
Anikina, N. S.

TITLE: A Method for the Automatic Control of the Absorption Process
of Nitrogen Oxides by Means of Basic Solutions at the Pro-
duction of Weak Nitric Acid

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 1, pp. 59 - 61

TEXT: The absorption process of nitrogen oxides with a soda solution re-
quires continuous control of the soda concentration; a soda concentration
of approximately 10 g/l must be maintained especially towards the end of
the process. The control of the soda concentration by means of titration
is extremely difficult and excludes a continuous control. An automatic
control method which is based on the continuous measuring of the pH with
an antimony electrode was worked out for this reason. A saturated calomel
electrode was used as reference electrode. The emf of the electrode cell
was measured with an electronic potentiometer of the type EPD-32. The
potentiometric titration curve of a 0.1 N Na_2CO_3 solution with 0.1 N

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A Method for the Automatic Control of the   S/064/60/000/01/13/024
Absorption Process of Nitrogen Oxides by   B022/B008
Means of Basic Solutions at the Production of Weak Nitric Acid

sulfuric acid, using an antimony electrode (Fig. 1), shows that the elec-
trode mentioned reacts very sensitively to pH variations and makes a
separate determination of Na_2CO_3 and $NaHCO_3$ possible. The dependence of
the potential of the antimony electrode on the concentration ratio
$NaNO_2$: $NaNO_3$ (Table 1) and Na_2CO_3 : $NaHCO_3$ (Table 2) is given. An in-
dustrial model of a pickup electrode, the scheme of which is given
(Fig. 2), was designed for the automatic control under production condi-
tions. The pickup is placed between the circulation pump and the con-
tainers for the soda solution (Fig. 3). The variation of the potential of
the antimony electrode at the industrial absorption of nitrogen oxides
with a soda solution is graphically represented (Fig. 4). The calibration
curve of the antimony electrode by means of a hydrogen electrode (Fig. 5)
showed the linear dependence of the pH on the potential, and the stability
of this characteristic before and after the industrial test of the anti-
mony electrode. A. V. Pushkova took part in designing the pickup electrode.
There are 5 figures and 2 tables.

Card 2/3

A Method for the Automatic Control of the   S/064/60/000/01/13/024
Absorption Process of Nitrogen Oxides by   B022/B008
Means of Basic Solutions at the Production of Weak Nitric Acid

ASSOCIATION: Lisichanskiy filial Instituta avtomatiki Gosplana USSR
                 (Lisichansk Branch of the Institute of Automation of
                 the Gosplan UkrSSR)

Card 3/3

TUR'YAN, Ya.I., kand.tekhn.nauk; SMEKALOVA, V.V.; KHARLAMOVA, V.M.

Developing the automatic control of the liquor vapor content in the production of ammonium nitrate. Khim.prom. no.8:679-681 D '60.
(MIRA 13:12)

1. Lisichanskiy filial Instituta avtomatiki Gosplana USSR.
(Ammonium nitrate)

TUR'YAN, Ya.I.; ZHANTALAY, B.P.

Polarographic study of chloride complexes of cadmium in aqueous, water-methanol, methanol, and water-ethanol solutions. Zhur. neorg. khim. 5 no.8:1748-1755 Ag '60.
(MIRA 13:9)

1. Lisichanskiy filial gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti i produktov orga-nicheskogo sinteza, Kishinevskiy gosudarstvennyy universitet.
(Cadmium compounds)

TUR'YAN, Ya.I.; MILYAVSKIY, Yu.S.

Polarographic study of iodide complexes of cadmium in aqueous, water -
methanol, and water - ethanol solutions. Zhur. neorg. khim. 5 no.10:
2242-2250 O '60.   (MIRA 13:10)

1. Kishinevskiy gosudarstvennyy universitet Lisichanskiy filial gosudar-
stvennogo instituta azotnoy promyshlennosti i produktov organicheskogo
sinteza.
                         (Cadmium compounds)

TUR'YAN, Ya.I.

Reply to V.P. Vasil'ev's comments on the paper "Instability
constants of complex ions as a function of the dielectric
constant of the solvent." Zhur. neorg. khim. 5 no. 12:2852-
2853 D '60.   (MIRA 13:12)

1. Lisichanskiy filial gosudarstvennogo nauchno-issledovatel'-
skogo i proyektnogo instituta azotnoy promyshlennosti i pro-
duktov organicheskogo sinteza.
     (Vasil'ev, V.P.) :   (Complex ions)

TUR'YAII, Ya.I.

Polarographic wave equations and the nature of the particles reduced at the electrode in the polarography of maleic acid. Zhur. fiz. khim. 36 no.9:2103-2105 S '62.   (MIRA 17:6)

1. Yaroslavskiy nauchno-issledovatel'skiy institut monomerov.

TUR'YAN, Ya.I, TYURIN, Yu.M., ZAYTSEV, P.M., KARAVAYEVA, Ye.A.

Palarographic analysis of nitrocyclohexane. Zav.lab. 26 no.7:
810-813 '60.   (MIRA 13:7)

1. Lisichanskiy filial Gosudarstvennogo nauchno-issledovatel'-
skogo i proyektrnogo instituta azotnoy promyshlennosti i
produktov organicheskogo sinteza.
               (Cyclohexane) (Polarography)

S/076/60/034/05/11/038
B010/B002

AUTHORS: Tur'yan, Ya. I., Serova, G. F.

TITLE: Polarographic Investigation of the Kinetics of the Formation
             of Thiocyanate Complex Compounds of Nickel in Aqueous
             Solution

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 5,
             pp. 1009-1017

TEXT: The authors investigated the dependence of the three steps of the
polarogram of nickel - thiocyanate complex compounds (cf. Ref. 1) on the
concentration of thiocyanate (at $c^0_{Ni^{2+}}$ = const = 0.140 millimole/l)
(Table 1) and nickel (at c_{CNS} = const = 12.6 millimole/l) (Table 2). The
results obtained are analyzed on the basis of the theory of kinetic polaro-
graphic currents. The experiments were performed at 25°C and with four
different heights of the mercury reservoir. Table 3 represents the depend-
ence of the limiting current on the height of the mercury reservoir. On
the basis of data published by S. Fronaeus (Ref. 3) on the instability

Card 1/3

Polarographic Investigation of the Kinetics   S/076/60/034/05/11/038
of the Formation of Thiocyanate Complex   B010/B002
Compounds of Nickel in Aqueous Solution

constants of Ni^{2+}, $[NiCNS]^+$, $[Ni(CNS)_2]$, and $[Ni(CNS)_3]^-$ the authors
calculated the content of each ion in the various solutions as dependent
on the concentration of thiocyanate (Table 4). Three schemes of the elec-
trodic · processes show that the first step of the polarogram is related
to the retarded formation of $Ni(CNS)_2$ (first scheme), whereas the second,
larger step is related to the retarded formation of $[NiCNS]^+$ (second scheme),
and the third (a diffusion step) is related to the electrical reduction
of Ni^{2+} and $[NiCNS]^+$. With the help of the Brdička-Wiesner approximation
theory the authors calculated the rate constants k_1 and k_3. k_1 was also
calculated according to the more exact theory by Koutecky. It was taken
into account that besides the Ni^{2+} ions also the $[NiCNS]^+$ ions participat-
ed in diffusion, and that the diffusion coefficients of these ions differ
considerably. It is shown that the reaction rate constant of $[NiCNS]^+ + CNS^-$
is considerably higher than that of $Ni^{2+} + CNS^-$. The $[NiCNS]^-$ ion is
reduced at the potentials of the second polarogram step, which are more

Card 2/3

Polarographic Investigation of the Kinetics   S/076/60/034/05/11/038
of the Formation of Thiocyanate Complex   B010/B002
Compounds of Nickel in Aqueous Solution

positive than the potentials of the reduction of simple nickel. ions,
whereas at still more positive potentials of the first step a larger
complex ion is reduced. In accordance with A. N. Frumkin and G. M. Flo-
rianovich (Ref 16) it is probably a complex of the anionic type.
Budevskiy is also mentioned in the present paper. There are 5 figures,
5 tables, and 16 references: 5 Soviet, 6 Czech, 1 German, and 1 Swedish.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet
               (Kishinev State University)

SUBMITTED: June 28, 1958

Card 3/3

5.5400

5.4600

S/076/60/034/06/12/040

B015/B061

AUTHORS: Tur'yan, Ya. I., Milyavskiy, Yu. S., Zhantalay, B. P.
(Severodonetsk)

TITLE: Polarographic Determination of the Activity Coefficients
of the Cadmium Ion

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 6,
pp. 1234-1237

TEXT: Polarographic determinations of the activity coefficient $f_{Cd^{2+}}$
of the cadmium ion, with the use of the following galvanic chains were
carried out:
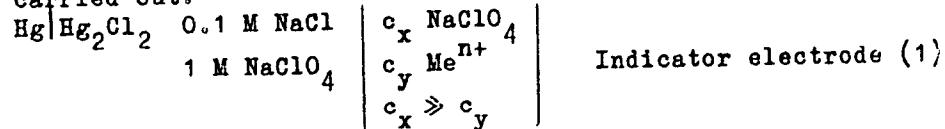
$Hg|Hg_2Cl_2$ 0.1 M NaCl c_x $NaClO_4$
              1 M $NaClO_4$ c_y Me^{n+} Indicator electrode (1)
                                $c_x \gg c_y$

Card 1/3

Polarographic Determination of the Activity Coef- S/076/60/034/06/12/040
ficients of the Cadmium Ion   B015/B061

and $Hg \mid Hg_2Cl_2$ 0.1 M LiCl $\begin{vmatrix} c_x & LiNO_3 \\ c_y & Me^{n+} \\ c_x \gg c_y \end{vmatrix}$ Indicator electrode (3).
                         1 M $LiNO_3$
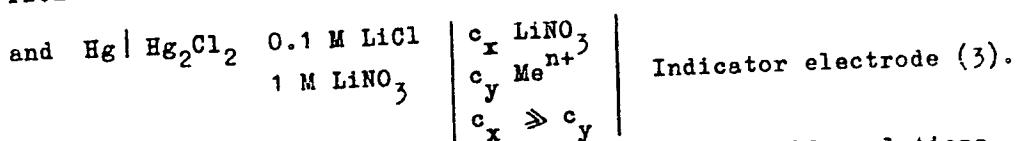
Whilst only simple Cd^{2+} ions are present in the $NaClO_4$ solutions, a
complex formation $[Cd(NO_3)]^+$ is possible in the $LiNO_3$ solution. The
calculations of the value $f_{Cd}2+$ at different ion strengths μ were carried
out with the use of the Heyrovskiy-Ilkovič equation (for the $NaClO_4$
solutions), and the De Ford - Hume equation (Ref. 4) (for the $LiNO_3$
solutions) (Table). The potential of the cadmium half-stage ((corrected
with reference to the change in the diffusion current) changes linearly
with $\sqrt{\mu}$ to $\mu = 0.05-0.1$, which is ascribed to the change of $f_{Cd}2+$
according to the Debye law. The dependence curves of the value $f_{Cd}2+$
on μ passes through a minimum at $\mu = 0.3-0.6$ to approach unity at
$\mu \approx 3$, and with a greater rise of μ to reach a value well above 1.

Card 2/3

81567

Polarographic Determination of the Activity
Coefficients of the Cadmium Ion

S/076/60/034/06/12/040
B015/B061

The values for $f_{Cd}2+$ in $LiNO_3$, calculated without and with respect to the complex formation, practically agree at $C_{NO_3^-} \leqslant 0.1$ M, and with the value for $f_{Cd}2+$ in $NaClO_4$ solutions. At values of $C_{NO_3^-} > 0.1$ M to 1 M a correction with respect to the complex formation leads to the same values for $f_{Cd}2+$ as in $NaClO_4$ solutions. There are 2 figures, 1 table, and 10 references: 1 Soviet, 5 American, 1 Italian, 1 German, 1 French, and 1 British.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State
University)

SUBMITTED: July 21, 1958

Card 3/3

GERSHKOVICH, I.A.; TUR'YAN, Ya.I. (Severodonetsk)

Oxygen overvoltage on the cobalt anode. Zhur. fiz. khim. 34 no.12:
2654-2660 D '60.   (MIRA 14:1)

1. Lisichanskiy filial Instituta azotnoy promyshlennosti i produktov
organicheskogo sinteza i Kishinevskiy gosudarstvennyy universitet.
        (Overvoltage)   (Oxygen)   (Cobalt)

5, 4600

AUTHOR: Tur'yan, Ya. I.

TITLE: The Mechanism of the Variation With Time of Oxygen Over-
           voltage on the Nickel Anode at Constant Current Density

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 6,
             pp. 1368 - 1371

TEXT: In previous papers (Refs. 1, 2) the author had assumed that the
increase in oxygen overvoltage η on the nickel anode occurring after
expiration of time t is caused by the fact that the concentration of
Ni_2O_4 on the anode increases, and $\eta_{Ni_2O_4} > \eta_{Ni_2O_3}$. The present paper deals

with the quantitative checking of this assumption. On the basis of the
reactions $Ni_2O_3 + 2OH \longrightarrow Ni_2O_4 + H_2O$ (2) and $Ni_2O_4 \longrightarrow Ni_2O_3 + O$ (3),
equation (4) is written down for dS/dt (dS is the portion of the anode
surface occupied by Ni_2O_4); this equation contains the constants K_1 and
K_2 ($K_1 = K_1' [OH]^2$, K_1' = rate constant of reaction (2), K_2 = rate constant

Card 1/3

The Mechanism of the Variation With Time of
Oxygen Overvoltage on the Nickel Anode at
Constant Current Density

81415
S/020/60/132/06/40/068
B004/B005

of reaction (3)). Hence, equation (6) is derived for η; Fig. 1 shows that this equation well reproduces the experimental data. Table 1 lists the values of the constants in dependence on current intensity and temperature. Equation (8) is written down for $\eta_{t=0}$. This equation also corresponds to the experimental values (Fig. 2). Further, equation (12) is given for the oxygen overvoltage η_{stab} which is stabilized after expiration of time t; $\times$ this equation corresponds to the complete covering of the anode with Ni_2O_4, and also agrees with the experimental data (Fig. 2). The value for K_1 decreasing with rising temperature is explained by decreasing concentration of the OH radicals on the anode surface due to a quicker progress of reaction (2), i.e. an increasing value for K_1'. There are 2 figures, 1 table, and 12 references: 9 Soviet, 1 British, 1 German, and 1 Japanese.

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The Mechanism of the Variation With Time of
Oxygen Overvoltage on the Nickel Anode at
Constant Current Density

81415

S/020/60/132/06/40/068
B004/B005

ASSOCIATION: Lisichanskiy filial Gosudarstvennogo instituta azotnoy
promyshlennosti i produktov organicheskogo sinteza
(Lisichansk Branch of the State Institute of the Nitrogen
Industry and Products of Organic Synthesis)

PRESENTED: January 28, 1960, by A. N. Frumkin, Academician

SUBMITTED: January 28, 1960

Card 3/3

S/020/60/134/004/016/023
B016/B060

AUTHORS: Tur'yan, Ya. I., Tyurin, Yu. M., and Zaytsev, P. M.

TITLE: Polarographic Study of Nitro-aci Tautomerism of Nitro-
                  cyclohexane

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4,
                  pp. 850 - 852

TEXT: The polarographic method devised by the authors (Ref. 1) for analyz-
ing nitro-cyclohexane (NCH) has made it possible to study the kinetics and
the equilibrium of the nitro-aci-tautomeric transformation of NCH. The
nitro-form of NCH constitutes a distinct wave in a wide pH range; the aci-
-form cannot be reduced on a mercury-dropping electrode. The authors dis-
solved NCH ($\sim$ 0.01 M) in water or alkali, depending on the direction in
which the reaction was considered. Citric acid phosphate- as well as borax
alkali buffer mixtures served as background. The concentration of the
nitro-form of NCH was recorded on the electron polarograph ПЭ-312 (PE-312).
The nitro-aci-(N$\rightarrow$A) transformation was studied in the range between pH 8
and 12, while the reverse reaction was studied at pH 3 - 9.5. The experiment

Card 1/3

Polarographic Study of Nitro-aci Tautomerism   S/020/60/134/004/016/023
of Nitro-cyclohexane   B016/B060

was performed at 25, 32, 40, and 50°C. Fig. 1 illustrates the dependence of
the ratio C_∞/C_0 on the pH value at 25°C, where C_0 is the initial concentra-
tion of NCH in the nitro- or aci-form and C_∞ the concentration of the NCH
nitro-form after the reaction is over. As may be seen, the nitro-form is
completely transformed into the aci-form at pH $>$ 9.5. At pH 4.5 – 7.0, a
complete transformation of the aci-form into the nitro-form is possible.
The equilibrium appearing at pH 7.0 – 9.5 can be attained from both sides.
Table 1 gives the values of K_N (experimental rate constant of reaction
N→A at pH = const) and of K_A (the same for reaction A→N). The function
log K_N = f(pH) is linear (Fig. 3), while log K_A = f(pH) at pH $\cong$ 5 passes
through a maximum (Fig. 4). A reaction scheme (3) is given for the acid-
-alkaline catalysis of the nitro-aci-tautomeric transformation (Ref. 6).
This reaction mechanism permits the derivation of kinetic equations which
fit those obtained in the experimental way (1) and (2) at the following
values of constants (25°C): K_0 = 50 (mole/l)$^{-1}$·min^{-1}, K_0' = 2.8 · 10^5
(mole/l)$^{-1}$·min^{-1}, K" = 0.11 min^{-1}, K_1 = 4.3 · 10^{-7}, and K_2 = 2.3 · 10^{-4}.

Card 2/3

Polarographic Study of Nitro-aci Tautomerism   . S/020/60/134/004/016/023
of Nitro-cyclohexane   B016/B060

Experimental data are compared with calculated ones in Fig. 4. The protoni-
zed complex $[C_6H_{10}:NO_2H]H^+$ appears in the limiting stage of the Nef
reaction (at $pH < 4.5$). Since at $pH \geqslant 9.7$ the isomerization reaction of NCH
is catalyzed by hydroxyl ions, and at $pH \leqslant 7$ this is done by hydrogen ions,
the equilibrium constant cannot be calculated from the ratio K_o/K_o'.
Instead, this constant was calculated by means of an equation shown here.
Table 2 shows good agreement for K equation when establishing the equilibri-
um from both sides. Activation energies are finally calculated. There are
4 figures, 2 tables, and 7 references: 4 Soviet, 2 US, and 1 French.

ASSOCIATION: Lisichanskiy filial Gosudarstvennogo instituta azotnoy
               promyshlennosti i produktov organicheskogo sinteza
               (Lisichansk Branch of the State Institute of the Nitrogen
               Industry and of Products of Organic Synthesis)

PRESENTED: May 16, 1960, by A. N. Frumkin, Academician
SU⌐ITTED: March 12, 1960

Card 3/3

TUR'YAN, Ya.I.; ROMANOV, V.F.

Polarographic method for determining potassium in the catalyst of the isobutyl alcohol synthesis. Khim.prom. no.1:68 Ja '61.
(MIRA 14:1)

1.Lisichanskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti i produkotv organiche-skogo sinteza.

(Isobutyl alcohol)
(Catalysts)   (Potassium—Analysis)

TUR'YAN, Ya.I.

Composition and instability constants of lead iodide complexes in
aqueous solutions as provided by solubility data. Zhur. neorg. khim.
6 no.1:162-168 '61.

(MIRA 14:2)

1. Lisichanskiy filial Gosudarstvennogo nauchno-issledovatel'skogo
i proyektnogo instituta azotnoy promyshlennosti i produktov organiche-
skogo sinteza.

(Lead compounds)

TUR'YAN, Ya. I.; TYURIN, Yu.M.; ZHANTALAY, B.P.

Polarographic determination of caprolactam and amino acids,
the intermediate products of synthetic fibers. Zhur.anal.
khim. 16 no.3:352-358 My-Je '61.

. (MIRA 14:6)

1. State Scientific Research and Designing Institute of Nitrogen
Industry, Lisichansk Branch.
                     (Azepinone)
                     (Amino acids)
                     (Polarography)

o

TUR'YAN, Ya.I; MURENKOV, A.M.

Use of polarography for the continuous automatic control of laboratory and industrial processes (survey). Zav.lab. 27 no.5:507-517 '61.

(Polarography)

(MIRA 14:5)

TUR'YAN, Ya. I.; ZHANTALAY, B.P.

Polarographic determination of caprolactam in process solutions.
Zav.lab. 27 no.10:1211-1214 '61.
(MIRA 14:10)

1. Lisichanskiy filial Instituta azotnoy promyshlennosti.
(Azepinone)
(Polarography)

TUR'YAN, Ya.I.; ZAYTSEV, P.M.

Polarographic determination of nitrocyclohexane in the production
of caprolactam. Zav.lab. 27 no.11:1329-1331 '61.   (MIRA 14:10)

1. Lisichanskiy filial gosudarstvennogo instituta azotnoy promyshlennosti.
       (Cyclohexane)   (Polarography)

20365

S/020/61/136/005/029/032
B101/B108

26. 2521

AUTHORS: Tur'yan, Ya. I. and Tsinman, A. I.

TITLE: The effect of concentration and type of alkali on the oxygen overtension at the nickel anode

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1154-1157

TEXT: The authors state that the data published on the effect of the $[OH]^-$ concentration on the oxygen overtension η of a smooth nickel anode are contradictory and comprehend only low current densities i. Experiments were therefore conducted with the participation of L.F. Gushchina, the conditions of which were similar to those described in Ref. 4. However, no rotating electrode was used, and the resistance drop was measured by means of several electrolytic switches at various distances from the electrode (galvanic nickel on platinum wire). Linear dependence of the potential on the distance was found for i = const. The experiments were made at 25°C with purified KOH, NaOH, and LiOH. The results obtained for $\eta = f(\log i)$ are shown in Figs. 1 to 3. Three sections appear: section I, flatly rising, with the limiting phase $Ni_2O_3 + 2OH_{ads} \rightarrow 2NiO_2(Ni_2O_4) + H_2O$

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The effect of concentration ....

20365
S/020/61/136/005/029/032
B101/B206

(1) for η = const + $(RT/2F)\ln i$ (2). Then, the steeply rising section II follows and, finally, section III with $OH^- - e \rightarrow OH_{ads}$ (3) as limiting phase and η = const + $(RT/\alpha F)\ln i - \left[(1-\alpha)/\alpha\right] (RT/F)\ln [OH]^- - \varphi_1(1-\alpha)/\alpha$ (4). The course of the curve depends on the nature of the alkali. In the range $[OH]^- = (2 - 7.5)M$, η increases in the order $K^+ < Na^+ < Li^+$, while for lower $[OH]^-$, the course is reverse. For this behavior of the nickel electrode, a change of the catalytic properties of its surface is assumed owing to incorporation of alkali ions into the lattice of the oxides. Concentration and nature of the alkali cation manifest themselves by the length of section III (corresponding to complete covering with NiO_2) increasing in the order $Na^+ < K^+ < Li^+$. The slow increase of η speaks in favor of this assumption as soon as some LiOH is added to the KOH solution at i = const. Compared with NaOH and KOH, the increase of η in LiOH is already considerable in the range $10^{-3} < i < 10^{-2} - 10^{-1}$ a/cm^2. It is concluded therefrom that during charging of an alkali battery with $i > 10^{-1}$ a/cm^2, the battery capacity is only slightly affected by addition

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20365

The effect of concentration ...

S/020/61/136/005/029/032
B101/B206

of LiOH. The dependence of η on $[OH]^-$ is studied. In order to exclude side reactions, the alkali was quickly diluted with water at i = const without switching off the current. It was found that for NaOH the over-tension η in sections I and III is independent of $[OH]^-$. In KOH, the function $\eta = f(\log [OH]^-)$ takes a linear course in sections I and III. The same is valid for LiOH in section III. The coefficients of the inclination of the function $\eta = f(\log i)$ in section I (0.032 - 0.047 at 7.5 - 0.6 M KOH; 0.030 - 0.031 at 9.5 - 0.4 M NaOH) and the fact that η is independent of $[OH]^-$ proved the limiting effect of reaction (1). The coefficient of inclination in section III (0.090 - 0.130) corresponds to the limiting phase (3). In order to explain the fact that η is independent of $[OH]^-$, it is assumed that $\gamma_1 = $ const $- (RT/F)\ln[OH]^-$ (5). The validity of equation (4) was also confirmed for the charged nickel oxide electrode, but on the condition that $\gamma = 0$. There is therefore a difference in the behavior of the nickel oxide electrode and the smooth electrode studied by the authors. There are 3 figures and 16 references: 14 Soviet-bloc and 2 non-Soviet-bloc.

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20365
S/020/61/136/005/029/032
B101/B206

The effect of concentration ...

ASSOCIATION: Lisichanskiy filial Gosudarstvennogo nauchno-issledovatel'-
skogo i proyektnogo instituta azotnoy promyshlennosti i
produktov organicheskogo sinteza (Lisichansk Branch of the
State Scientific Research and Planning Institute of Nitrogen
Industry and Products of Organic Synthesis)

PRESENTED: September 19, 1960, by A. N. Frumkin. Academician

SUBMITTED: September 16, 1960

Card 4/7

The effect of concentration ...

Legend to Fig. 1. $\eta = f(\log i)$ in KOH.
1) 7.5 M; 2) 5.0 M; 2') dto. after 48 hr;
3) 3.7 M; 4) 2.2 M; 5) 1.3 M;
5') dto. after 12 hr; 5") dto. after 48 hr;
6) 0.6 M
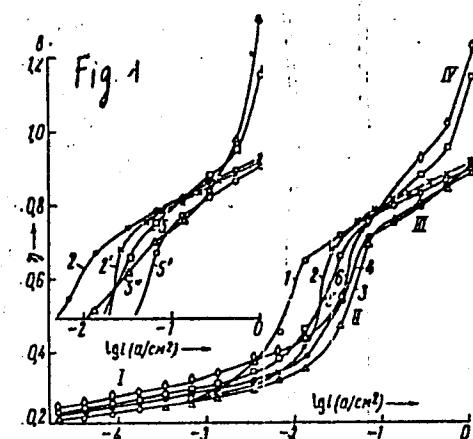
Fig. 1

Card. 5/7

20365

S/020/61/136/005/029/032
B101/B206

The effect of concentration ...

Legend to Fig. 2. $\eta = f(\log i)$ in NaOH.
1) 9.5 M; 2) 7.5 M; 3) 5.0 M;
4) 2.5 M; 5) 1.0 M; 6) 0.4 M

Fig. 2
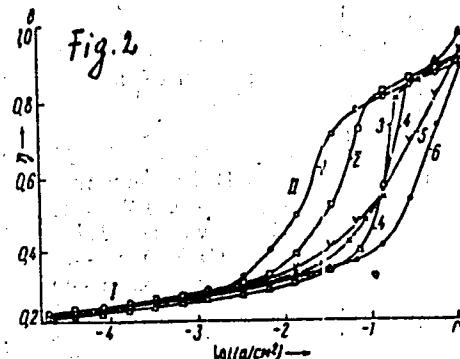
Card 6/7

The effect of concentration ...

Legend to Fig. 3. $\eta = f(\log i)$ in LiOH, KOH, and NaOH. 1) 5 M LiOH; 2) 2.5 M LiOH; 3) 0.5 M LiOH; 4) 5 M KOH; 5) 5 M NaOH

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Fig. 3
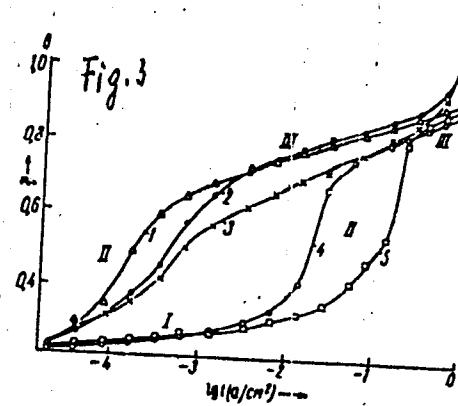
TUR'YAN, Ya.I.

Polarographic study of the mechanism involved in the electroreduction of simple and complex nickel ions. Dokl. AN SSSR 140 no.2:416-418 S '61.
(MIRA 14:9)

1. Lisichanskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti i produktov organicheskogo sinteza. Predstavleno akademikom A.N.Frumkinym.
(Nickel) (Reduction, Electrolytic)

RUSAKOVA, M.S.; TUR'YAN, Ya.I.; USTAVSHCHIKOV, B.F.

    Polarography of nitric acid esters. Mechanism of electroreduction.
    Elektrokhimiia 1 no.7:854-857 Jl '65.   (MIRA 18:10)

    1. Yaroslavskiy tekhnologicheskiy institut i Yaroslavskiy
    nauchno-issledovatel'skiy institut monomerov.

PETRAKOVICH, V.Ye.; PODUROVSKAYA, O.M.; TUR'YAN, Ya.I.

Comparison of platimum oxide and glass indicator electrodes
in acid-base titration. Effect of nonaqueous solvents, the
nature of the titrant, and various additions. Zhur. anal.
khim. 20 no.8:785-789 '65.   (MIRA 18:10)

1. Nauchno-issledovatel'skiy i proyektnyy institut azotnoy
promyshlennosti, Moskva, i Yaroslavskiy nauchno-issledovatel'skiy
institut monomerov.

TUR'YAN, Ya. I.

Catalytic polarographic current of some nickel complexes.
Zhur. fiz. khim. 39 no. 1:257-258 Ja '65 (MIRA 19:1)

1. Yaroslavskiy institut monomerov. Submitted March 19,
1964.

VAKHRUSHEV, Yu.A.; TUR'YAN, Ya.I.

Polarographic study of the recombination kinetics of anions
and dissociation of molecules of terephthalic acid. Zhur.
fiz. khim. 39 no.4:979-982 Ap '65.   (MIRA 19:1)

1. Nauchno-issledovatel'skiy institut monomerov, Yaroslavl'.
Submitted Dec. 19, 1963.

TUR'YAN, Ya.I.

Solubility products and composition of precipitates of
silver and mercury acetylides. Zhur. neorg. khim. 1C
no.2:549-551 F '65.   (MIRA 18:11)

1. Yaroslavskiy nauchno-issledovatel'skiy institut monomerov.
Submitted June 25, 1964.

TUR'YAN, Ya.I.; SMIRNOVA, G.A.; TOLSTIKOVA, O.A.

Polarographic kinetic currents of nicotinic acid. Elektrokhimiia 1
no.8:922-927 Ag '65.   (MIRA 18:9)

1. Institut monomerov dlya sinteticheskogo kauchuka.

ZHANTALAY, B.P.; TURIYAN, Ya.I.

    Polarographic study of the kinetics and equilibrium of the reaction
    of formaldehyde with amino acids. Zhur. i kat. 6 no.1:162-163. Ji-Ag
    '65.
                                          (MIRA 18:9)

    1. Severodonetskiy filial Gosudarstvennogo instituta azotnoy promyshlen-
    nosti i Yaroslavskiy nauchno-issledovatel'skiy institut monomerov.

KREGHE::, A. .; HALYATINSKAYA, L.N.; TUR'YAN, Ya.I.

Determination of the degree of purity of styrene by the indirect
potentiometric method in an anhydrous medium. Plast. massy no.2;
52-53 '65. (MIRA 18:7)

TUR'YAN, Ya.I.

Mechanism of the polarographic kinetic currents of glyoxilic
acid. Elektrokhimiia 1 no.4:491-494 Ap '65.

(MIRA 18:6)

1. Nauchno-issledovatel'skiy institut monomerov ulya sinteti-
cheskogo kauchuka.

TUR'YAN, Ya.I.

    Solubility of electrolytes in a mixed solvent, hydration numbers,
and trans-solvation equilibrium. Zhur. fiz. khim. 32 no.6:1692-
1695   Je '64.   (MIRA 18:3)

1. Yaroslavskiy nauchno-issledovatel'skiy institut monomerov.