FOLWARCZNY, Czeslaw, mgr inz.; SOBOTKOWSKI, Witold, mgr inz.; SUCHORAB, Antoni, inz.

Reliability and safety testing of thermal installations in power stations. Pt.1. Energetyka Pol 18 no.3:Supplement: Energopomiar 10 no.2:14-16 Mr'64

1. Pion Cieplny, Zaklad Badan i Pomiarow, Warszawa.

FOLWARCZNY, G.

FOLWARCZNY, G. How a machine-tractor station can considerably increase the yields per hectare. p. 244.

Vol. 6, No. 13, July 1956.
MECHANISACE ZEMEDELSTVI.
AGRICULTURE
Praha, Czechoslovakia

So: East European Accession, Vol. 6, No. 3, March 1957

FOLWARCZNY, Czeslaw, mgr inz.; SOBOTKOWSKI, Witold, mgr inz.;
SUCHORAB, Antoni, inz.

Methods of performing acceptance tests of thermal equipment in power plants. Pt. 2. Energetyka Pol 18 no. 4 [i.e.5]:Suppl.:Biul nauk techn energopomiar 10 no. 3:17-23 My '64.

FOLWARCZNY, G.

Making work with contracts easier. p. 450. (MECHANISACE ZEMEDELSTVI, Vol. 6, No. 23, Dec 1956, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

H-2

COUNTRY : Poland

CATEGORY : Chemical Technology. Chemical Products and Their Applications--Chemical engineering.

18054

ABS. JOUR. : RZKhim., No. 5 1960, No.

AUTHOR : Ocheduszko, S. and Folwarczny, J.

INST. : Not given

TITLE : Adiabatic Flow of Gases in Pipes

ORIG. PUB. : Zesz Nauk Politechn Slaskiej, No 19, 3-12 (1959)

ABSTRACT : Using the first law of thermodynamics and the continuity equation, the authors have derived an equation which corresponds to the Fanno [Fannot?] curve. On the basis of the equation derived, the work required for the overcoming of friction and the increase in kinetic energy are discussed in P-V and T-S coordinates.

V. Sokol'skiy

CARD: 1/1

BARTEL'S, A.V.; LEBEDEVA, M.A.; GRASHCHENKOVA, Z.P.; FOMCHENKO, I.V.

Use of staphylococcal anatoxin in the treatment of mastitis. Akush. i gin. 40 no.1:17-21 Ja-F '64. (MIRA 17:8)

1. Nauchno-issledovatel'skiy institut akusherstva i ginekologii (dir. - prof. O.V. Makeyeva) Ministerstva zdravookhraneniya SSSR, Moskva.

24.5200

P/032/62/009/002/001/001
D265/D308

AUTHOR: Folwarczny, Józef, Gliwice

TITLE: Thermodynamic similarity in the case of laminar flow through a straight circular tube

PERIODICAL: Archiwum budowy maszyn, v. 9, no. 2, 1962, 191-238

TEXT: The laminar flow of heat is analyzed under conditions of hydrodynamic and thermodynamic stability i.e. for constant values of Nusselt number. Taking axial heat conduction into consideration, the differential equation in dimensionless form is derived from first principles

$$\frac{d^2\varepsilon}{d\sigma^2} + \frac{1}{\sigma}\frac{d\varepsilon}{d\sigma} - \varepsilon\left[K(1-\sigma^2) - \left(\frac{K}{Pe}\right)^2\right] = k\left[K(1-\sigma^2) - \left(\frac{K}{Pe}\right)^2\right], \qquad (23)$$

for which the solution shows the relationship Nu = f (K, Pe) where K - appears as a new dimensionless quantity defined by

Card 1/2

P/032/62/009/002/001/001
Thermodynamic stability in the case ... D265/D308

$$K = - Pe \frac{R}{L} . \qquad (21)$$

where R - tube radius, L - constant length of subtangent to a curve of the temperature difference as a function of tube length, Pe - Peclet number. Neglecting the axial heat conduction, the values Nu = 3.65 for K = 7.313 and Nu = 4.36 for K = 0, are shown on Nu - K system graph. Considering the external heat flow through an annular duct around the inner tube the heat exchange conditions are analyzed which depend on the coefficient of heat conductivity, the wall thickness, thermal capacity of the outer flow and the cross-section of the outer duct. Particular cases of heat flow for which $K = 0$ and $Nu = 4.36$ and $K \neq 0$ and $Pe \approx \infty$ are discussed in detail, and heat exchange conditions are determined for several values of Nu - number of the inner tube. There are 11 figures and 5 tables.

ASSOCIATION: Katedra teorii maszyn cieplnych politechniki śląskiej (Department of the Theory of Heat Engines, Silesian Polytechnic

SUBMITTED: December, 1961

Card 2/2

FOLWARCZNY, J., dr. ing. (Poland)

Control of complex combustion processes. Ipari energia 5 no.3:
55 M '64.

FOLWARCZNY, Jozef (Gliwice)

Control of complex combustion processes. Archiw bud masz 11 no. 1:59-72 '64.

FOLYADOV, V. and TISHCHENKO, D.

"New Type of Terpene Transformations. VIII. Synthesis of Terpenylacetoacetic and Terpenylmalonic Esters and Their Cleavage Products," Zhur. Ob. Khim., 22, No.6, 1952

TISHCHENKO, D.; FOLYADOV, V.

New type of terpene transformations. X. Synthesis of homoterpenes. Zhur. Obshchey Khim. 22, 1591-3 '52. (MLRA 5:9)
(CA 47 no.18:9306 '53)

TISHCHENKO, D.; PERSIANTSEVA, N.; FOLYADOV, V.

New type of terpene transformations. XII. Synthesis of nitriles of the homoterpene series. Zhur. Obshchey Khim. 22, 1829-32 '52. (MLRA 5:11)
(CA 47 no.18:9307 '53)

FOM, P. Ye.

"Special Tongs for Sealing Diamonds in a Mandrel by means of a Voltaic Arc", Stanki I Instrument, 14, No. 11-12, 1943.

BR-52059019

MOYCHO, W.; GUBANSKI, M.; FOMAIDIS, B.; LEMANSKA, M.; WAJSBARD, E.

The occurrence of tobacco mosaic virus in tomatoes in Lodz and its neighborhood. Postepy nauk roln 7 no.1:79-82 Ja/F '60. (EEAI 9:10)

(Poland--Tomatoes)
(Mosaic disease)
(Viruses)

FOMCHENKO, A., podpolkovnik militsii

Our common cause. Za rul. 17 no.1:8-9 Ja '59. (MIRA 12:3)

1. Predsedatel' ekzamenatsionnoy komissii Gosudarstvennoy avtomobil'noy inspektsii UVD Orenburgskogo oblispolkoma.
(Orenburg Province--Automobile drivers)

FOMCHENKO, G.K., general-mayor meditsinskoy sluzhby; KOVALEV, Ye.I.,
polkovnik meditsinskoy sluzhby; ASKEROV, A.A.

Electrocardioscopic and electrosphygmoscopic study of the functional state of the cardiovascular system. Voen.-med.zhur. no.10:31-35 O '59. (MIRA 13:3)

(ELECTROCARDIOGRAPHY)

PHASE I BOOK EXPLOITATION SOV/5304

Soveshchaniye po teorii liteynykh protsessov. 5th, 1959

Tochnost' otlivok; trudy soveshchaniya (Accuracy of Castings; Transactions of the Fifth Conference on the Theory of Founding Processes) Moscow, Mashgiz, 1960. 206 p. 3,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya.

Ed. (Title page): B. B. Gulyayev, Doctor of Technical Sciences, Professor; Ed. of Publishing House: G. N. Soboleva; Tech. Ed.: A. F. Uvarova; Managing Ed. for Literature on Hot-Processed Metals: S. Ya. Golovin, Engineer.

PURPOSE: This book is intended for scientific and technical personnel at scientific research institutes, factories, and schools of higher education.

COVERAGE: The book contains 19 reports read at a conference on the accuracy of castings. The conference was organized by the Committee on Processing in Machine Building and sponsored by the Institut mashinovedeniya AN SSSR (Institute of the Science of Machines of the Academy of Sciences USSR). The reports, presented by leading specialists, science workers, and production personnel, discuss the present state of the problem of the accuracy of castings and methods of solving the problems involved. There are 58 references, mostly Soviet.

Komarov, L. Ye. [Engineer]. Distortion of Sand Molds 117

Zhukovskiy, S. S. [Engineer], and Yü Ts'uan-chin [Engineer]. Dimensional Errors of Castings Caused by Patterns and Flasks 125

Dubrovskiy, A. M. [Engineer]. Effect of Thermal Distortion of the Molding Mixtures on the Accuracy of Castings 131
The work of investigating the distortions and thermal stress in the molding mixtures was carried out under the supervision of P. P. Berg.

Fomchenko, S. I. [Engineer], and B. B. Gulyayev. Production of Precision Castings in Shell Molds Pressed From a Waterglass Mixture 146

Kolchin, I. P. [Engineer], and V. V. Ryzhenkov [Engineer]. Production of Large Precision Steel Castings by Using Chemically Hardening Mixtures 153

Rubtsov, N. N. [Doctor of Technical Sciences, Professor], and I. L. Zelikov [Engineer]. Dimensional Accuracy of Investment Castings 160

Goryunov, I. I. [Candidate of Technical Sciences]. Dimensional Accuracy and Surface Roughness of Castings Obtained by Various Methods 180
O. A. Kantor, A. Ye. Danilov, A. I. Belyayev, and Engineer V. B. Shul'man participated in making castings.

Makel'skiy, M. F. [Engineer], and B. B. Gulyayev. Formation of the Contours of Castings in Die Casting 193

Kolesnichenko, A. G. [Engineer]. Accuracy of Castings Obtained in Metal Molds 203

Card 6/7

11

YEVSTAF'YEV, I.N., inzh.; BOROVSKIY, Yu.F., kand. tekhn. nauk; FOMCHENKO,
S.I., kand. tekhn. nauk; GULYAYEV, B.B., doktor tekhn. nauk

Compacting molding mixtures by vibration squeezing. Lit. proizv.
no.9:4-6 S '65. (MIRA 18:10)

Fomchenko, S.N.

AUTHOR: None given SOV/180-59-4-47/48

TITLE: A Conference on the Accuracy of Machine Building Castings

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 4, pp 255-256 (USSR)

ABSTRACT: A conference on the above subject took place in the Institute of Machine Building of the Academy of Sciences of the USSR on 22-24th April 1959. About 200 representatives of scientific-research institutes, laboratories, universities and largest works from 34 towns participated in the conference. The following papers were read: B.B.Gulyayev "The present state of studies of the accuracy of castings"; P.N.Aksenov "Tasks of investigations of the dependence of the accuracy of castings on technological factors"; N.P.Gere "Methods of analytical evaluation of dimensions of castings"; Yu.A.Vorob'yev "Theoretical and experimental investigations of the accuracy of castings"; I.P.Yegorenkov - "The system of allowances for mechanical working of castings"; Ye.G.Kopanevich "Methods for the determination of tolerances for dimensions of cast parts"; S.A.Lazenko "Tolerances for non-ferrous castings produced by various

Card 1/3

methods of casting"; G.N.Nikol'skiy "Methods of controlling the cleanliness of the surfaces of castings"; I.S.Konstantinov "The influence of stresses formed during casting on the accuracy of castings"; I.Ye.Kogerov "The process of packing moulds as a factor determining the accuracy of castings"; S.S.[illegible] and Yi Chi'uan-chin "Sources of errors in the dimensions of castings caused by specific features of operation of the pattern-mould boxes equipment", A.M.Dobrovol'skiy "Typical deformations of casting moulds", V.G.[illegible] "Conditions of making accurate castings in sand moulds"; N.P.Ivanov "The influence of the chemical composition of iron on the accuracy of dimensions of castings", S.N.Fomchenko and B.B.Gulyayev "Improvement in the accuracy of castings made in pressed shell moulds"; V.V.Dyrbenkov "Experience in increasing the cleanliness and accuracy of large castings", N.N.[illegible] and I.I.Zhel'kov "On the accuracy of castings made by the lost wax method"; I.I.[illegible] "An investigation of the accuracy and surface cleanliness of castings made under pressure and by the lost wax method"; M.I.Makel'skiy and B.B.Gulyayev "The formation of the contour of castings during casting under pressure"; F.G.Novak, A.A.Podgornov and N.N.Belousov "An improvement in the surface quality of castings made under pressure by forming a vacuum the pressure moulds". It was established that studies on the subject of the accuracy of castings are developing too slowly mainly due to lack of coordination in the research work and insufficient numbers of specialists in the field of mathematics, physics and electronics. In order to develop methods for overall calculations of the accuracy, productivity and economics of casting processes the conference recommended organizing in Moscow, Leningrad and Kiyev (at scientific research institutes and universities) mixed teams consisting of foundry specialists, mathematicians, physicists and economists.

Card 2/3

FORCHENKOV, G. A.

Dispensary Storage Table PMP. Voyenno-Meditsinskiy Zhurnal, No 1, p. 76, 1955.

VOROB'YEV, V., inzh.; ZHUNIN, A., inzh.; SPIROV, V., inzh.;
FOMCHENKOV, I., inzh.

Building made of light alloys. Na stroi. Ros. no.10:37-38
0 '61. (MIRA 14:11)
(Moscow--Aluminum, Structural)

FOMCHENKO, Oleg[Fomchanka, Aleh] (Brest)

People praise her work. Rab. i sial. 39 no.2:15-16 F '63.
(MIRA 16:4)

(Juvenile delinquency)

GAL'PERIN, Ye.I.; GORDONOV, A.Yu.; FOMCHENKOV, V.M.

Designing trigger circuits for point contact crystal triodes with consideration of interchangeability. Poluprov. prib. i ikh prim. no.2:340-352 '57. (MIRA 11:6)
(Transistors) (Electonic circuits)

MOLCHANOV, A.A. (Novosibirsk); SIGORSKIY, V.P. (Novosibirsk);
FOMEL', B.M. (Novosibirsk)

Study of the dynamics of multistable elements based on a simplified model. Izv. AN SSSR. Tekh. kib. no.5:156-162 S-O '65. (MIRA 18:11)

ACC NR: AR7004318 SOURCE CODE: UR/0271/66/000/011/B016/B017

AUTHOR: Fomel', B. M.

TITLE: Investigation of subharmonic oscillations in computer elements with one degree of freedom

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl. tekhn., Abs. 11B120

REF SOURCE: Sb. Vychisl. sistemy. Vyp. 21.Novosibirsk, 1966, 33-45

TOPIC TAGS: computer design, computer component, computer theory, analog computer, subharmonic oscillation, oscillation /IPT-5 analog computer

ABSTRACT: Elements that use parametric subharmonic oscillations have found wide usage at the present time; the phase of the subharmonic oscillation serves as a dynamic state indicant in these elements. As nonlinear systems have no principal difference between an external periodic disturbance and a parametric effect (because every periodic process, in such a system, is accompanied by a parametric modulation of its nonlinear elements), it is suggested that the oscillations of any shape whose frequency is submultiple of the external applied frequency be considered as subharmonic oscillations. A class of dynamic computer elements is considered which is describable by second-order equations containing, in addition to a strongly nonlinear function, a periodic function of this form: $\ddot{x}+b\ddot{x}+\sigma(x)=f(t)$

where b - positive coefficient, $\sigma(x)$ - nonlinear function, $f(t)$ - periodic function. Qualitative methods are used in an examination of such an equation which

Card1/2 UDC: 681.142.32.001

ACC NR: AR7004318

permits finding all possible motions in the system. The results were verified on an IPT-5 analog computer equipped with a set of nonlinear units. The results were readout from an oscilloscope screen calibrated in (x, y)-coordinates of the state plane and having time markings. The above qualitative method of studying subharmonic oscillations has the advantage over other methods in that it is noncritical to the form of the nonlinear function contained in the initial differential equation and in that it permits obtaining the entire set of possible motions simultaneously. In addition to presentation of the general method, a case of single-domain model of a ferromagnetic film is considered in detail; the model is constructed after the Landau-Livshits-Gilbert equation which describes the magnetic moment in a ferromagnetic: $n^2\ddot{x}+\beta n\dot{x}+{}^1/_2\sin 2x+f_1(t)\sin(x-\theta_0)=0$, where x - magnetic-moment angle in the external field, n, β, θ_0 - film parameters, f(t) - external field varying on the same law as the function f(t) in the initial equation. Eight figures. Bibliography of 3 titles. G. V. [Translation of abstract]

SUB CODE: 09

Card 2/2

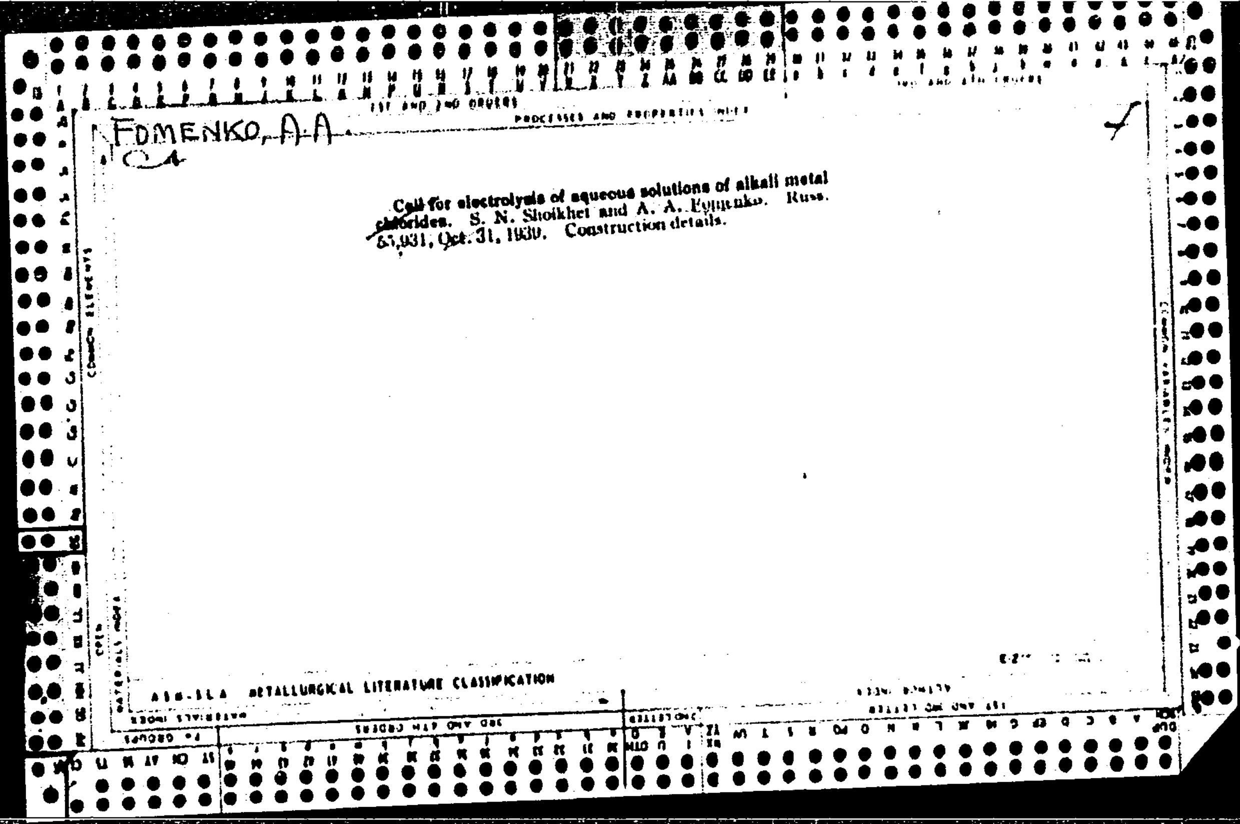
BARKHIN, G.S.; FOMEN, V.T.

Bending of surfaces of positive curvature under certain boundary conditions. Dokl. AN SSSR 140 no.5:987-989 0 '61. (MIRA 15:2)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom P.S.Aleksandrovym.

7

(Surfaces of constant curvature)
(Boundary value problems)



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

FOMENKO, A.A.

CA

Cell for electrolysis of aqueous solutions of alkali metal chlorides. S. N. Shoikhet and A. A. Fomenko. Russ. 65,931, Oct. 31, 1930. Construction details.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

FOMENKO, A.A.

Radiofrequency magnetic and electric spectra of permeability of the body and substance of MnZn-ferrites. Zhur. tekh. fiz. 28 no.3:506-510 Mr '58. (MIRA 11:4)
(Ferrates) (Magnesium-zinc alloys--Electric properties)

FOMENKO, A. G.

"Use of preparations FB-1 and FB-2."
SO: Veterinariya 28(2), 1951, p. 46.

S/263/62/000/020/002/006
E194/E135

AUTHORS: Agarkov, A.P., Fomenko, A.I., and Kureyko, S.M.

TITLE: The preparation and calibration of heat resistant pick-ups

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk, Izmeritel'naya tekhnika, no.20, 1962, 11, abstract 32.30.91. (Tr. Novocherk. politekhn. in-ta, 127, 1961(1962), 57-61).

TEXT: Heat-resistant pick-ups based on potassium glass are at present widely used to measure static stresses that are set up in components which operate in a high temperature zone. Cements for heat resistant pick-ups based on potassium liquid glass are of good technological properties, their sole disadvantage being their poor electrical insulating properties at high temperature. This disadvantage is overcome by introducing lead oxide PbO which reduces the ionic conductivity of the cement because of the influence of heavy ions. The procedures for making and calibrating the heat-resistant pick-ups are described. 3 figures.

Card 1/1 [Abstractor's note: Complete translation.]

1. FOMENKO, A.N., INOZEMTSEV, Ye K.

2. USSR (600)

4. Lignite - Kagul County

7. Geological report on the results of the prospecting carried out by the Izmail and Kagul lignite parties in 1940-1941. (Abstract) Izv.Glav.upr.geol.fon. no.2 1947

9. Monthly List of Russian Accessions. Library of Congress. March 1953. Unclassified.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A-1

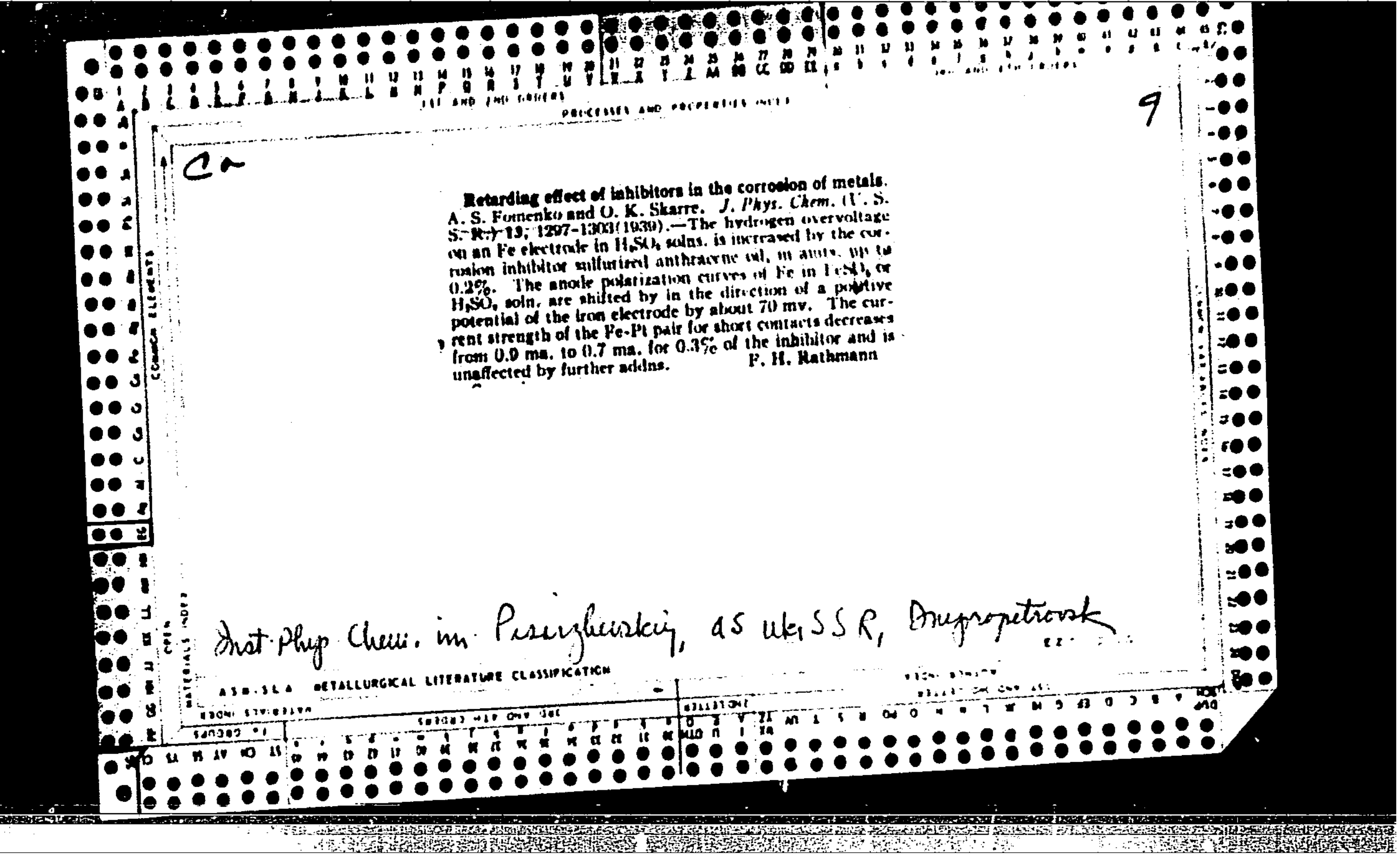
ØC

Kinetics of the electrode process at an ammonia gas electrode. A. S. Fomenko (J. Phys. Chem. Russ., 1938, 11, 578—584).—The potential change $\Delta\pi$ of platinised Pt in aq. NH_4NO_3 saturated with NH_3 is connected with the c.d. I of the polarising current by the equation $\Delta\pi = a + b \log I$, a and b being consts. Between 0° and 30° b rises from 0·034 to 0·039; its val. suggests that $NH_3 + 3OH' \rightarrow N + 3H_2O + 3\ominus$ is the slowest reaction at the electrode. J. J. B.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Cr

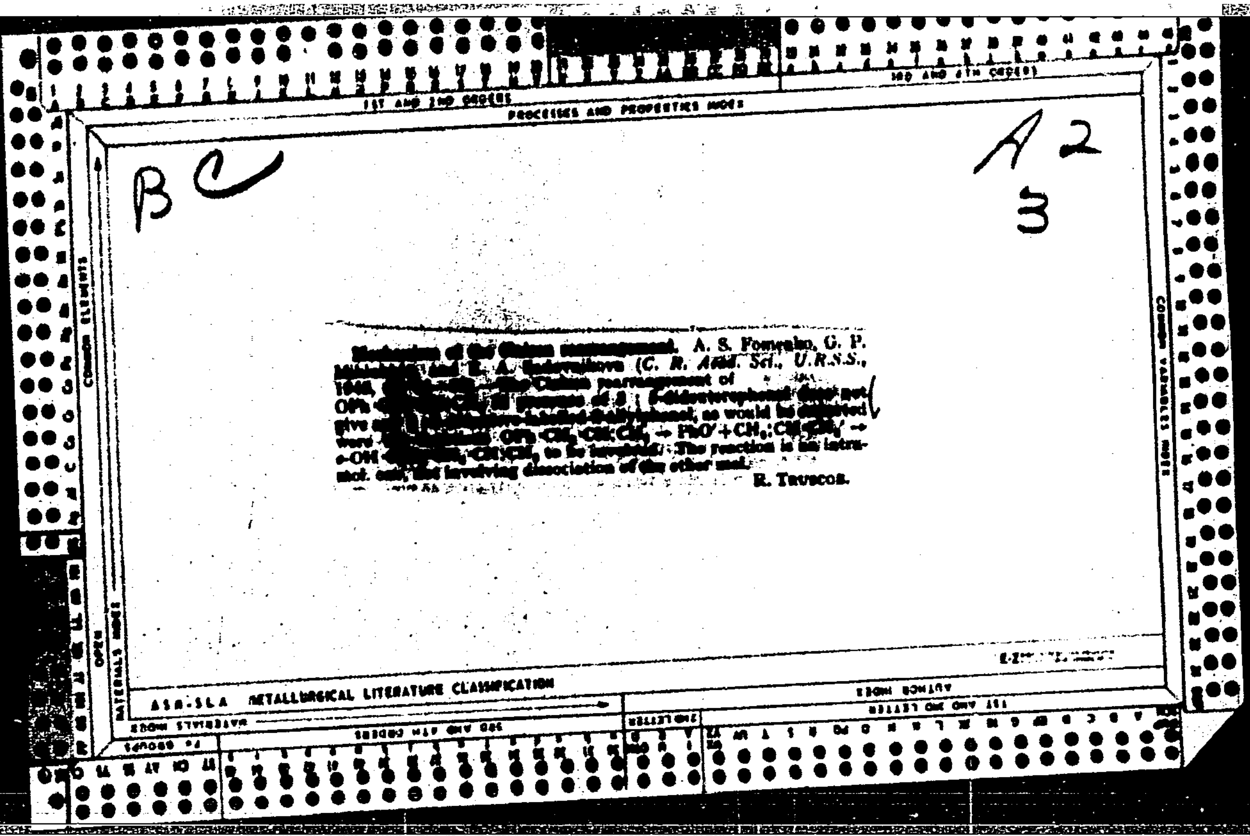
9

Retarding effect of inhibitors in the corrosion of metals. A. S. Fomenko and O. K. Skarre. *J. Phys. Chem.* (U. S. S. R.) 13, 1297-1303(1939).—The hydrogen overvoltage on an Fe electrode in H_2SO_4 solns. is increased by the corrosion inhibitor sulfurized anthracene oil, in amts. up to 0.2%. The anode polarization curves of Fe in $FeSO_4$ or H_2SO_4 soln. are shifted by in the direction of a positive potential of the iron electrode by about 70 mv. The current strength of the Fe-Pt pair for short contacts decreases from 0.9 ma. to 0.7 ma. for 0.3% of the inhibitor and is unaffected by further addns. F. H. Rathmann

Inst. Phys. Chem. im. Pisarzhevskiy, AS UkrSSR, Dnepropetrovsk

FOMENKO, A. S.

Stability of hydrogen atoms in free triphenylmethyl. A. S. Fomenko and E. A. Sadovnikova (Acad. Sci. Ukrain. S.S.R., Kiev). *J. Phys. Chem.* (U.S.S.R.) 22, 423-5(1948)(in Russian).—It was expected that the high electron charge d. in the *o*- and *p*-positions of the benzene nuclei of $(C_6H_5)_3C$ would render the H atoms there more mobile. Solns. of 20 g. of hexaphenylethane in 100 cc. C_6H_6 were heated with heavy water at 100° for 20-150 hrs. The fact that hexaphenylethane recovered (as peroxide) contained only 2.5% of deuterium showed that the expectation was not fulfilled. Expts. using heavy acetone yielded similar results. J. J. Bikerman



BC

A2
3

Mechanism of the Claisen rearrangement. A. S. Fomenko, G. P. Miklukhin and E. A. Sadovnikova (C. R. Acad. Sci. U.R.S.S., 1946, [illegible]).—The Claisen rearrangement of [illegible] OPh [illegible] presence of 2 : 6-dichlorophenol does not give [illegible] chlorinated allylphenol, as would be expected were [illegible] $OPh\cdot CH_2\cdot CH:CH_2 \rightarrow PhO' + CH_2:CH\cdot CH_2' \rightarrow$ o-OH [illegible] $CH_2\cdot CH:CH_2$ to be involved. The reaction is an intramol. one, not involving dissociation of the other mol.

R. Truscoe.

FOMENKO, A. S.

Ashinazi, M. S., Kutsaya, B. F., and Fomenko, A. S. - "A simplified method of determining the contrast factor", (Of photographic plates), Ukr. khim. zhurnal, Vol. XIV, Issue 2, 1949, 47-52

SO: U-4392, 19 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 21, 1949).

CA

10

Mechanism of the Claisen rearrangement. A. S. Fomenko and E. A. Sadovnikova (L. V. Pisarzhev Inst. Phys. Chem., Acad. Sci. Ukr. S.S.R.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 1898-1903(1950); cf. *C.A.* 43, 612i.—The existing data on investigations of the reaction are critically reviewed and it is pointed out that at this time no conclusive evidence exists for a final decision as to an intra- or intermol. mechanism of the primary step. The ortho-rearrangement of $CH_2:CHCH_2OPh$ in the presence of phenol-3,5-D_2 by refluxing in a N atm. 6 hrs. gave 65% o-allylphenol, isolated either by extn. with 20% NaOH, acidification, extn., and fractionation, or by pptn. of allylphenol with $HgCl_2$ as 2-(chloromercurimethyl)-2,3-dihydrobenzofuran; combustion of the product showed the absence of *o*-allylphenol-3,5-D_2. A similar result was obtained on refluxing $PhCH:CHCH_2OPh$ in the presence of allyl phenyl-3,5-D_2 ether 4 hrs. in a CO_2 atm. Thus, the ortho rearrangement in these cases takes place initially by an intramol. route. The *phenol-3,5-D_2* was prepd. according to Brodskii, *et al.* (*C.A.* 44, 8882e); its *allyl ether*, prepd. from allyl bromide as usual (cf. Houben, *Die Methoden der org. Chemie*, vol. III, *C.A.* 24, 1380), b_{10} 104-6°. *o-(1-Phenylallyl)phenol* b_{10} 176.5-7.5°. G. M. K.

[illegible] A. S.

Фоменко, А. С.

ROZANOV, Ivan Grigor'yevich, starshiy nauchnyy sotrudnik; ZAVITAYEV, Petr Alekseyevich, starshiy nauchnyy sotrudnik; SKATKIN, M.N., redaktor; FOMENKO, A.S., redaktor; DZHATIYEV, S.G., tekhnicheskiy redaktor

[Handicraft lessons for the fourth grade] Uroki ruchnogo truda v chetvertom klasse. Pod red. Skatkina. Izd. 2-oe, dop. i perer. Moskva, Gos.uchebno-pedagog. izd-vo M-va prosv. RSFSR, 1956. 231 p. (MIRA 10:11)

1. Institut teorii i istorii pedagogiki (for Rozanov). 2. Institut metodov obucheniya Akademii pedagogicheskikh nauk RSFSR (for Zavitayev). 3. Chlen-korrespondent Akademii pedagogicheskikh nauk RSFSR (for (Skatkin)
(Handicraft)

from entrained H_2 and combustion [illegible] the process repeated. The tests were run with iron filings

FOMENKO, A.

73-2-21/22

AUTHOR: Reported by A. Fomenko.

TITLE: Second Ukrainian Conference on Physical Chemistry (Symposium). Vtoroye Ukrainskoye Respublikanskoye Soveshchaniye po Fizicheskoy Khimii).

PERIODICAL: "Ukrainskiy Khimicheskiy Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.272-275 (USSR).

ABSTRACT: Held December 14-18, 1956 in Kiev by the Institute of Physical Chemistry im. L.V.Pisarzhevskii (Institut Fizicheskoi Khimii im.L.V.Pisarzhevskogo, AN USSR). Short summaries are given of the following papers:

Theory and Practice of Catalytic and Adsorption Phenomena.

Roiter, V.A., Korneichuk, G.P., Rzayev, P.B. and Stukanovskaya, N.A. (Kiev):
Results on investigations on the kinetics of oxidation of sulphurous anhydride to sulphuric anhydride by industrial vanadium catalysts by the diaphragm method. Values for the velocity constants and heat of activation were computed. They were not affected by the influence of macrofactors.

Card 1/20

73-2-21/22

Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory and Practice of Catalytic and Adsorption Phenomena. (Cont.)

Arnol'dov, E.M., Lyubiteleva,A.Z. and Vol'fson,V.Ya.(Rubzhnoye).
Investigations on a composite charge of a vanadium oxide catalyst for the oxidation of naphthalene. This was presented by IFX AN USSR.

Roiter,V.A., Stukanovskaya,N.A., Yuza,V.A., Korneichuk,G.P. and Ushakova,V.P. (Kiev).
These authors observed that many processes are catalysed by impure vanadium oxide. Oxygen interchange is revealed only above 500 C, in spite of the fact that catalytic oxidation occurs between 300 - 400 C. This is contradictory to the oxidation-reduction mechanism of the catalysis.

Rusov, M.T. and Strel'tsov, O.A. (Kiev).
Data obtained by investigating the macrokinetics of the synthesis of ammonia in a long catalyst bed at high pressures.

Davtyan, O.K. and Ovchinnikova, E.N. (Odessa).
Oxidation of sulphurous anhydride on the surface of a

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory and Practice of Catalytic and Adsorption Phenomena. (Cont.)

series of solid catalysts and on activated coal proceeding at normal temperatures.

Stepko, I.I. and Goncharenko, G.F. (Kiev).
They observed a decreased discharge of electrons from germanium during adsorption of CO and CO_2 and formic acid vapours. As in the case of CuO, the catalytic oxidation of CO on germanium causes a decrease of electron emission.

Glikman, T.S. and Podlinyaeva, M.E. (Kiev).
The authors proved that sensitised photo-reduction (by zinc oxide) of methylene blue and thionine can be accomplished at the expense of oxidation of OH-ions from zinc hydroxide. Thus the oxidation of water can be achieved with dyes by the effect of small light quanta in the presence of ZnO.

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73-2-21/22

Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory and Practice of Catalytic and Adsorption Phenomena.

Kornienko, T.P. and Polyakov, M.V. (Kiev).
Oxidation reactions of methane and methanol to formaldehyde.
The oxidation reactionsof methane were proved to start on walls of the reaction vessel.

Shalya, V.V. and Polyakov, M.V. (Kiev).
The authors discussed results obtained during the investigation of the kinetics of oxidation of butane-propane fractions and of methanol by differential calorimetric measurement. A heterogeneous-homogeneous radical-chain mechanism of the process was established.

Tovbin, M.V. and Savinova, Ye.V. (Kiev).
They investigated the kinetics of the non-stationary evaporation of water from the surface of a vibrating string which is in contact with the gas. The mechanism of the process consists in the formation of transient self-adsorptive layer and of the desorption of substances from this layer. In a further discussion they investigated the mechanism of self-adsorption on the liquid-gas boundary.

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73-2-21/22

Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory and Practice of Catalytic and Adsorption Phenomena. (Cont.)

Rastrenenko, A.I. and Neymark, I.Ye. (Kiev).
The production of titanium silicagel, titanium-gels and alumino-silica gel with different pore structure was investigated as well as the influence of the macro-structure of these sorbents on their catalytic properties. I.E.Neimark's theory on the formation of the structure of hydrophilic sorbents can be applied.

Sheynfayn, P.Yu. and Neymark, I.Ye. (Kiev).
Results of investigations on the adsorption of various substances on fluorinated silicagels. Adsorption is linked with the formation of molecular complexes and proceeds on the basis of the acceptor-donor mechanism.

Tarkovskaya, I.A., Chervyatsova, L.L. and Strazhesko, D.N. (Kiev), presented a paper on the mechanism of adsorption of electrolytes with the aid of radioactive isotopes. In aqueous as well as in aqueous-organic media the selective absorption of salt cations represents a typical ion-exchange process.

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73-2-21/22

Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory and Practice of Catalytic and Adsorption Phenomena. (Cont.)

Davydov, A.I. (Kharkov).
The mechanism of the poly-anion exchange.

Shostenko, Yu. V. (Kharkov).
Results of investigations of the dynamics of adsorption and desorption of organic substances.

Strazhesko, D.N. (Kiev).
Results of investigations in the field of electrochemical adsorption of ions on carbon from aqueous and non-aqueous solutions.
The mechanism of the influence of non-electrolytes on the adsorption of electrolytes by active carbon was formulated. This amplifies the theory of electrochemical adsorption as stated by A.N.Frumkin.

Theory of Solutions of Electrolytes and Non-Electrolytes.

Esel'son, B.N. (Kharkov).
The author discussed the vapour-liquid diagrams of He^3 in He^4 near to the transition point $HeI \rightarrow HeII$.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory of Solutions of Electrolytes and Non-Electrolytes. (Cont.)

Lifshits, I.M. (Kharkov).
The lecturer elucidated the quantum theory of liquid solutions and the theory of phase transitions of type II.by application to the transformation of He I in He II. The theory is proved by investigations on the separation of the solutions into 2 phases, He^3 and He^4. The quantum theory of solutions explains the discrepancy of the solutions He^3 in liquid He^4 from ideal compositions.

Izmaylov, N.A. (Kharkov).
The influence of solvents on the strength of electrolytes. The dissociation of any electrolytes is considered to proceed in a number of successive stages: the interaction of the electrolyte with the solvent with the formation of addition products, its dissociation into ions as a result of further solvation and association of ions into pairs of ions. The influence of the solvents on the properties of electrolytes is determined quantitatively by an equation

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory of Solutions of Electrolytes and Non-Electrolytes. (Cont.)

put forward by the author.

Mikulin, G.I. (Donsoda).
Critical review of the contemporary theories on electrolytes.
The author's thermodynamic theory on hydration compares the theory of electrolytes with Mendeleev's hydration theory. On the basis of experimental data it was stated that the molar energy of the interaction of particles of concentrated electrolytes is in a linear proportion to $\sqrt{c}$. The chemical composition and the constants of instability of liquid hydrates has to be defined by the quantitative theory of solutions as well as the physical theory elucidating the linear dependence of the energy on $\sqrt{c}$.

Golik, A.Z. (Kiev).
Investigations on the viscosity, density, heats of evaporation and other properties of molecular-mixed solutions the components of which have similar structures.

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73-2-21/22

Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory of Solutions of Electrolytes and Non-Electrolytes. (Cont.)

Roshchinaya, G.P. (Kiev).
The author investigated the molecular light diffusion in solutions. Results are in good agreement with those obtained by A.Z.Golik during the investigations of the physical properties of liquid solutions.

Urazovskiy, S.S. and Kuris'ko, A.I. (Kharkov).
They discussed the anomalies of the thermal relation of the refractive index for menthol and benzophenone in points corresponding to the melting points of their stable modifications. In the case of cis-decahydronaphthalene the melting point is considerably higher. These anomalies can be explained by the change of the coordination number in the structure of the neighbouring order during the transition from the liquid to the supercooled state. The anomaly in the thermal dependence of the refractive index for cis-decahydronaphthalene can be explained by the reverse isomery which characterises the cyclic compounds of the saturated series.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory of Solutions of Electrolytes and Non-Electrolytes. (Cont.)

Izmaylov, N.A. and Franke, A.K. (Kharkov).
Investigations on the reactions between butyl alcohol and carboxylic acids in benzene, and calculation of the yield of complex products of the reaction. The compounds have the composition AB_2 (where A = acid and B = alcohol). The constants of non-stability and reaction energies were calculated from data of their yield. Acids with acetone, acetonitrile and nitrobenzene give compounds corresponding to the formula AB.

Izmaylov, N.A., Aleksandrov, V.V., and Ivanova, E.F. (Kharkov).
Influence of the chemical and physical nature of the solvent and of the concentration of the electrolyte on the state of energy of ions in solutions.

Markov, B.F. and Shumina, L.A. (Kiev).
It was shown that the electric conductivity of binary dissolved salt mixtures, the components of which do not form compounds, does not appear to be an additive property.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory of Solutions of Electrolytes and Non-Electrolytes. (Cont.)

This digression is more marked during the transition from continuous solid solutions to congruently melting compounds.

Gorenbeyn, Ye.N. (Kiev).
The influence of cations and anions on the molecular composition of electrolytes in solvents with low dielectric constants.

Rapshtynskaya, Ye.A. and Skarre, O.K. (Dnepropetrovsk).
Dielectric constant of pure liquids at various temperatures. The authors found that the dielectric constant is a function of their energy of orientated interaction. Assuming that this applies also to mixtures the authors calculated the energy of orientated interaction for 10 solutions at various temperatures.

Vasenko, Ye.N. and Blank, M.G. (L'vov).
Investigation on the mutual solubility in ternary systems: formamide-acetone in benzene, toluene and carbon tetrachloride.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Theory of Solutions of Electrolytes and Non-Electrolytes. (Cont.)

Ravikovich, S.D. (Kiev).
Relations between the molecular structure and density of organic liquids.

Photochemistry.

Dain, B.Ya. and Ashkinazi, M.S. (Kiev).
Results of investigations on the photochemistry of hemin-resembling derivatives of chlorophyll.
With the aid of these pigments it was possible to show one of the stages of photosynthesis outside the plant cell: the photodecomposition of water by small quanta of light. By observing the spectra of hemin-resembling analogues of chlorophyll it was possible to clarify the long-wave displacement of the spectral region of the photodecomposition of water by basing it on the principle of Frank-Kondon.

Mechanism of Chemical Processes and the Structure of the Molecule.

Tsimbal, R.N., Burmistrov, S.I. and Loshkarev, M.A. (Dnepropetrovsk).

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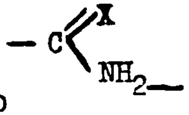
Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Mechanism of Chemical Processes and the Structure of the Molecule. (Cont.)

Reaction kinetics of nitrosation of azo-dyes with a secondary amino-group.
It was found that the reaction velocity changes with the concentration Cl^- and Br^-. Isobaric potentials and thermal effects of the nitrosation reaction were calculated from the equilibrium constants and from the functions of temperature.

Brodskiy, A.I. and Strizhak, L.L. (Kiev).
Nitrogen-exchange of amino-groups between liquid ammonia and organic nitrogen-containing compounds at 100 - 200 C. Nitrogen does not enter into the interchange. In compounds containing amino-groups attached directly to the aromatic nucleus, the interchange occurs only in the presence of strongly negative substituents. Considerable interchange is revealed in the groups



, where X = O, S, N–(amides of acids, urea and

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Mechanism of Chemical Processes and the Structure of the Molecule. (Cont.)

its analogues). The velocity of interchange depends on the negative substituents and on the interlinking. The lecturers explained this by the mechanism of bimolecular nucleophilic substitution.

Geller, B.A. (Kiev).
Investigations on the mechanism of some reactions with heavy nitrogen.
During the reaction between an azo-dye and diazonium hydrate diazo-compounds migrate together with their N-atoms. During the condensation of nitroso-naphthosultam with o-phenylenediamine the nitroso-group is split off in the form of ammonia.

Morozov, V.P. (Dnepropetrovsk).
Calculation of basic frequencies of oscillation of isotope molecules.
1). Method of intervals, allowing the determination of limits of possible displacement of basic frequencies of oscillation of molecules during complete isotope

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Mechanism of Chemical Processes and the Structure of the Molecule. (Cont.)

substitution.

2). Method of partial frequencies. Approximate relations were obtained which permit the definition of frequencies of basic oscillations of the molecules XY^1_2 and XY^1 when the frequencies of oscillation of the molecule XY_2 are known.

Medvedev, K.P. (Kharkov).
Theory on the participation of single-electron bonds in the structure of molecules and in the electron bonding.

Lutskiy, A.Ye. (Kharkov).
Functional equations on the relation between the microproperties of substances and their dependence on the microproperties of particles.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Electrolysis and Electrode Processes.

Delimarskiy, Yu. K. (Kiev).

Polarographic investigations on dissolved salts. The kinetics of electrode processes were investigated. It was found that the limit currents due to the concentrational polarisation are defined by the diffusion which is the slowest phase of the electrode process. The polarographic waves on solid electrodes conforms to the equation by Geirovskii - Il'kovich which defines the polarographic waves for dissolved salts.

Stender, V.V., Kalinovskiy, Ye.A. and Nikiforov, Ya.F. (Dnepropetrovsk).

Mechanism of electrolysis of zinc chloride on graphite electrodes.

Afanas'yev, A.S. and Miroshnichenko, O.Ya. (Dnepropetrovsk).

Investigations on the electroreduction of oxygen and the separation of hydrogen on magnetite monocrystals.

Gritsan, D.N. and Shun, D.S. (Kharkov).

Influence of fatty alcohols on the spontaneous periodic

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Electrolysis and Electrode Processes. (Cont.)

changes of cathodic polarisation and the current strength in the chain.
This is due to the periodic passivation and activation of the cathode surface during the electrolysis.

Galushko, V.P. (Dnepropetrovsk).
Theoretical analysis of periodic oscillations in electrochemical systems and the author's experiments proving the phenomena.

Galushko, V.P. and Dorosh, T.P.
Mechanism of the electro-reduction of some sparingly soluble silver compounds.

Portnov, M.A. (Rubezhnoye).
New thymolquihydrone electrodes for measuring the pH and its possible uses.

Pamfilov A.V. and Tsinman, A.I. (Chernovtsy)
Analysis of the relation of the effective activisation energy of electrode processes and the polarisation potential.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Electrolysis and Electrode Processes. (Cont.)

In some cases of chemical polarisation the slow stage of the process can be defined.

Ksenzhek, O.S. (Dnepropetrovsk).
Calculation of the activation energy on simple electrodes from activation energy values on a smooth electrode and from the electroconductivity of the solutions.
Experiments were carried out on the activation energy of separation of chlorine on graphites.

Afanas'yev, A.S. and Shevchenko, V.V. (Dnepropetrovsk).
Experimental data proving the theory of the mechanism of electro-reduction of oxygen on oxidised steel by intermediate formation of hydrogen peroxide.

Brodskiy, A.I., Fomenko, A.S., Abramova, T.M. and Gankina, I.L. (Kiev).
Results of the investigation on the corrosion mechanism of some metals.
The electrochemical corrosion mechanism and magnesium was confirmed by using the heavy isotope of oxygen.

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Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Electrolysis and Electrode Processes. (Cont.)

Roykh, I.L. (Odessa).

Investigations on the formation of hydrogen peroxide by metals during atmospheric corrosion with photographic methods.

Phase Equilibria.

Garber, Yu. N. (Dnepropetrovsk).

Calculation of the mean buoyancies of vapours of complex mixtures from phase equilibrium curves.

Yermolayeva, Ye.V. (Kharkov).

The viscosity of solutions of tri-component systems ($MgO-Al_2O_3-SiO_2$, $CaO-Al_2O_3-SiO_2$, $MgO-CaO-Al_2O_3$ and $MgO-CaO-SiO_2$). Their surface tension on the liquid-gas boundary, the wetting with solid solutions and electromotive forces arising between the solid phases and equilibrium solutions.

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73-2-21/22

Second Ukrainian Conference on Physical Chemistry (Symposium). (Cont.)

Electrolysis and Electrode Processes. (Cont.)

Gluzman, M.Kh. and Rubtsova, V.P. (Kharkov).
Quick definition of the melting point of eutectic binary, ternary and 4-component organic systems by contact melting.

Yasnitskiy, B.G. and Satanovskaya, Ts.I. (Kharkov).
The definition of the molecular weight, density and refractive index of chloroacetic aldehyde and its aqueous solutions in wide ranges of concentration.

Pamfilov, A.V. and Prodan, Ye.A. (Chernovtsy).
Physico-chemical investigations on tri-polyphosphates.

It was recommended to the Institute of Physical Chemistry im. L.V.Pisarzhevskiy AN USSR to hold the next Conference in 1958. The Department of Physical Chemistry of the Khar'kov Institute was advised to hold a meeting on the Theory of Solutions in 1957.

AVAILABLE: Library of Congress
Card 20/20

SOV-21-58-9-15/28

AUTHORS: Abramova, T.M., Gankina, I.L. and Fomenko, A.S.

TITLE: Investigation of Cathode Reduction of Oxygen to Hydrogen Peroxide on a Coal-Nickel Electrode (Issledovaniye katodnogo vosstanovleniya kisloroda do perekisi vodoroda na ugol'no-nikelevom elektrode)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 9, pp 974 - 976 (USSR)

ABSTRACT: The process of cathode reduction of oxygen is used in technical production of hydrogen peroxide. However, the mechanism of the reaction which takes place in this process has not been explained thus far. The authors employed the heavy isotope O^{18} in order to clarify the origin of oxygen in hydrogen peroxide, which forms on a coal-nickel cathode in the oxygen reduction. As a result of this investigation it was shown that only molecular oxygen blown through the electrode plays a part in the cathode formation of hydrogen peroxide, but not the oxygen of water. These findings are in agreement with the concept of A.N. Frumkin that hydrogen peroxide

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SOV-21-58-9-15/28

Investigation of Cathode Reduction of Oxygen to Hydrogen Peroxide on a Coal-Nickel Electrode

formation is due to "newly"-adsorbed oxygen. There are 2 diagrams, 1 table and 10 references, 7 of which are Soviet, 2 English and 1 American.

ASSOCIATION: Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo AN UkrSSR (Institute of Physical Chemistry im. L.V. Pisarzhevskiy of the AS UkrSSR)

PRESENTED: By Member of the AS UkrSSR, A.I. Brodskiy

SUBMITTED: April 21, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration

1. Oxygen--Reduction 2. Hydrogen peroxide--Production
3. Electrolysis

Card 2/2

FOMENKO, A.S.

[redacted]

5(4) PHASE I BOOK EXPLOITATION SOV/2216

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.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor; Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, P.D. Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: T.A. Prusakova.

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 electrodepositon 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.

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PART IV. ELECTRODE PROCESSES IN FUSIONS

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05824

5 (4), 18 (7)

AUTHORS: Fomenko, A. S., Abramova, T. M., Gankina, I. L.

SOV/76-33-10-22/45

TITLE: An Investigation of Metal Corrosion With the Help of the Heavy Oxygen Isotope. II. Moist Atmospheric Corrosion of Cadmium

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 10, pp 2249 - 2252 (USSR)

ABSTRACT: In previous articles (Refs 1,2) the corrosion of iron and magnesium was investigated by means of the heavy oxygen isotope, and it was shown that there was an electrochemical mechanism with oxygen depolarization. In this article the authors investigated the moist atmospheric corrosion of cadmium by the same method and made experiments on the oxygen exchange of the corrosion products of cadmium ($Cd(OH)_2$) with H_2O^{18}. The latter indicated that no exchange took place within 60 hours (Table 1). Since investigations with the help of cadmium filings of the sort KD-0 failed, experiments were made by means of cadmium plating applied to a quartz tube (inner side). 3% NaCl solution served as corrosion liquid which was poured into the tube in a definite quantity together with oxygen at atmospheric pressure. The

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An Investigation of Metal Corrosion With the Help of the Heavy Oxygen Isotope. II. Moist Atmospheric Corrosion of Cadmium

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content of O^{18} in the resultant water and gaseous oxygen was determined by mass spectrometric analysis (Ref 3). Experiments were made with the aid of natural water in heavy oxygen atmosphere as well as with H_2O^{18} in a common oxygen atmosphere. Results of measurement (Table 2) concerning the distribution of O^{18} among water, gaseous oxygen and corrosion products indicate that cadmium corrodes according to two parallel mechanisms, i.e. an electrochemical mechanism with oxygen depolarization (as has already been observed by Feitknecht, Wyler (Ref 5), Ya. M. Kolotyrkin and L. A. Medvedeva (Ref 6)) and a chemical mechanism. Investigations of copper corrosion have shown that the exchange of $Cu(OH)_2$ oxygen with water is equilibrated after 48 hours. Accordingly, the afore-mentioned method cannot be applied here. In conclusion, the authors thank Academician A. I. Brodskiy for his help. There are 2 tables and 7 references, 6 of which are Soviet.

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An Investigation of Metal Corrosion With the Help of the Heavy Oxygen Isotope. II. Moist Atmospheric Corrosion of Cadmium SOV/76-33-10-22/45

ASSOCIATION: Akademiya nauk USSR, Institut fizicheskoy khimii im. L. V. Pisarzhevskogo, Kiyev (Academy of Sciences of the UkrSSR, Institute of Physical Chemistry imeni L. V. Pisarzhevskiy, Kiyev)

SUBMITTED: March 21, 1958

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67265

SOV/20-129-4-29/68

AUTHORS: Abramova, T. M., Gankina, I. L., Fomenko, A. S.

TITLE: The Mechanism of Hydrogen Peroxide Formation in the Corrosion of Metals

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 4, pp 820-823 (USSR)

ABSTRACT: The authors set themselves the task of finding an answer to the following question: Is the hydrogen peroxide which is formed as an intermediate in the corrosion of metals caused by water and air formed from oxygen of the air, from that of water, or from the oxygen of both? As, according to reference 10, H_2O_2 is formed as an intermediate in the cathodic reduction of O, and O is depolarized also in the corrosion of metals in air, the formation of H_2O_2 from the O in air was probable. In that case its isotopic composition would have to correspond to that of gaseous O. This was checked by the authors by means of O^{18} which was either added to the O blown through the solution corroding the metal, or was admixed to the solution as $H_2O_2^{18}$. The

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The Mechanism of Hydrogen Peroxide Formation in the Corrosion of Metals

approach of the isotopic composition of the H_2O_2 formed to that of gaseous O was actually observed by the authors in the corrosion of Zn, Mg, Sn, Al, and Cd in aqueous solution of H_2O_2 and during the blowing through of O. The experiments were made in the dark at room temperature and took 1 - 24 hours. The H_2O_2 content of the solution was then determined by means of permanganate (in the case of Zn and Cd the insoluble peroxides were dissolved by acidification) and the isotopic composition of H_2O_2 was determined by means of a mass spectrometer. Table 1 shows that in the experiments with $H_2O_2^{18} + O_2^{16}$ the O^{18} content decreases in the H_2O_2 analyzed after the experiment is ended, whereas it increases in the experiments made with $H_2O_2^{16} + O_2^{18}$. The H_2O_2 is thus produced from air-oxygen. A rough calculation of the isotopic composition of H_2O_2 to be expected, carried out, as an example, on Zn, showed a difference of 13% if compared

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The Mechanism of Hydrogen Peroxide Formation in the Corrosion of Metals

with the experimental result. Also the differences found in experiments with other metals are of the same order of magnitude. The following causes are assumed to be responsible: 1) Part of the H_2O_2 formed is immediately again catalytically decomposed by the metal. 2) The O liberated in this decomposition partly again enters into reaction accompanied by the formation of H_2O_2. Attempts at stabilizing the H_2O_2 formed by additions of oxyquinoline, sodium pyrophosphate, sodium silicate etc. were unsuccessful. The authors refer to published data, according to which there is no exchange between the oxygen of H_2O_2 and of air under the prevailing experimental conditions (Refs 14,15), which they were able to confirm by control tests. Thus, as no side-reactions occur, the results obtained by the authors prove that the H_2O_2 is produced in the corrosion of metals from the oxygen in the air. It is finally mentioned that the authors thank A. I. Brodskiy, Academician of the AS UkrSSR, for supervising the investigations, and Engineer I. M. Protas for the mass-spectrometrical analyses

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SOV/20-129-4-29/68

The Mechanism of Hydrogen Peroxide Formation in the Corrosion of Metals

carried out. There are 1 table and 16 references, 3 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk USSR (Institute of Physical Chemistry imeni L. V. Pisarzhevskiy of the Academy of Sciences, UkrSSR)

PRESENTED: July 13, 1959, by A. N. Frumkin, Academician

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SUBMITTED: July 13, 1959

Card 4/4

FOMENKO, A.S.

~~LATYSHEV, G.D.~~

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PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. M. Abdurasulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Ikramova; A. Ye. Kiv; Ye. M. Lobanov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

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Transactions of the Tashkent (Cont.) SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

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FOMENKO, A.S.

S/081/62/000/001/004/067
B156/B101

AUTHORS: Brodskiy, A. I., Gragerov, I. P., Franchuk, I. F., Sulima, L.V., Kukhtenko, I. I., Lunenok, V. A., Fomenko, A. S., Aleksankin, M. M.

TITLE: Mechanism of oxidation reactions investigated by the isotopic method

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 60, abstract 1B439 (Tr. Tashkentsk. konferentsii po mirn. ispol'zovaniyu atomn. energii, v. 2. Tashkent, AN UzSSR, 1960, 327-334)

TEXT: A review of work done by the authors on studying the mechanism of certain oxidation reactions using isotopes: the oxidation of organic compounds with chromyl chloride, the mechanism of anthranil regrouping, the process of oxidation of aniline, o-anisidine and p-nitroaniline with Caro acid. The mechanism whereby hydrogen peroxide and certain persulfate-type inorganic peroxide compounds are formed and converted is examined; so also are the kinetics of isotopic exchange in substituted benzoic acids,

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Mechanism of oxidation reactions ... S/081/62/000/001/004/067
B156/B101

benzaldehydes, alcohols, naphthalenes and nitro compounds with H_2O^{18}. 18 references. [Abstracter's note: Complete translation.]

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33490
S/195/61/002/005/015/027
E111/E485

11.1310

AUTHORS: Fomenko, A.S., Gankina, I.L., Avramova, T.M.

TITLE: Study of the mechanism of the decomposition of hydrogen peroxide on activated charcoal by the isotope method

PERIODICAL: Kinetika i kataliz, v.2, no.5, 1961, 732-736

TEXT: The decomposition of hydrogen peroxide on activated charcoal was studied by many authors but their assumptions on the mechanism of this process are in contradiction. In the present work the mechanism was studied using O^{18} introduced into the charcoal oxides (with H_2O_2 of the natural isotope composition) or into the H_2O_2 (with ordinary oxygen charcoal). The isotope compositions of the charcoal oxides and of gaseous oxygen were determined to evaluate the mechanism. The O^{18}-containing charcoal was prepared by grinding the commercial charcoal type „БАУ" (BAU), de-ashing with acid, washing, drying and activating in CO_2 at 800°C for 6 hours and 1000°C for 3 hours; after this, the material was treated with hydrogen at 1000°C (which was then pumped off at 600 to 650°C), cooled in oxygen-free nitrogen, treated at room temperature with O^{18}-enriched gaseous oxygen and

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S/195/61/002/005/015/027
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stored in heavy-oxygen water vapour. The procedure for preparing and storing ordinary oxygen-charcoal was identical but ordinary oxygen and water vapour were used. Special experiments were carried out in which charcoal containing ordinary oxygen was treated with heavy-oxygen water vapour whose final isotope content was then determined, or charcoal containing O^{18} was treated with ordinary water, filtered off and its isotope composition determined by mass spectrometry on the CO_2 obtained by de-gassing at 300 to 550°C. For H_2O_2, mass spectrometric isotope analysis was carried out on the oxygen evolved when the peroxide was decomposed with potassium permanganate: and for water, on CO_2 after exchange with the water. Results showed that there is no exchange of the oxygen of the basic oxides with water. For the main H_2O_2 decomposition experiments in a quartz tube containing 1 to 4 g of degassed charcoal was put in a furnace. One end of the tube was connected to a trap for freezing out the desorbed gases and to a vacuum installation; the other to a trap containing the required quantity of peroxide, freed from dissolved oxygen. The tube was periodically rotated. After the required time, the

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Study of the mechanism ...

water and undecomposed peroxide was distilled and the charcoal degassed as before. The CO_2 fraction, collected at 300 to 550°C, was analysed for O^{18}. In some experiments the isotope composition of the oxides was determined from the water obtained during their treatment with hydrogen. Mass spectrometry revealed carbon dioxide as well as oxygen in the gaseous decomposition products. In agreement with the views of G.Brinkmann (Ref.6: Ang. Chem., v.61, 1949, 378) the results suggest that a double decomposition type of reaction occurs between the basic OH groups in the charcoal surface and HO_2^- ions of the peroxide

$$C^+]OH^- + HOOH \rightarrow C^+]HOO^- + H_2O$$

followed by $C^+]HOO^- + HOOH \rightarrow C^+]OH^- + H_2O + O_2$.

The origin of CO_2 in the decomposition of H_2O_2 on charcoal is not clear since the simultaneous presence of H_2O and CO_2, in view of the exchange between them, alters the primary CO_2 composition. The observed change in the isotope composition of oxides on charcoal cannot be attributed to further oxidation of the coal to give oxygen compounds, differing from OH groups, whose high-

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S/195/61/002/005/015/027
Study of the mechanism ... E111/E485

temperature decomposition could give a further quantity of CO_2 with the peroxide isotope composition. No free radicals on the charcoal surface were found by the electron paramagnetic resonance method and this is contrary to the chain mechanism proposed by various authors (e.g. Ref.8: V.A.Garten, E.Epinger, D.E.Weiss, Austr. J. Appl. Sci., v.7, 1956, 149). Academician (AS UkrSSR) A.I.Brodskiy helped in the work. There are 2 tables and 12 references: 2 Soviet-bloc and 10 non-Soviet-bloc. The four most recent references to English language publications read as follows: Ref.4: A.King, J. Chem. Soc., 1936, 1688;
Ref.5: E.C.Larsen, J.H.Walton, J. Phys. Chem., v.44, 1940, 70;
Ref.10: B.R.Puri, L.A.Scharma, D.D.Singh, Ind. Eng. Chem., v.50, 1958, 1075; J. Ind. Chem. Soc., v.35, 1958, 765;
Ref.12: M.Cohn, H.C.Urey, J. Amer. Chem. Soc., v.60, 1958, 679.

ASSOCIATION: Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN UkrSSR Kiyev (Institute of Physical Chemistry im. L.V.Pisarzhevskiy AS UkrSSR, Kiyev)

Card 4/4

FOMENKO, A.S.; ABRAMOVA, T.M.; GANKINA, I.L.

Decomposition of hydrogen peroxide in the presence of potassium iodate, bromate, and chlorate. Ukr. khim. zhur. 28 no.1:14-17 '62. (MIRA 16:8)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN UkrSSR.

[illegible]

[illegible] AT5002665 [illegible] S/000[illegible]

[illegible]enko, A. S., Voterlenko, I. A. Abramova, T. M. [illegible]

[illegible] of free radicals in the radiati[illegible]

[illegible] SSR, Institut khimii vysokomolekulyar[illegible]

[illegible] polycaprolactam oxidation, gamma irradiat[illegible] x ga-
[illegible] antioxidant, EP[illegible]

[illegible] Variations in the electron paramagnetic resonan[illegible]
[illegible] 2·10[illegible] to 200·1[illegible]
[illegible]
[illegible] were analyzed in a [illegible]
[illegible]articipation in the radiative oxidat[illegible]

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[illegible]

[illegible] NR: AT5002665

[illegible] latter process by di-β-naphthyl-p-phenyl[illegible] [illegible] graphic [illegible] detected H, CO and 3% CO_2 in the gaseous ph[illegible] [illegible] in either [illegible]

[illegible] para [illegible]

[illegible] gratitude to academician [illegible] participation in evaluating the results. [illegible] table.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pi[illegible]zhevskogo AN UkrSSR (Institute of Physical Chemistry, AN UkrSSR); Kiyevskiy filial Vsesoyuznogo nauchno-[illegible]atel'skogo instituta iskusstvennogo volokna (Kiev Branch, All-Union Research Institute of Synthetic Fibers

[illegible]TED: 22Jun64 ENCL 00 SUB CODE MT, NP

NO REF SOV: 002 OTHER: 003

Card 2/2

ACCESSION NR: AP4033700 S/0073/64/030/004/0376/0384

AUTHOR: Fomenko, A. S.; Abramova, T. M.; Dar'yeva, E. P.; Galina, A. A.; Furman, Ye. G.

TITLE: Oxidative destruction of polyamides. II. Participation of free radicals in the radiolysis and radiation oxidation of polycaprolactam.

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 4, 1964, 376-384

TOPIC TAGS: polyamide, polycaprolactam, caprolactam oligomer, oxidation, free radical formation, radiolysis, radiation oxidation, EPR spectra, C N bond rupture, hydroperoxide formation, IR spectra, antioxidant, viscosity, cross linkage

ABSTRACT: The free radicals formed by irradiation of polycaprolactam with cobalt-60, their function in the radiation oxidation of polycaprolactam, and the inhibiting action of an antioxidant were investigated. The electron paramagnetic resonance spectra of polycaprolactam and caprolactam oligomers irradiated with cobalt-60, and the effects of temperature, radiation dose and presence of oxygen on the changes in these spectra are described. The gaseous products of polycaprolactam radiolysis in vacuum are hydrogen and carbon monoxide in a 3:1 ratio and about

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ACCESSION NR: AP4033700

3% CO_2. The amount of terminal amino groups almost doubled on irradiation; with a 22 mrad dose this corresponded to the rupture of 1% of the C-N bonds in the polymer. The viscosity of the polymer also changes on irradiation--with 8 mrad irradiation the viscosity decreased during the first 30 hours, then increased, apparently due to the formation of cross-linked structures. The accumulation of hydroperoxide in polycaprolactam on gamma-irradiation in oxygen, the effect of radiation dose, the changes in terminal amino and carboxyl groups and the viscosity of the polymer were examined. H_2:CO ratio in these products was 2:1; terminal NH_2 and COOH groups increased at doses below 15 mrad and decreased above that. These data agree with changes in the IR spectra of the irradiated polycaprolactam. It is concluded that the RO_2 radical formed by radiation oxidation is converted to the hydroperoxide and carbonylcontaining compounds by a parallel route. Addition of 0.5-3% antioxidant di-β-naphthyl-p-phenylenediamine to the polymer does not affect the form of the EPR spectra or concentration of free radicals formed by gamma-irradiation; but this additive significantly lowers the amount of hydroperoxide and carbonyl-containing compounds formed by radiation oxidation. "N. S. Oleynik and M. T. Kozhura took part in the experimental work."... "The authors thank AN USSR academician A. I. Brodsko for help in the work and participation in its evaluation, and also

Card 2/3

ACCESSION NR: AP4033700

coworkers in the electron paramagnetic resonance laboratory for obtaining EPR spectra and help in evaluating the spectral data." Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN USSR, (Institute of Physical Chemistry);Kiyevskiy filial Vsesoyuznogo NII iskusstvennogo volokna, (Kiev Branch of the All Union NII of Synthetic Fibers)

SUBMITTED: 15May63 ENCL: 00

SUB CODE: OC, NP. NO REF SOV: 010 OTHER: 007

Card 3/3

ACCESSION NR: AP4040955 s/0020/64/156/005/1147/1149

(Corresponding member AN SSSR);
AUTHOR: Brodskiy, A. I.; Fomenko, A. S.; Abramova, T. M.; Furman, Ye. G.
Dar'yeva, E. P.; Kukhtenko, I. I.; Galina, A. A.

TITLE: EPR spectra of radicals formed during gamma irradiation of polyamides

SOURCE: AN SSSR. Doklady*, v. 156, no. 5, 1964, 1147-1149

TOPIC TAGS: electron paramagnetic resonance, EPR spectra, EPR radical spectra, polyamide, polyamide gamma irradiation, hexamethylene adipamide, poly-omega-undecane amide, deuterium, caproamide

ABSTRACT: The authors conducted this analysis because the literary data pertaining to the structure of radicals formed under the effects of irradiation are contradictory. The EPR spectra of poly-ε-caproamide were recorded. The irradiation and EPR spectra recording was taken at room temperature. The EPR spectrum of the gamma-irradiated poly-ε-caproamide is an incompletely resolved quintet 1 : 2 : 2 : 2 : 1 with an average width of 74 oersteds between the extreme maxima. The cleavage between the extreme pairs of lines 1-2 and 4-5 is 21 oersteds. This is 1.55 times less than the cleavage between the lines 2-4. This spectrum corresponds to a $-CH_2-CO-NH-CH-CH_2-$ radical in which the unpaired

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ACCESSION NR: AP4040955

electron interacts with one α-hydrogen and two equivalent β-hydrogens. The $-CO-CD_2-(CH_2)_3-CD_2-NH-$ sample with deuterium in the two CH_2 groups neighboring the carbonyl and NH groups yields a fully resolved 1 : 2 : 1 triplet with a splitting of a_β = 28 oersteds, and with a general width of 56 oersteds between the extreme maxima. This spectrum corresponds to a $-CD_2-CO-NH-CD-CH_2-$ radical. The spectra of irradiated polyamides containing 8 and 10 CH_2 groups in the monomer unit show incompletely split 1 : 3 : 3 : 1 quadruplets with identical 21 oersted cleavages. The spectrum for an irradiated completely-crystalline hexamethylene adipamide $COOH-(CH_2)_4-CO-NH-(CH_2)_6-NH_2$ is a satisfactorily resolved 1 : 2 : 2 : 2 : 1 quintet with a general width of 84 oersteds between the extreme maxima and with a_β = 21 oersteds and $a_\alpha/a_\beta = 2.0$. It corresponds to a radical in which the hydrogen splits off from the CH_2 group in the α-position to the NH, just as in the poly-ϵ-caproamide radical. The irradiated ϵ-caprolactam monomer produces a poorly resolved spectrum. When deuterium is introduced into the methylene groups of the nondeuterated and deuterated caprolactam in the NH group a sharp change in the spectrum shape can be observed. The spectrum of the $CO-CD_2(CH_2)_3CD_2ND$ sample is not as well resolved probably on account of the participation of the NH group hydrogen in the cleavage. This spectrum can evidently also be examined as a quadruplet with intensity ratio of 1 : 1 : 1 : 1 . Orig. art. has: 3 figures.

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ACCESSION NR: AP4040955

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo Akademii nauk UkrSSR (Institute of Physical Chemistry, Academy of Sciences Ukr SSR)

SUBMITTED: 09Mar64

ENCL: 00

SUB CODE: NP, OC

NO REF SOV: 005

OTHER: 008

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[illegible] oxidat[illegible]

[illegible] resonance (EPR) showed that the radica[illegible] was [illegible]

[illegible] H and CO (with less than [illegible] per cent [illegible]

[illegible]

[illegible]

[illegible]

Union Scientific Research Institute of Synthetic Fibers)

[illegible] [illegible]Mar62 ENCL: 05 [illegible]

GELLER, B.A.; NEYMARK, I.Ye.; RUBANIK, M.Ya.; GRAGEROV, I.P.; POLYAKOV, M.V.; RUSOV, M.T.; DAIN, B.Ya.; REKASHEVA, A.F.; STRAZHESKO, D.N.; LUNENOK, V.A.; ROYTER, V.A.; SULIMA, L.V.; FOMENKO, A.S.

Aleksandr Il'ich Brodskii, 1895- ; on his seventieth birthday. Zhur. fiz. khim. 39 no.6:1540-1541 Je '65.

(MIRA 18:11)

L 24491-66 EPF(n)-2/EWT(m)/EWP(j)/T/EWA(h)/EWA(1) GG/RM/WW/JW
ACC NR: AP6006980 (A) SOURCE CODE: UR/0190/66/008/002/0261/0266

AUTHORS: Fomenko, A. S.; Abramova, T. M.; Dar"yeva, E. P.; Galina, A. A.; Furman, Ye. G.

ORG: Institute of Physical Chemistry im. L. V. Pisarzhevskiy (Institut fizicheskoy khimii)

TITLE: Mechanism of action of di-β-naphthyl-p-phenylenediamine during radiation oxidation of polycaproamide

19

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 2, 1966, 261-266

52
B

TOPIC TAGS: polyamide, free radical, oxidation kinetics

ABSTRACT: The effect of di-β-naphthyl-p-phenylenediamine (I) upon the kinetics of accumulation of free radicals formed during the process of radiation-induced decomposition of polycaproamide (II) was investigated, and the yield of gaseous and oxygen-containing products of radiation-induced oxidation of the polymer was determined. The changes of the content of terminal NH_2 groups, viscosity, and IR spectra occurring in II stabilized with I during the radiation-induced oxidation were also studied. The methods, involving ESR, chromatographic, chemical, and IR

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UDC: 678.01:54+678.675

L 24491-66
ACC NR: AP6006980

O

spectroscopic studies, were previously described by A. S. Fomenko, T. M. Abramova, E. P. Dar"yeva, A. A. Galina, and Ye. G. Furman (Ukr. khimich. zh., 30, 376, 1964). It was established that I has no effect upon breaking of the C-H, C-N, and -C-CO- bonds during radiolysis of II, but does affect C-N and C-CO bonds during radiation oxidation of II. The amount of peroxy carbonyl and carboxyl compounds formed during radiation oxidation of II stabilized with I is considerably lowered as compared with the untreated II. A possible mechanism for the inhibiting action of I is offered. Orig. art. has: 1 table, 6 figures, and 4 equations.

SUB CODE: 07, 11/ SUBM DATE: 05Mar65/ ORIG REF: 007

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L 35343-66 EWT(m)/EWF(j)/T IJP(c) JWD/GO/RM

ACC NR: AP6012725 (A) SOURCE CODE: UR/0190/66/008/004/0770/0770

AUTHOR: Fomenko, A. S.; Krasnov, Ye. P.; Abramova, T. M.; Dar'yeva, E. P.; Furman, Ye. G.; Galina, A. A.

25
B

ORG: none

19

TITLE: Radiation resistance of isomeric aromatic polyamides

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 4, 1966, 770

TOPIC TAGS: radiation stability, aromatic polyamide, aliphatic polyamide, gamma irradiation, radiation resistance

ABSTRACT: The integral dose required for the accumulation of 1.10^{14} radicals in γ-irradiation of aromatic polyamides is shown to be one order higher than for aliphatic polyamides. The radiation yields of hydrogen during polymer irradiation are two orders lower than for aliphatic polyamides. There were no changes in IR-spectra and thermomechanical properties of samples γ-irradiated in vacuo and in the presence of oxygen. This proves the high radiation stability of aromatic polyamides. 1 [Based on author's abstract.] 15 [AM]

SUB CODE: 20, 11/ SUBM DATE: 22Nov65/ ORIG REF: 002

Card 1/1 ML

UDC: 678.01:54+678.675

L 40099-66 EWT(m)/EWP(j)/T IJP(c) GG/RM

ACC NR: AP6019661 (A) SOURCE CODE: UR/0073/66/032/006/0549/0554 31

AUTHOR: Brodskiy, A. I.; Fomenko, A. S.; Dar'yeva, E. P.; Abramova, T. M.; Galina, A. A.; Furman, Ye. G. B

ORG: Institute of Physical Chemistry im. L. V. Pisarzhevskiy, AN UkrSSR(Institut fizicheskoy khimii AN UkrSSR)

TITLE: Gas evolution during the radiative-oxidative degradation 15 of poly-ε-caproamide

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 32, no. 6, 1966, 549-554

TOPIC TAGS: polyamide, oxidative degradation, hydrogen, carbon monoxide, gamma radiation, radiation effect

ABSTRACT: Chromatographic analysis was used to find the radiation yields 19 of hydrogen and carbon monoxide, the main gaseous products of the radiolysis and radiative oxidation of poly-ε-caproamide. G_{H_2} is about 1 mole/100 eV for both processes, and does not change as the dose rate increases from 0.4 to 5.0×10^{18} eV/g min. G_{CO} is equal to 0.3 mole/100 eV for radiolysis and to 0.6 mole/100 eV for radiative oxidation, and rises to 0.9 mole/100 eV as the dose rate increases from 0.4 to 5.0×10^{18} eV/g min. It was found that the combined action of gamma radiation and increased temperature approximately doubles the values of G_{H_2} and G_{CO} in both the radiolysis and radiative oxidation of poly-ε-caproamide in the case of a low dose rate of gamma radiation, and that the effect of this combined action on G_{H_2} and G_{CO} diminishes with increasing

Card 1/2 UDC: 678.01:54+678.675

L 40099-66

ACC NR: AP6019661

dose rate. It is shown that the stabilization of poly-ε-caproamide by the addition of the antioxidant di-β-naphthyl-p-phenylenediamine does not change G_{H_2} during radiolysis and radiative oxidation, but markedly reduces the amount of carbon monoxide formed during radiative oxidation. Orig. art. has: 6 figures and 3 tables.

SUB CODE: 07/ SUBM DATE: 31Jan64/ ORIG REF: 006

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