

ACCESSION NR: AP4042189

four polymers have almost the same structural elements, with bands at $1000-1100\text{ cm}^{-1}$, corresponding to Si-O-Si- and at $1400-1500\text{ cm}^{-1}$ corresponding to Si-C₆H₅. The mechanical properties of the polymers were not affected by the solvent. All four polyphenylsiloxanes had a very high glass temperature ($T_c=300\text{C}$). The close T_c values for the polyphenylsiloxanes show that the conditions of preparation do not significantly affect the structure. The reaction conditions also do not significantly affect the polydispersity of polyphenylsiloxanes. The degree of polymolecularity and the average molecular weight of the polyphenylsiloxanes increased, depending on the solvent used, in the order benzene-toluene-xylene-dinil. A mechanism for the formation of these polyphenylsiloxanes is proposed. Orig. art. has: 3 figures, 1 table and 3 structural formulas.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organometallic Compounds, SSSR)

SUBMITTED: 08Aug63

ENCL: 00

SUB CODE: OC

NO REF SOV: 001

OTHER: 001

2/2

Card

ACCESSION NR: AP4042190

S/0190/64/006/007/1281/1285

AUTHOR: Pavlova, S. A., Pakhomov, V. I., Tverdokhlebova, I. I.

TITLE: The structure of polyphenylsiloxane and the properties of its solutions

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 7, 1964, 1281-1285

TOPIC TAGS: polyphenylsiloxane, benzene, toluene, xylene, dinil, Mark-Houwink equation, polymer fractionation, light scattering, refractive index, polydimethylsiloxane, polyisobutylene, polymer structure, polymer viscosity, cycloliner polymer, polymer rigidity

ABSTRACT: Viscosimetric and optical studies on polyphenylsiloxanes in dilute and very dilute solutions of benzene, toluene, xylene and dinil showed that the solvent affects only the molecular weight of the polymer. At a molecular weight ranging from 10,000 to 50,000, the viscosity of the polymer in solution is described by the equation $\eta = 1.305 \times 10^{-7} M^{1.29}$, indicating that this polymer consists of short, rod-shaped molecules. From 50,000 to 2,700,000 the Mark-Houwink equation assumes the form $\eta = 1.93 \times 10^{-4} M^{0.634}$, i.e., the molecules of the polymer are so long that they assume the form of a coil. For all fractions of polyphenylsiloxane, the molecular weight was measured in benzene by light diffusion at an angle of 90°.

1/2

Card

ACCESSION NR: AP4042190

and the specific viscosity was measured in benzene at 20C. For the first fraction, the asymmetry of light scattering was measured and the true molecular weight was calculated. The characteristic values for the difference between the refractive index of the polymer and the refractive index of the solvent form a straight line, indicating clearly that, according to the theory, they all have the same cyclolinear structure proposed by Brown et al. (J. Amer. Chem. Soc., 82, 6194, 1960). The flexibility of polyphenylsiloxane molecules was also determined and the pertinent tabulated data show that the rigidity of the polyphenylsiloxane molecule is higher than that of the molecules of polydimethylsiloxane and polyisobutylene. The study of polyphenylsiloxane in very dilute solutions showed that polymers with a relatively low molecular weight (40,000) have an abnormal slope of the η_{sp}/c curve in benzene. Orig. art. has: 5 figures, 1 table, 2 formulas and 1 chemical structure.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 08Aug63

ENCL: 00

SUB CODE: OC

NO REF SOV: 002

OTHER: 003

Card 2/2

ACCESSION NR AM4016117

BOOK EXPLOITATION

S/

Rafikov, Sagid Raufovich; Pavlova, Sil'viya Aleksandrovna; Tverdokhlebova
Iraida Ivanovna

Methods of determining molecular weights and the polydispersion of high molecular weight compounds (Metody* opredeleniya molekulyarny*kh vesov i polidispersnosti vy*sokomolekulyarny*kh soyedineniy), Moscow, Izd-vo AN SSSR, 1963, 334 p. illus., biblio. Errata slip inserted. 5,000 copies printed. Sponsoring Agency: Akademiya nauk SSSR. Institut elementoorganicheskikh soyedineniy.

TOPIC TAGS: high molecular compound, molecular weight, diffusion, light diffusion, sedimentation, osmometry, ebullioscopy, crioscopy, end group, viscosimetry

TABLE OF CONTENTS [abridged]:

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- Ch. I. Concept of the molecule and the molecular weight of high-molecular compounds - - 5
- Ch. II. Dividing the high-molecular compounds into fractions - - 21
- Ch. III. The light diffusion method - - 81

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Ch. IV. The diffusion method - - 122
Ch. V. Sedimentation in an ultracentrifuge - - 133
Ch. VI. Osmometry - - 158
Ch. VII. Ebullioscopy, crioscopy, and the isopiestic method - - 212
Ch. VIII. Finding the molecular weight on the basis of definition of the end groups - - 255
Ch. IX. Viscosimetry - - 281
Ch. X. Methods of determining the molecular weights of linear polymers based on a study of their physical properties - - 314
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SUB CODE: CH

SUBMITTED: 16Jun63

NR REF SOV: 137

OTHER: 800

DATE ACQ: 10Dec63

Card 2/2

TVERDOKHLEBOVA, I. I.

S/062/63/000/003/005/018
B10"/B186

AUTHORS: Tverdokhlebova, I. I., Pavlova, S. A., and Rafikov, S. R.

TITLE: Dependence of the properties of solutions on polymer structures. Communication 4. Solutions of polyphenylaluminum-siloxane

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, 1963, 488 - 493

TEXT: Polyphenyl-alumino-siloxane was synthesized by reaction of phenyl-sodium-oxy-dihydroxy-silane with aluminum sulfate. The substance showed an intramolecular cyclic-network structure, softening point 160°C. By fractionated precipitation with petroleum ether from benzene solution fractions of the polymer were precipitated which had the same composition; intrinsic viscosity was determined in chlorobenzene and in benzene, and the exponent a in the function $[\eta] = k \cdot M^a$ was calculated. At 20°C a was 0.17 in chlorobenzene, 0.345 in benzene. This slight dependence of the intrinsic viscosity on the molecular weight confirms the dense network structure of the polymer. There are 8 figures and 5 tables.

Card 1/2

Dependence of the properties of ...

S/062/63/000/003/005/018
B101/B186

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk
SSSR (Institute of Elemental Organic Compounds of the
Academy of Sciences USSR)

SUBMITTED: May 22, 1962

Card 2/2

PAVLOVA, S.A.; PAKHOMOV, V.I.; TVERDOKHLEBOVA, I.I.

Cyclolinear polyphenylsiloxane. Vysokom. soed. 6 no.7:1275-
1280 JI '64 (MIRA 18:2)

Properties of solutions and the structure of polyphenylsiloxane.
Ibid.:1281-1285

1. Institut elementoorganicheskikh soedineniy AN SSSR.

SHCHERBINA, V.V.; IGNATOVA, L.I.; KARMANOVA, I.G.; FEDOROVA, M.V.;
TVERDOKHLEBOVA, K.A.

Factors affecting the endogenetic distribution and concentration of
beryllium and lithium. Min.syr'e no.7:18-27 '63. (MIRA 16:9)
(Beryllium) (Lithium)

80308
SOV/81-59-7-22596

5.3200
Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 73 (USSR)

AUTHORS: Sokol'skiy, D.V., Shmonina, V.P., Skopin, Yu.A., Tverdokhlebova,
N.S., Dunina, L.P.

TITLE: The Investigation of the Liquid-Phase Hydration of Acetylene¹
According to Kucherov. I. The Effect of the Composition of the
Catalytic Solution on the Course of the Reaction

PERIODICAL: Tr. In-ta khim. nauk. AS KazSSR, 1958, Nr 2, pp 158 - 172

ABSTRACT: The hydration of C_2H_2 was studied by passing it through a sulfuric
acid solution of HgO and $Fe_2(SO_4)_3$, depending on the composition
and the temperature of the solution, the rate and the duration of
passing C_2H_2 through the solution. The loss of catalytic activity
of mercury compounds in the course of the process is caused by re-
ducing them to mercury metal with its removal from the solution.
In the absence of oxide iron the deactivation of the catalyst takes
place more quickly, the introduction of $Fe_2(SO_4)_3$, though pro-
moting the removal of mercury from a solution in a more dispersed
state, inhibits its reduction, increasing the reaction rate. The

Card 1/2

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SOV/81-59-7-22596

The Investigation of the Liquid-Phase Hydration of Acetylene According to Kucherov. I. The Effect of the Composition of the Catalytic Solution on the Course of the Reaction

optimum passing rate of C_2H_2 at $96^\circ C$ is 4.3 ml/min per 1 ml of contact solution, the optimum temperature is $75^\circ C$. The presence of H_2SO_4 is necessary even in the presence of an intermediate compound formed between C_2H_2 and the catalyst. In the case of a change in the concentration of the contact solution, the yield of acetaldehyde passes through a maximum corresponding at $96^\circ C$ to a composition of 23.8% H_2SO_4 and 10% $Fe_2(SO_4)_3$; the highest productivity is attained at $75^\circ C$ and a composition of 13.7% H_2SO_4 and 17% $Fe_2(SO_4)_3$. The introduction of small quantities of chlorine reduces the total yield of CH_3CHO leading to a rupture, the addition of small quantities of CCl_4 , C_2Cl_6 , $C_2H_4Cl_2$ increases the yield of CH_3CHO ; chloroorganic compounds, as well as $NaCl$ taken in large quantities exert a negative effect. In the beginning of the reaction the CH_3CHO yield is less than average, the maximum yield, exceeding 100%, is attained after 3 hours, which is due to the initial formation and the subsequent decomposition of intermediate products; later on the yield decreases again due to the intensification of side processes.

Card 2/2

S. Kiperman

SOKOL'SKIY, D.V.; SHMONINA, V.P.; SKOPIN, Yu.A.; TVERDOKHLEBOVA, N.S.;
DUNINA, L.P.

Investigation of liquid-phase hydration of acetylene according to
Kucherov. Part 1: Effect of the composition of the catalytic so-
lution on the reaction rate. Trudy Inst.khim.nauk AN Kazakh. SSR
2:158-172 '58. (MIRA 12:2)
(Acetylene) (Hydration) (Catalysis)

TVERDOKHLEBOVA, Z. S. (Vinnitsa)

Malignant tumor of the adrenal cortex with metastases in the lungs. Vrach. delo no.6:139-140 Je '62. (MIRA 15:7)

1. Endokrinologicheskoye otdeleniye oblastnoy bol'nitsy imeni N. I. Pirogova, nauchnyy rukovoditel' raboty - prof. B. S. Shklyar[deceased].

(ADRENAL CORTEX--CANCER) (LUNGS--CANCER)

KOLOMIN, Yevgeniy Vasil'yevich; TVERDOV, A.A., red.; TARASOVA, N.M.,
tekhn. red.

[State insurance for the collective farm property] Gosudar-
stvennoe strakhovanie kolkhozhogo imushchestva. Moskva,
Gosiurizdat, 1962. 63 p. (MIRA 16:4)
(Insurance, Agricultural)

ILEBAYEV, Uychuman; TVERDOV, A.A., red.; ASTAKHOVA, I.V., tekhn.red.

[Irrigation laws of the Kirghiz S.S.R.; a brief study] Pravo
sel'skokhoziaistvennogo vodopol'zovania v Kirgizskoi SSR;
kratki ocherk. Moskva, Gos.izd-vo iurid.lit-ry, 1959. 102 p.
(MIRA 13:6)

(Kirghizistan--Irrigation laws)

LIPETSKER, Mikhail Semenovich; YEROFEYEV, Boris Vladimirovich; TVERDOV,
A.A., red.; ASTAKHOVA, I.V., tekhn.red.

[Land utilization in cities, workingmen's settlements, summer and
health resorts] Zemlepol'zovanie v gorodakh, rabochikh, dachnykh
i kurortnykh poselkakh. Moskva, Gos.izd-vo iurid.lit-ry, 1959.
285 p. (MIRA 13:5)

(Land)

(City planning)

L 6386-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP5026747

SOURCE CODE: UR/0286/65/000/017/0023/0023

INVENTOR: Bolibok, G. N.⁴⁴; Kordobovskiy, A. I.⁴⁴; Chubarov, R. P.⁴⁴; Tverdov, B. I.⁴⁴ 44

TITLE: A multicontact electronic memory register. Class 21, No. 174213 [announced by Organization of the State Committee on Radio Electronics SSSR (Organizatsiya Gosudarstvennogo komiteta po radioelektronike SSSR)] 44

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 23

TOPIC TAGS: computer memory, shift register 16, 44

ABSTRACT: This Author's Certificate introduces a multicontact electronic memory register which contains ferrite-transistor cells. The number of elements is reduced to simplify the circuit by equally spaced connection of the readout windings of the cells in the master register into the control (pusher) windings of the cells in the auxiliary register from which the output pulses with the required cadence interval are read out.

UDC: 621.374.32

SUB CODE: EC,DP/ SUBM DATE: 19Aug64/ ORIG REF: 000/ OTH REF: 000

BC

Card 1/1

090201149

5(2) PHASE I BOOK EXPLOITATION SOV/916

Vesoyunoye soveshchaniye po khimii bora, 1955

Bor, trudy Konferentsii po khimii bora i yego sovediniamy (Boron: Transactions of the Conference on the Chemistry of Boron and Its Compounds) Moscow, Goskhimizdat, 1955. 189 p. Errata slip inserted. 2,000 copies printed.

Ed.: G.P. Luchinskiy; Tech. Ed.: N.S. Lar'ya.

PURPOSE: This book is intended for chemists, as well as for industrial personnel working with boron and its compounds.

COVERAGE: This collection contains 24 studies on the chemistry, crystalline structure, physicochemical properties, and technology of boron and its compounds. Twenty-two of the studies were presented at the All-Union Conference on Boron Chemistry held at the Nauchno-issledovatel'skiy tsentr Khimicheskoy Institut im. L. Ya. Karпова (Scientific Research Physicochemical Institute im. L. Ya. Karпов) in

~~December 1955. Two of these articles deal with the thermo-~~

chemistry of boron. The two studies on "boronum" production are being published for the first time. The studies are well illustrated and accompanied by bibliographies.

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PERVUSHIN, Aleksandr Gerasimovich; TVERDOV, A.A., red.; ASTAKHOVA,
I.V., tekhn.red.

[Legal regulation of the marketing of collective farm produce]
Pravovoe regulirovanie kolkhozno-rynochnoi trgovli. Moskva, Gos.
izd-vo iurid.lit-ry, 1959. 74 p. (MIRA 13:1)
(Produce trade)

SHAYBEKOV, Kimalkhan Asambekovich; TVERDOV, A.A., red.; KOSAREVA,
Ye.N., tekhn.red.

[Wages of collective farmers engaged in field crop cultivation]
Oplata truda kolhoznikov, zaniatykh v polevodstve. Moskva,
Gos.izd-vo iurid.lit-ry, 1959. 85 p. (MIRA 13:1)
(Collective farms) (Wages)

VOLOSHIN, Nikolay Petrovich; TVERDOV, A.A., red.; SHCHEDRINA, N.L., tekhn.
red.

[Allotment and property settlement within a collective farm
household] Razdely i vydely v kolkhoznom dvore. Moskva, Gos.
izd-vo iurid.lit-ry, 1958. 65 p. (MIRA 11:12)
(Collective farms)

ASHCHEULOV, Andrey Tikhonovich,; TOVMA, Dmitriy Titovich,; TVERDOV, A.A., red.;
SHECHDRINA, N.L., tekhn. red.

[Legal regulation of wages in communal livestock raising on
collective farms] Pravovoe regulirovanie oplaty trudy v
obshchestvennom zhivotnovodstve kolkhozov. Moskva, Gos. izd-vo
iurid. lit-ry, 1957. 98 p. (MIRA 11:12)
(Wages)
(Stock and stockbreeding)

IVANOV, B.I.

One method for increasing the accuracy of a telegraph distortion
measuring instrument using a cathode ray tube. *Elektronika* 19
no.7:76-77 J1 '65. (MIRA 12:7)

ТВЕРДОВ Г.С.

ТВЕРДОВ, G.S., veterinarnyy vrach.

Paratyphoid in mature swine. Veterinariya 33 no.12:28-29
D '56.

(MLRA 9:12)

1. Volkhovskaya mezhrayonnaya vetbaklaboratoriya.
(Paratyphoid fever) (Swine--Diseases)

TVARDOVA, A.Ya., dotsent

Tissue therapy of pigmented retinitis. Opt.zhur. 1⁴ no.4:
243-245 '59. (MIRA 12:10)

1. Iz kafedry glaznykh bolezney (zav. - zasluzhennyy deyatel'
nauki prof.P.I.Chistyakov) Permskogo meditsinskogo instituta.
(RETINA--DISEASES) (TISSUE EXTRACTS)

EXCERPTA MEDICA Sec 8 Vol 9/8 Neurology Aug 56

3545. TVERDOVA E. B. *Immunobiological reaction of the blood in cases of schizophrenia (Russian text) Z. NEVROPAT. PSIKHIAT. (Mosk.) 1955, 55/11 (815-818) Tables 2
The author subjected 157 patients suffering from schizophrenia to Weil-Feliz-Widal's seroreaction test, paratyphoid fever A, paratyphoid fever B, and typhus fever 901. In 48 patients the agglutination reaction was positive without any symptoms of respective infectious disease. Serum reactions were negative not only in 25 patients suffering from other psychoses but also in 31 healthy persons. Positive reactions were non-specific. The results obtained may serve as a starting point for further and more accurate investigations of the immunobiology of schizophrenics.
Hadlík - Brno

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND CROSS

1ST AND 2ND CROSS

PROCESSES AND PROPERTIES INDEX

18

CA

Utilization of Aral Sea sulfate. V. I. Nikolaev and E. N. Tyenlova. *Stekol'naya i Keram. Prom.* 1944, No. 9, 10-11.

Some of the largest astrakhanite deposits in the Aral Sea district are unsuitable for glassmelting because of adulteration with up to 8% CaSO₄ and 7% NaCl. By dissolving the astrakhanite in H₂O together with NaCl, taken in definite proportion to the astrakhanite, and cooling the soln. of 28-30% concn. to 0°, it is possible to obtain practically a 100% yield of mirabilite. The sulfate obtained by dehydration of the mirabilite contained only 0.5% CaSO₄.

B. Z. Kamikh

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASIA-SEA METALLURGICAL LITERATURE CLASSIFICATION

REGION SYMBOL

1ST AND 2ND CROSS

GROUPS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PROCESSING AND PROPERTIES INDEX

18

CA

Production of mirabilite from astrakhanite. V. I. Nikolaev and R. N. Tyndlova. *Doklady Akad. Nauk S.S.S.R.* 46, 355-7(1945); *Compt. rend. acad. sci. U.R.S.S.* 46, 322-4(1945)(in English).—Data and curves are presented concerning variables controlling conversion of astrakhanite (I) into mirabilite (II) by dissolving the latter together with NaCl in water and cooling. For efficient conversion, the ratio of added NaCl to the MgSO₄ in I must be at least 2.6. A stream of air can be used to effect agitation and thus bring about simultaneous soln. of NaCl and I. In this way, the required total salt concn., namely 24-30%, can be realized within a reasonable time, e.g., 8-14 hrs. The dissolving process is not accelerated by granulating I, as lumps usually contain laminae of NaCl and epsomite, which dissolve easily. From solns., prepd. as outlined, mirabilite starts to crystallize out at 17.9°. On cooling to 0°, the total yield is 300 kg. of II per cu. m. of soln. contg. 30% total salt concn. It is suggested that 2 crops of II be harvested per year, one on cooling to 10°, at the beginning of autumn, and the second on cooling to 0°.

J. W. Perry

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

EIGNH 65N11V

EIGNH 65N11V

TVFEDOVA, R.A.; ASTASHOVA, I.N.; ARBF'YEV, N.V.

Regularities in the change of the properties of oils and
bitumens in the Devonian sediments of Volgograd Province.
Geol. nefti i gaza 8 no.3:33-37 Mr '64. (MLRA 17:6)

1. Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy
i gazovoy promyshlennosti.

TVERDOVA, R.A.; ASTASHOVA, A.N.; YAKOVLEVA, A.V.; KUKLINSKIY, A.Ya.

Geochemistry of Lower and Middle Carboniferous oils and
bitumens in the deposits of Volgograd Province. Trudy VNIING
no.1:225-247 '62. (MIRA 16:10)

Tverdova, V.M.

RAZUVAYEV, G.A.; OL'DEKOP, Yu.A.; SOROKIN, Yu.A.; TVERDOVA, V.M.

Free radical reactions of lead tetraacetate. Zhur.ob.khim. 26
no.6:1683-1685 Je '56. (MIRA 11:1)

1.Gor'kovskiy gosudarstvennyy universitet.
(Lead acetates) (Chemical reaction)

"APPROVED FOR RELEASE: 04/03/2001

CIA-RDP86-00513R001757630001-1

APPROVED FOR RELEASE: 04/03/2001

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CIA-RDP86-00513R001757630001-1

APPROVED FOR RELEASE: 04/03/2001

CIA-RDP86-00513R001757630001-1"

TVERDOVA, Ye.B.

Immunobiological reactions of the blood in schizophrenia.
Zhur.nevr. i psikh.55 no.11:815-818 '55 (MLRA 8:11)

1. Oblastnaya psikhonevrologicheskaya bol'nitsa, Simferopol'.
(SCHIZOPHRENIA, immunology.)

TVERDOVSKAYA, N.N.; MELEKHOV, I.S., akademik; ISAYENKO, Ye.M., red.

[Industrial use of the wood of fast-growing species (larch, poplar, birch, aspen, exotics); bibliographical index of Soviet and foreign literature for 1932-1962] Promyshlennoe ispol'zovanie drevesiny bystrorastushchikh porod (listvennitsa, topol', bereza, osina, ekzoty); bibliograficheski ukazatel' otechestvennoi i inostranoi literatury za 1932-1962 gg. Moskva, TSentr. nauchno-issl. in-t informatsii i tekhniko-ekon. issledovaniy po lesnoi, tselliulozno-bumazhnoi, derevoobrabatyvaiushchei promyshl. i lesnomu khoz., 1963. 65 p. (MIRA 17:9)

1. Moscow. TSentral'naya nauchno-tekhnicheskaya biblioteka lesnoy i bumazhnoy promyshlennosti. 2. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni V.I.Lenina (for Melekhov).

TVERDOVSKAYA, N.N.; OTLIVANCHIK, A.N., red.; YUFA, M.A., otv. red.

[Production of particle boards; bibliographical index of Soviet and foreign literature for 1960-1961] Proizvodstvo drevesnykh plit; bibliograficheskii ukazatel' otechestvennoi i inostrannoi literatury za 1960-1961 gg. Moskva, 1962. 93 p. (MIRA 16:10)

1. Moscow. Tsentral'naya nauchno-tekhnicheskaya biblioteka lesnoy i bumazhnoy promyshlennosti.
(Bibliography--Particle board)

TVERDOVSKIY, G.I., inzhener; PUSHKAREV, T.P., inzhener.; SAVCHENKO, N.Ya.
PROPOPOVA, Ye.V., inzhener

Method of processing sunflower seeds at the Namangan Oil Mill.
Mas.-zhir.prom. 20 no.4:30-31 '55. (MIRA 8:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov (for Tverdovskiy). 2. Namanganskiy maslozavod (for Pushkarev, Savchenko, Protopopova)
(Namangan--Sunflower seed oil)

USSR .

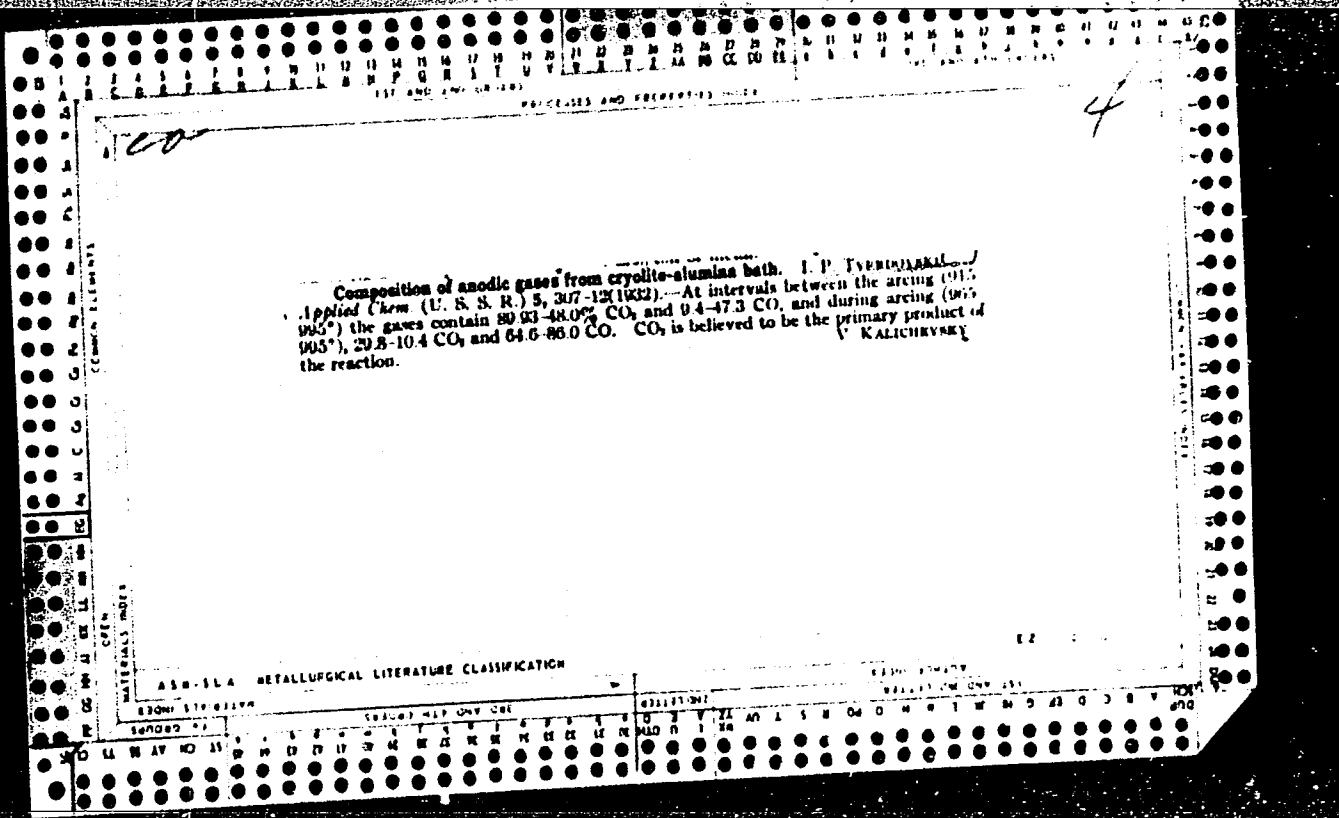
✓ Influence of refrigeration of raw cottonseed oil on its refining. G. I. Tverdovskii and A. U. Umarov. *Mashinobno-Zhironaya Prom.* 20, No. 2, 31-2 (1955) - Data are presented to show that the color of refined oil is improved.

and refining losses (soapstock) are appreciably reduced when the oil is immediately cooled after extraction and prior to its refining.

MATSUK, Yu.P., inzhener; TVERDOVSKIY, G.I., inzhener; KREYSINA, R.A.;
PUSHKAREV, G.P., inzhener; SAVCHENKO, N.Ye., inzhener.

Cooling the horizontal barrels of screw presses. Masl.-zhir.
prom.21 no.2:9-11 '56. (MLRA 9:7)

1.Sredneaziatskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta zhirov (for Matsuk, Tverdovskiy, Kreysina).2.Namanganskiy
maslozavod (for Pushkarev, Savchenko).
(Oil industries--Equipment and supplies)



A

7

***Investigation of the Anode Effect.** I. P. Tserlovski and V. G. Zhurov (*Trudi Nauchno-Issledovatel'skogo Instituta Legkikh Metallov "Nimolium"* (Trans. Sci. Res. Inst. Light Metals), 1955, (10), 33-46). [In Russian.] The influence was studied of certain admixtures and preliminary treatment of anodes on the value of the critical current density in electrolysis of fused sodium chloride, barium chloride, sodium fluoride, cryolite, and cryolite with 2% of alumina. Addition of up to 2.6% of silica in the electrolysis of sodium chloride, and up to 7% of cupric oxide in cryolite containing 4% of alumina reduced the critical current density from 2.6 to 1.84 amp./cm.² and from 19 to 10 amp. cm.², respectively, whereas additions of barium oxide and manganese dioxide had little effect. Anodes with a treated surface gave a lower critical current density. D. N. S.

ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND PERIODS PROCESSING AND PROPERTIES INDEX

B-F-4

Influence of composition of the electrolyte on electrolysis of carnallite. A. A. Rudermann and I. P. Tyranovskii (J. Appl. Chem. Russ., 1936, 9, 26-33).—
 The highest yields of Mg are obtained by the electrolysis of fused $MgCl_2-KCl-NaCl$ containing 30-45% of $MgCl_2$. The product contains 0.05-0.1% of K + Na. Mg is not liberated when the Fe content of the electrolyte is $> 0.1\%$, and satisfactory yields are not obtained with Fe contents $> 0.04\%$. The yields fall rapidly with increasing SO_4^{2-} content, to attain a const. low val. when $> 0.7\%$ of SO_4^{2-} is present. Further factors tending to lower the yield are dissolution of the Mg by the electrolyte, presence of H_2O , combustion of Mg at the anode, and entanglement of Mg droplets in the cathode sludge.

R. T.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

FROM DIVISION SECTION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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0-1

BC

Decomposition potentials of fused electrolytes.
 J. P. TVERDOVSKI and V. S. MOLTSCHANOV (J. Phys. Chem. Russ. 1937, 9, 239-251).—The following decomp. potentials have been derived from current-p.d. curves: NaOH 2.32 volts (303°), 2.02 (343°); NaCl 3.06 (840°), 2.91 (945°); NaBr 2.88 (765°), 2.85 (800°); KCl 3.22 (800°), 3.00 (925°); KBr 3.00 (782°), 2.38 (842°); BaCl 3.14 (1005°), 2.90 (1070°); MgCl 2.55 (810°), 2.48 (800°); CaCl 3.23 (852°), 2.90 (945°).
 E. R.

METALLURGICAL LITERATURE CLASSIFICATION

ASB-11A	REGIONAL	RESEARCH	INDUSTRIAL	ACADEMIC	LIBRARY	COLLECTION
1	2	3	4	5	6	7

BC

Decomposition potential of aluminium oxide.
 I. P. TYNDYAYAKI and V. S. MOLTSCHMANOV (J. Appl. Chem. Russ., 1937, 10, 1011—1019).—The decomp. potentials of Na_2AlF_6 (I) and of (I)- NaF , $-\text{AlF}_3$, and $-\text{Al}_2\text{O}_3$ mixtures vary linearly with temp. (966—1100°), showing that the electrolytic process is the same in all cases, and consists in decomp. of AlF_3 . With time, the $[\text{NaF}]$ of the electrolyte rises, and Al is pptd. at the cathode as the result of a substitution reaction. F liberated at the anode reacts with Al_2O_3 and the displaced O_2 reacts with the C anode to yield CO_2 .
 R. T.

111

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

117 AND 120 BOOKS 120 AND 474 BOOKS

PROCESSES AND PROPERTIES INDEX

2

- Relation between the wetting of mercury and the nature of the solvent. I. P. Tyndlovskii and A. N. Frumkin (Acad. Sci. U.S.S.R., Moscow). *J. Phys. Chem. (U.S.S.R.)* 21, 819-24(1947)(in Russian).--Nitrogen bubbles, 0.15-0.4 mm. in diam., were placed on, or pressed against, a Hg surface in 0.3 N NH₄NO₃ solns. In alc. -H₂O mixts., the Hg polarized cathodically, and the interfacial tension σ_{12} at the Hg-soln. boundary and contact angle θ (through the soln.) were detd. as functions of the applied voltage V . In H₂O θ passes through a max. (about 100°) at the V of the electrocapillary max. The higher the concn. of EtOH, the smaller the θ and the smaller its dependence on V . In 95% EtOH θ is too small for exact measurement. From the equation $\sigma_{11} - \sigma_{12} = \sigma_{22} \cos \theta$ it is concluded that at high EtOH concns., when θ is almost independent of V , although σ_{11} depends on it, the tension σ_{11} of the Hg-bubble boundary varies with V as does σ_{12} . This shows that N is sep'd. from Hg by a film of the soln. which is thick enough to have properties of the bulk phase (cf. C.A. 20, 4996). The surface tension σ_{22} of 0.3 N NH₄NO₃ solns. also was measured. J. J. Bikerman

METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE

REVISION

REVISION ONE ONE ONE

VERDOVSKIY, I. P.

Journal of the Institute of Metals
Vol. 21 Part 7
Mar. 1954
Structure

*X-Ray Structural Investigation of Deposited Ni-Pd Deposits
Obtained by Electrolysis. Yu. D. Kondrahev, I. P. Trerdovskiy, and Zh. L. Vert (*Doklady Akad. Nauk S.S.S.R.*, 1951, 78, (4), 729-731).—[In Russian]. Dispersed Ni-Pd electrodeposits were prepared from baths contg. PdCl₂, NiSO₄, NaNO₃, and (NH₄)₂SO₄, acidified with a little H₂SO₄, with c.d. = 70 m.amp./cm.². Ni deposited at a c.d. of 1 amp./cm.² was also investigated. All specimens were analysed chemically (accuracy 0.5%), Pd being determined by pptn. with dimethylglyoxime in acid soln., Ni in the filtrate by Chugaev's method. For the X-ray investigation, KCl was used as standard for Ni-rich alloys, and Ni for Pd-rich alloys, the standard being ground, annealed at 400° C. in a current of H₂, mixed with the specimen, and packed in a 0.7-mm.-dia. cellulose capillary. The lattice const. were determined with an accuracy of ~0.001 Å., and the values remained almost const. from 0 to 30-35 at.-% Ni, which conflicts with the results obtained by Hultgren and Zapffe (*Trans. Amer. Inst. Min. Met. Eng.*, 1939, 133, 58; see *M.A.*, 6, 307). This const. value is not due to absorption of H₂, for the lattice const. is the same after anodic polarization. It is also unchanged after annealing the alloys for 12 hr. at 400° C. in a current of N₂. In alloys contg. 35-33% Ni, decompn. into 2 phases was often observed, but annealing transformed the system into a single phase. The degree of dispersion was calculated by taking the mean of 5 values of the single-crystal dimensions, obtained for 5 lines of the X-ray picture. The curve of crystal size against compn. had a min. at ~70 at.-% Ni, the min. value being ~90 Å. Single crystals of

State Inst. Applied Chemistry

pure Ni were much larger than those of pure Pd prepared under the same conditions. The crystals of both the alloy and pure metals are elongated in the [111] direction, 1 to the layers of closest packing; thus for the Pd-20% Ni alloy, the dimensions (Å.) for index lines 111, 200, 220, 311, and 222 were 157, 88, 120, 97, and 140, resp. The curve showing the degree of distortion of the lattice has a flat max. at 60-60 at.-% Ni; pure Ni deposited at 70 m.amp./cm.² showing no distortion. The Ni deposited at 1 amp./cm.² had a single-crystal size of 310 Å., with a mean displacement of atoms of 0.30 Å.—G. V. E. T.

Tverdovskiy, I.P.

Chemistry - Hydrogenation Catalysts

May 52

"Solution and Adsorption of Hydrogen by Disperse Platinum-Palladium Alloys," A. I. Stetsenko, I. P. Tverdovskiy, State Inst of Applied Chem, Leningrad

"Zhur Fiz Khim" Vol XXVI, No 5, pp 647-658

Deposited disperse Pt and Pd cathodically from (FcdCl₂ - PtCl₄) solns at room temp, so that solid solns of these metals were formed. Detd isotherms of H₂ sorption on disperse Pt-Pd alloys according to the method of charging curves developed by A. I. Shlygin and A. N. Frumkin. Showed that charging curves for alloys contg less than 34% Pt are composed of a section which depends on
21975

the nature of the electrolyte and a section which does not. Curves of the charging of alloys contg more than 34% of Pt depend on the nature of the electrolyte throughout their entire extent. The effect of electrolytes on the charging curves of the 1st type permitted differentiation between H₂ adsorption and H₂ soln, calcn of the soly of H₂ in Pt-Pd alloys with a precision of 10-15%, and plotting of isotherms of soln of H₂ in these alloys at p ≈ 1 atm. Found that increase of the Pt content in alloys up to 34% brings about sharp lowering of the soly of H₂ and a homogenous mechanism of soln. With alloys contg more than 34% Pt, H₂ is only adsorbed under the conditions studied. Investigated special properties of alloys contg less than 5% Pt.
21975

TVERDOVSKIY, I. P.

USSR .

Vapor pressure and activity of water and alcohol in the ternary systems $C_2H_5OH-H_2O-NaCl$ and $C_2H_5OH-H_2O-NH_4Cl$. R. S. Matzlish and I. P. Tverdovskii (State Inst. Anal. Chem., Leningrad) *Zhur. Fiz. Khim.* 27, 1957, 1163 (1953); cf. Kireev and Sitnikov, *C.A.* 30, 6404^o. — The partial pressures (p) of C_2H_5OH (I) and H_2O (II) in satd. solns. of $NaCl$ (III) and NH_4Cl (IV) in mixts. of I with various proportions of II were measured at $30 \pm 0.05^\circ$ in a described and illustrated vacuum app. in which the studied solns. were distd. at an observed pressure; p_I and p_{II} were detd. from the d_4^{20} of the distillate. Results are shown graphically. The quantities p_I , p_{II} , total vapor pressures, molal soly. of III or IV, d_4^{20} and mole % of I in the distillate, and activities of I and II are calculated for initial I concns. from 0 to 99.3%. The activity of I in I-II mixts. is increased in the presence of III or IV, whereas that of II is decreased. The affinity for II of the Na ion is greater than that of the NH_4 ion, but the affinity for III of the Na ion is less.

I. W. Lowberg, Jr.

TVERDOVSKIY, I.P.

USSR

The adsorption and solution of hydrogen by dispersed nickel-palladium alloys. I. P. Tverdovskii and Zh. L. Vert. Doklady Akad. Nauk S.S.S.R. 38, 805-8 (1953).
The adsorption and soln. of H by Ni-Pd electrodes of varying compn. was measured by detg. the loading curves as described earlier (C.A. 47, 5768d). The dispersed Ni-Pd electrodes were prepd. electrolytically. The curves show that an increase in the Ni content of the electrode decreases the amt. of H dissolved, or adsorbed by the electrode.

TVERDOVSKIY, I. P.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 14/26

Authors : Mayzlish, R. S. ; Tverdovskiy, I. P.; and Frumkin, A. N.

Title : Adsorption phenomena on Hg and alcohol-water solutions of electrolytes

Periodical : Zhur. fiz. khim. 28/1, 87-101, Jan 1954

Abstract : Two series of electro-capillary curves representing ethyl alcohol - water - NaCl_(sat) and ethyl alcohol - water NH₄Cl_(sat) systems were measured and it became evident that the boundary tension of the aqueous salt solution decreases in the zone of electro-capillary maximum as result of introduction of alcohol into the solution. Addition of water to the alcohol salt solution leads to reduction of boundary tension on both ends of the electro-capillary curve. It was established that the negative adsorption of alcohol corresponds to the positive adsorption of water. The calculated adsorption isotherms on the boundary with air showed that both salts increased the alcohol adsorption and displace the adsorption maximum toward less concentrated alcohol solutions. Ten references : 5-USSR; 4-USA

Institution : Institute of Applied Chemistry, Leningrad

Submitted : March 14, 1953

TVERDOVSKIY, I. P.
USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 29/47

Authors : Kondrashev, Yu. D., and Tverdovskiy, I. P.

Title : X-ray analysis of dispersion Ag - Pd and Cu - Pd depositions obtained by electrolysis.

Periodical : Dok. AN SSSR 99/1, 109-111, Nov 1, 1954

Abstract : The real crystalline structure - size of nucleus, dispersion and deformation - of lattice of binary solid Ag-Pd and Cu-Pd solutions, obtained through combined electrolytic deposition, was investigated. The derivation of the electrolytic dispersion depositions is described. The average displacement of atoms, characterizing lattice deformation and its maximum value at a silver content of 12%, were established. The formation of a continuous series of solid solutions, symbiosis between dispersion and deformity of the lattice and the external form of the monocrystals, were found to be the general characteristics of electrolytic dispersion depositions. Seven references: 5-USSR; 1-USA and 1-German (1933-1951). Graphs.

Institution : Ministry of Chemical Industry, USSR, State Institute of Applied Chemistry

Presented by: Academician A. N. Frumkin, June 22, 1954

TVERDOVSKIY, I. P., TUPITSYN, I. F.

"Study of the Nickel-Boride Catalyst."

Problems Kinetics and Catalysis, v. 9, Isotopes in Catalysis, Moscow, Izd-vo
AN SSSR, 1957. 642p.

Most of the papers in this collection were presented at the Conference
Isotopes in Catalysis which took place in Moscow, Mar 31- Apr 5, 1956.

~~TVBERDOVSKIY, I.P.;~~ TUPITSYN, I.F.

Nickel boride catalysts. Probl. kin. i kat. 9:84-90 '57. (MIRA 11:3)
(Catalyst, Nickel--Spectra)

76-32-2-17/38

AUTHORS: Tupitsyn, I. P. , Tverdovskiy, I. P.

TITLE: Investigations of the Process of the Dehydrogenation of a Skeleton Nickel Catalyst (Issledovaniye protsessy obozvodorozhivaniya skeletnogo nikellevogo katalizatora) I. The Investigation of the Dehydrogenation Process by Means of Electrochemical Methods (I. Izucheniye protsessy obozvodorozhivaniya elektrokhimicheskimi metodami)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 2, pp. 349-354 (USSR)

ABSTRACT: This is a lecture held at the conference on the use of the methods of marked atoms in chemical industry, which took place from March 1 - 3, 1955. Data on the hydrogen content in skeleton nickel catalysts obtained according to various methods (References 1, 2 and 3) are given. It is shown that even with similar conditions of production of the catalyst samples the q_{H_2} values (hydrogen volume per gram of catalyst) hardly agree 2 at all. In order to find the reasons for this

Card 1/3

76-32-2-17/38

Investigations of the Process of the Dehydrogenation of a Skeleton Nickel Catalyst. I. The Investigation of the Dehydrogenation Process by Means of Electrochemical Methods

divergence those processes which occur on the surface of the dehydrogenated catalyst in the presence of other substances, which could lead to the formation of additional hydrogen quantities (or on the other hand to the interruption of hydrogen separation) were investigated. It was found that in the case of an anode polarization by small amperages the skeleton nickel catalyst in the vicinity of the reversible hydrogen potential reacts like an electrochemically active nickel electrode. The method of charge curves was used for the determination of the nature of processes observed in the dehydrogenation of the skeleton nickel catalyst in aqueous alkaline medium. It is shown that in the case of dehydrogenation from the skeleton nickel by means of easily hydratable compounds processes occur on the surface of the catalyst the nature of which is about the same as in the case of the application of a small anode polarization with nickel. In both cases besides the dehydrogenation of the hydrogen enclosed in the catalyst two processes compete with each other, that is to say, the phase decomposition of nickel under formation of $Ni(OH)_2$

Card 2/3

76-32-2-17/38

Investigations of the Process of the Dehydrogenation of a Skeleton Nickel Catalyst. I. The Investigation of the Dehydrogenation Process by Means of Electrochemical Methods

and the passivation of the surface. There are 5 figures, 1 table, and 17 references, 12 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii, Leningrad
(State Institute for Applied Chemistry, Leningrad)

SUBMITTED: November 3, 1956

CONTENTS : 1. Nickel catalysts--Dehydrogenation 2. Hydrogen--Determination
3. Nickel--Decomposition 4. Nickel--Passivity

Card 3/3

AUTHORS: Tupitsyn, I. P., Tverdovskiy, I. P. 76-32-3-15/43

TITLE: An Investigation of the Process of Dehydrogenation of a Skeleton Nickel Catalyst (Issledovaniye protsessa obezvodorozhivaniya skeletnogo nikelovogo katalizatora). II. The Use of Methods of Vacuum Dehydrogenation and Isotopic Dilution for the Determination of the Content of Sorbed Hydrogen (Ispol'zovaniye metodov vakuumnogo obezvodorozhivaniya i izotopnogo razbavleniya dlya opredeleniya sodержaniya sorbirovannogo vodoroda)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 3, pp. 598-602 (USSR)

ABSTRACT: The present paper investigates whether additional separation of hydrogen takes place during vacuum dehydrogenation in a steam atmosphere. In order to determine the quantity of hydrogen sorbed by a gram of skeleton nickel, the latter was produced with the use of a "heavy" alkali (with a certain content of deuterium) by leaching out aluminum from the aluminum-nickel alloy. The weighed portion of the deuterium-containing catalyst was treated with an acid, and in the gas formed from it, the deuterium content was

Card 1/3

76-32-3-15/43

An Investigation of the Process of Dehydrogenation of a Skeleton Nickel Catalyst.

II. The Employment of Methods of Vacuum Dehydrogenation and Isotopic Dilution for the Determination of the Content of Sorbed Hydrogen

determined. Beside the advantages over other methods, this one has the disadvantage that hydrogen and deuterium are chemically not identical and that thus the calculation of the effects is incorrect. From the description of the experimental part, it follows that an arrangement was used which also served for vacuum dehydrogenation, possessing a U-shaped manometer and a MacLeod manometer, that the moist sample was heated to 100-300°C and that the produced hydrogen is cooled by liquid-air cooling and measured in a measurement system. In the performed experiments, it was noticed that the nickel powder heated to 300°C is pyrophoric, which ^{property} vanishes at 800°C; this is traced back to the property of the surface of finely dispersed nickel. The results of the experiments show that in the vacuum method, the moisture exerts an influence upon the dehydrogenation. Quantities of 25-40 ml H₂/g (at above 100°C) which formed from the surface moisture were determined in the

Card 2/3

An Investigation of the Process of Dehydrogenation
of a Skeleton Nickel Catalyst.

76-32-3-15/43

II. The Employment of the Methods of Vacuum Dehydrogenation and
Isotopic Dilution for the Determination of the Content of Sorbed
Hydrogen

experiments. This is ascribed to the too high values
of Bougault (ref. 4) $q_{H_2} \approx 140 \text{ ml } H_2/g$ and

the latter must be corrected, as the present results
according to both methods (the vacuum and the isotopic
method) yielded a value of 20-30 ml H_2/g . This is in
agreement with the data by Mazingo (reference 6) who, however,
performed a different treatment of samples.
There are 1 figure, 3 tables, and 8 references, 6 of which
are Soviet.

ASSOCIATION: Institut prikladnoy khimii, Leningrad
(Leningrad, Institute of Applied Chemistry)

SUBMITTED: November 3, 1956

Card 3/3

KARPOVA, R.A.; KAL'VARSKAYA, T.M.; TVERDOVSKIY, I.P.

Electrochemical oxidation of hydrogen of dispersed Pd-Pt alloys.
Trudy GIPKH no.49:183-191 '62.

Electrochemical reduction of oxygen on dispersed Pd-Pt alloys.
Ibid.:192-200

(MIRA 17:11)

VERT, Ya.L.; VALYUZHINA, A.A.; TVERDOVSKII, I.I.

Measurement of limiting currents on some cation-exchanging
membranes in the hydrogen form. Trudy AN SSSR no. 19:201-210
162. (MIRA 17:11)

~~TVARDOVSKIY, I.B.; VERT, Zh.L.; KAPOVA, R.A.; LIPETS, T.V.; NODVICH, I.A.;~~
STETSENKO, A.I.

Hydrogen evolution overvoltage on certain palladium alloys as
dependent on the interatomic distance. Trudy GTPKH no.49:210-
214 '63. (MIRA 13:11)

TVERDOVSKIY, I.P.; KARPOVA, R.A.

Catalytic hydrogenation and electrochemical reduction of maleic acid on Pd-Pt alloys. Trudy GIPKH no.49:215-223 '62.

Decomposition of H₂O₂ on dispersed precipitates of the Pd - Ni system. Ibid.:224-229

Catalytic hydrogenation and electrochemical reduction of dimethylacetylenylcarbinol on dispersed Pd-Ni alloys. Ibid.:230-233

Catalytic decomposition of sodium hypophosphite on dispersed Pd-Pt alloys. Ibid.:234-237

Catalytic hydrogenation of maleic acid on a membrane palladium electrode. Ibid.:238-243

(MIRA 17:11)

IVERSON, J.P.

Temperature dependence of mercury wetting. *J. Polym. Sci. Polym. Chem. Ed.* 1962, 1, 250-255.

SOV/76-33-6-35/44

5(4), 18(7)

AUTHORS:

Karpova, R. A., Tverdovskiy, I. P.

TITLE:

Sorption of Hydrogen by Disperse Palladium-copper Alloys
(Sorbtsiya vodoroda dispersnymi splavami palladiy - med')

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6.
pp 1393-1400 (USSR)

ABSTRACT:

In previous papers (Refs 1-3) it was ascertained that in binary alloys Pd - Pt, Pd - Ni and Pd - Ag the sum of dissolved hydrogen and metal in palladium in the two-phase range until the disappearance of stagnation on the curves $Q - \varphi$ (caused by the α - β conversion) always remains equal to the quotient between the number of free spots in the α -band and the total number of atoms of the alloy or of the Pd, and is about 0.53. The present paper investigates the sorption and heat of solution of the hydrogen in disperse Pd-Cu alloys at room temperature (24°C). The sorption was measured according to a method worked out by reference 8, and the working process was already described (Ref 1). The $Q - \varphi$ curves were measured at 24°, and current densities from $5 \cdot 10^{-4}$ to $2 \cdot 10^{-3}$ a/cm². The curves obtained (Fig 1) show distinctly the influence of Cu on the total solubility of H₂ in the alloy. The latter decreases regularly and attains the zero value at

Card 1/2

SOV/76-33-6-35/44

Sorption of Hydrogen by Disperse Palladium-copper Alloys

Cu \approx 66% (Table), the two-phase state of the Pd-Cu-H alloy disappearing at 26% Cu. Curves of the change of differential heat of the hydrogen dissolution in the alloy as a function of the quantity of dissolved hydrogen show (Fig 5) that the heat of solution of H₂ decreases with an increase in the Cu-content up to 14.6% Cu, which points to a weakening of the binding strength Me-H. In the solid Pd-Cu-H alloy, the copper is in the range of the two-phase system in the bivalent state. The further results and explanations lead to the statement that special measurements of the magnetic susceptibility and of the magnetic moment of the Pd-Cu-H alloy should be carried out in the range of phase transition (in order to clarify the nature of the two-phase state and the valence of Cu in the alloy). There are 4 figures, 1 table, and 18 references, 8 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii, Leningrad
(State Institute of Applied Chemistry, Leningrad)

SUBMITTED: December 13, 1957

Card 2/2

SOV/20-127-4-30/60

5(4)
AUTHORS: Trerdovskiy, I. P., Vert, Zh.L., Kondrashov, Yu. D.

TITLE: Determination of the Dimensions of an Elementary Cell of Cathode-polarized Dispersion Alloys Pd-Au and Pd-Cu

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 4, pp 835-837 (USSR)

ABSTRACT: In the present paper, the lattice parameters of an electrode were determined during its polarization. These investigations permit checking of some assumptions concerning the dependence of the overvoltage of the hydrogen deposition on the interatomic distances in the alloys. Investigations were carried out by means of the binary dispersed alloys mentioned in the title. These alloys dissolve hydrogen in a sufficiently wide composition interval. The dissolved hydrogen was eliminated by anodic polarization of the alloy until the deposition of the first hydrogen bubbles. For the recordings, a special Plexiglas cell was used (Fig 1). The recording was made by means of a URS-50-I diffractometer. The lattice periods could be determined up to an accuracy of ± 0.001 kX. The experiments were made in $1N H_2SO_4$ solution at room temperature. The data obtained for the

Card 1/2

Determination of the Dimensions of an Elementary Cell of SOV/20-127-4-30/60
Cathode-polarized Dispersion Alloys Pd-Au and Pd-Cu

Lattice periods is compiled in table 1. The values obtained showed an error of only ~ 0.001 kX. The values for the electrolytically deposited alloy could not be obtained with the same accuracy. The lattice periods for the alloys after polarization are shown by figure 2 for the various systems with different Au- and Cu-content, and also in the process of hydrogen deposition. There was good agreement with the results obtained by Kuznetsov (Ref 10). The strongest enlargement of the parameters of the elementary cell resulted in pure palladium. By the introduction of gold or Cu it decreases, and disappears completely at a content of 65% Au or 50% Cu, respectively. At a low palladium content, the solubility of hydrogen in the alloy also decreases down to zero. A change in the current intensity during the experiments had nearly no effect on the lattice parameters. There are 3 figures, 1 table, and 15 references, 7 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii
(State Institute of Applied Chemistry)

PRESENTED: April 13, 1959, by A. N. Frunkin, Academician

SUBMITTED: April 13, 1959

Card 2/2

VERT, Zh.L.; MOSEVICH, I.A.; TVERDOVSKIY, I.P.

X-ray-diffraction study of hydrogen solubility in dispersed and compact palladium. Zhur. fiz. khim. 39 no.5:1061-1064 My '65.
(MIRA 18:8)

1. Leningradskiy institut prikladnoy khimii.

MOSEVICH, I.A.; TVERDOVSKIY, I.P.; VERT, Zh.L.

Catalytic hydrogenation and electrochemical reduction of
quinone on disperse palladium-gold alloys. Zhur. fiz. khim.
37 no.12:2683-2687 D '63. (MIRA 17:1)

1. Gosudarstvenny institut prikladnoy khimii.

TVERDOVSKIY, I.P.; VERT, Zh.L.; KARFOVA, R.A.; MOSEVICH, I.A.; STETSENKO, A.I.

Electrochemical preparation of dispersed binary alloys of palladium with metals of VIII and IB groups. Zhur. prikl. khim. 36 no.5: 1040-1045 My '63. (MIRA 16:8)

1. Gosudarstvennyy institut prikladnoy khimii.
(Palladium alloys) (Electroplating)

L 12648-63

BDS/EWP(q)/EWT(m)

AFFTC/ASD

JD/E#-2

S/0020/63/036/005/1040/1045

ACCESSION NR: AP3002399

AUTHOR: Tverdovskiy, I. P.; Vert, Zh. L.; Karpova, R. A.; Mosevich, I. A. and Stetsenko, A. I.

TITLE: Electrochemical extraction of dispersed binary alloys of palladium with metals of groups 8 and 1B

SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 5, 1963, 1040-1045

TOPIC TAGS: palladium, binary alloy, Pt, Rh, Au, Ni, Cu, Co, Fe

ABSTRACT: In examining the physico-chemical and catalytic properties of palladium-base binary alloys, electrolytic methods of extraction of mixed dispersed precipitations of systems Pd-Pt, Pd-Rh, Pd-Au were used. Abnormal results were obtained only for the system Pd-Ni, when the introduction of nickel in palladium at 30-35% was not accompanied by a change in lattice constant. In the zone of richer nickel the sizes of the elementary cell of dispersed alloys coincided approximately with parameters of the compact forms according to data of Hultgren and Zapfe (Trans. A.J.M.E. 133, 1939, 58). Use of solutions on the basis of nitrite group of palladium permitted extracting alloys Pd-Cu, Pd-Ni, Pd-Co and Pd-Fe not only by joint electrolysis, but also by chemical precipitation by means of reduction of metal ions by formate or sodium hypophosphite, hydrazine salts, etc. Orig. art. has: Card 1/2/ Association: State Inst. of Applied Chemistry

VERT, Zh.L.; MOSEVICH, I.A.; TVERDOVSKIY, I.P.

Electrochemical determination of the heat of adsorption of hydrogen
on a dispersed palladium electrode. Dokl. AN SSSR 140 no.1:
149-152 S.O '61. (MIRA 14:9)

1. Gosudarstvennyy institut prikladnoy khimii, g. Leningrad.
Predstavleno akademikom A.N.Frumkinym.
(Hydrogen) (Palladium) (Heat of adsorption)

26874
S/081/61/000/013/007/028
B105/B201

26.2521

AUTHORS: Vert Zh. L., Tverdovskiy I. P.

TITLE: Dissolution of hydrogen with Pd - Fe and Pd - Co alloys

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 87, abstract
138664. (Sb. tr. Gos. in-ta prikl. khimii, 1960, vyp. 46,
169-175)

TEXT: In continuation of the papers (RZhKhim, 1960, No. 2, 3760; No. 12, 46084; No. 13, 51109) the authors investigated the solubility of hydrogen (HS) in the electrodeposited alloys Pd - Fe in the range of 0 - 32.8% of Fe and Pd - Co in the range of 0 - 51.2% of Co at 20°C. This was done by the method of measuring the charge curves (CC). The CC sections corresponding to HS and to the adsorption of hydrogen were subdivided by experiments with the same electrode but different electrolytes (H₂SO₄ and HCl). The extent and the relative disposition of CC are indicative of the monotonic reduction of HS and of the strength of the compound M - H with decreasing Pd content of the alloy in the pressure range studied. The

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Dissolution of hydrogen with Pd - Fe and ...B105/B201

influence of Fe and Co on the character of sorption is almost the same. The amount of hydrogen, the dissolution of which corresponds to a complete occupation of the d-band of Pd in the alloy by electrons, was calculated from the extent of the sloping CC sections. The slope of the corresponding curves makes it possible to estimate the number of electrons promoted by an atom of the introduced metal into the d-band (RZhKhim, 1955, 1903; 1960, 46084); for Fe and Co, the values 0.95 and 0.98 were found accordingly. [Abstracter's note: Complete translation.]

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B105/B201

26.2521
AUTHORS:

Stetsenko A. I., Tverdovskiy I. P.

TITLE:

Overvoltage of hydrogen formation on disperse Pd - Pt and Pd - Rh alloys

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 13, 1961, 87, abstract 135663 (Sb. tr. Gos. in-ta prikl. khimii, 1960. vyp. 46, 221-228)

TEXT: With the aid of a previously described method (RZhKhim, 1960, No. 15, 60716; 60717) it was shown that, unlike what is the case with Pt, the overvoltage of hydrogen formation on disperse Pd depends largely on the pH value. For the Pd electrode, the transition of 1 n H₂SO₄ to 2 n NaOH is accompanied by an increase of the absolute value of η and by an increase of the coefficient b of Tafel's equation from 0.020 to 0.152 v. Dissolution of Pt or Rh in Pd results in a rapid decrease of the value of η in alkaline solutions. An addition of 25% of Pt to Pd lowers η to values obtained on pure Pt. For Pd - Rh alloys, η is rendered independent of the composition by adding ~40% of Rh. It was shown that the change of η and
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Overvoltage of hydrogen formation on ... B105/B201

of the solubility of hydrogen are qualitatively similar functions of the composition of the systems investigated (Stetsenko A. I., Tverdovskiy I. P. "Zh. fiz. khim.", 1951, 26, 647; "Dokl. AN SSSR", 1952, 84, 997). Various assumptions were made concerning the possible causes of the decrease of η as a function of the composition of the alloy. [Abstracter's note: Complete translation.]

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27212

S/081/61/000/014/008/030
B106/B110

54700

1273 also 1274

AUTHORS:

Tverdovskiy, I. P., Mosevich, I. A., Vert, Zh. L., Karpova,
R. A.

TITLE:

Overvoltage of hydrogen separation and catalytic properties of
disperse Pd-Cu, Pd-Ag, and Pd-Au alloys

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 14, 1961, 87, abstract
145607. (Sb. tr. Gos. in-ta prikl. khimii, no. 46, 1960,
229 - 239)

TEXT: The values of η on disperse Pd-Cu, Pd-Ag, and Pd-Au alloys were compared with their catalytic activities to clarify the relationship between the hydrogen overvoltage η on metals and the processes of electrochemical reduction and catalytic hydrogenation of organic compounds. For the systems studied, the dependence of η (or the constant a of the Tafel equation) on the alloy composition is characterized by two sections appearing on each curve; the η -value begins rising strongly only after addition of 70 - 75% of the second component to the palladium. The absolute η -values are similar for Pd-Cu and Pd-Ag alloys over the whole range of compositions; on Pd-Au

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Overtoltage of hydrogen separation and ...

alloys, η lies much lower, especially in the range of 50 - 0% Pd. In Pd-Cu and Pd-Ag alloys with $< 60\%$ of the metal group I, the η -values and the rate constants of hydrogenation and electrical reduction of maleic acid are constant. In Pd-Au alloys in the range of 55 - 70% Au, a sharp decrease in catalytic activity corresponds to a constant η -value. The authors found a qualitative relationship between the catalytic activity, η , and the electron structure of the alloys investigated. From the same point of view, they considered the reactions of decomposition of NaH_2PO_2 and H_2O_2 .

[Abstracter's note: Complete translation.]

X

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27211

S/081/61/000/014/007/030
B106/B110

5.4700

1273 also 1274

AUTHORS:

Vert, Zh. L., Karpova, R. A., Kosheleva, T. V., Tverдовskiy,
I. P.

TITLE:

Overvoltage of hydrogen separation on disperse Pd-Ni alloys

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 14, 1961, 87, abstract
148606. (Sb. tr. Gos. in-ta prikl. khimii, no. 46, 1960,
240 - 244)

TEXT: The results of measurement of the hydrogen overvoltage η on disperse Pd-Ni alloys in 0.8 N NaOH at 24°C are described over a wide range of α by the Tafel equation (coefficient $b = 0.14 - 0.15$ v). The value of η at constant i rises on Pd-Ni transition, and is independent of the alloy composition in the ranges with the following nickel contents (in %): 0-25, 25-75, 75-100. An investigation of the sorption of hydrogen by disperse Pd-Ni alloys (RZhKhim, no. 1, 1954, 192) has shown that the extension of the first range coincides with the complete filling of the d-level of Pd with electrons. It is assumed that the symmetrical position of the ranges

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Overvoltage of hydrogen separation on ...

with constant η -value as dependent on the alloy composition is related with the uniform structure of the external electron levels in Pd and Ni. The curve for the dependence of η on the distance between adjacent metal atoms in the alloys also shows sections with constant η -values. [Abstracter's note: Complete translation.]

X

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27209
S/081/61/000/014/005/030
B106/B110

5.4700

1273 also 1274

AUTHORS: Karpova, R. A., Tverdovskiy, I. P.

TITLE: Electrochemical behavior of powdery zirconium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 14, 1961, 86, abstract
145597. (Sb. tr. Gos. in-ta prikl. khimii, no. 46, 1960,
261 - 267)

TEXT: The authors plotted anodic and cathodic charge curves on an electrode molded of powdery zirconium during polarization by currents with $i = 15, 90, \text{ and } 500 \mu\text{A}$ in 1 N solutions of H_2SO_4 , Na_2SO_4 , and NaOH at 24°C . Without polarization, the steady potential lies near 0.00 with respect to the potential of a reversible hydrogen electrode in the same solution. In anodic polarization of Zr with a current $i = 90 \mu\text{A}$ in 1 N H_2SO_4 , φ does not change in the region of the potential 0.250-0.300 v. This flat part of the curve is well reproducible with respect to the value of the potential φ , but badly reproducible with respect to duration. Further polarization leads to a quick increase of φ to

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Electrochemical behavior...

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0.850 - 0.900 v, then the changes of φ are negligible (second flat part). With an amperage $i = 500\mu\text{a}$, the first flat part does not appear, and φ quickly attains the value of 1.4 - 1.6 v. The authors assume that the first flat part corresponds to a setting of oxygen with formation of an unstable oxide compound, the second flat part to the formation of ZrO_2 .

In solutions of NaOH and Na_2SO_4 , the first flat part is missing, while the second one appears at 0.400 - 0.450 v and 0.700 v, respectively. In both forward and reverse direction, the anodic charge curves show a large hysteresis due to the irreversibility of the oxidation process of the surface. In anodic charge curves, recorded after plotting the cathodic charge curves, the second flat part did not appear [Abstracter's note: it should probably read "second" (vtoroy) instead of "hydrogen" (vodorodnoy)]. [Abstracter's note: Complete translation.]

Card 2/2

KARPOVA, R.A.; TVERDOVSKIY, I.P.

Catalytic hydrogenation and electrochemical reduction of dimethyl-
acetylenylcarbinol on disperse deposits of the system palladium-
copper. Trudy GIPKH no.42:224-229 '59. (MIRA 13:10)
(Palladium-copper alloys) (Hydrogenation)
(Butynol)

TVĚRDOVSKIY, I.P.; VERT, Zh.L.; KARPOVA, R.A.; MOSEVICH, I.A.

Solubility of hydrogen in alloys of palladium with silver, copper,
and gold. Trudy GIPKH no.42:182-198 '59. (MIRA 13:10)
(Palladium-silver alloys) (Palladium-copper alloys)
(Palladium-gold alloys)
(Hydrogen)

MOSEVICH, I.A.; TVERDOVSKIY, I.P.; VERT, Zh.L.

Hydrogen overvoltage on disperse palladium-gold alloys. Trudy GIPKH
no.42:199-204 '59. (MIRA 13:10)
(Palladium-gold alloys) (Overvoltage)
(Hydrogen)

VERT, Zh.L.; TVERDOVSKIY, I.P.; MOSEVICH, I.A.

Hydrogen overvoltage on disperse palladium-silver alloys. Trudy
GIPKH no.42:209-211 '59. (MIRA 13:10)
(Overvoltage) (Hydrogen) (Palladium-silver alloys)

KARPOVA, R.A.; TVERDOVSKIY, I.P.

Catalytic hydrogenation and electrochemical reduction of maleic acid
on disperse deposits of the system palladium-copper. Trudy GIPKH
no.42:212-223 '59. (MIRA 13:10)
(Maleic acid) (Palladium-copper alloys)
(Hydrogenation)

KARPOVA, R.A.; TVERDOVSKIY, I.P.

Catalytic properties of the disperse deposits of the system palladium-copper in the reactions involving the decomposition of sodium hypophosphite. Trudy GIPKH no.42:230-234 '59. (MIRA 13:10)
(Sodium hypophosphite) (Palladium-copper alloys)

MOSEVICH, I.A.; TVERDOVSKIY, I.P.; VERT, Zh.L.

Sorption of hydrogen by disperse palladium-gold alloys. Trudy GIFKH
no.42:173-181 '59. (MIRA 13:10)
(Palladium-gold alloys) (Hydrogen)

KARFOVA, R.A.; TVERDOVSKIY, I.P.

Hydrogen overvoltage on disperse palladium-copper alloys. Trudy
GIPKH no.42:205-208 '59. (MIRA 13:10)
(Overvoltage) (Hydrogen)
(Palladium-copper alloys)

BP

S/081/60/000/012(I)/001/002
A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 12 (I), p. 86,
46084

AUTHORS: Tverdovskiy, I.P., Vert, Zh.L., Karpova, R.A., Mosevich, I.A.

TITLE: On the Solubility of Hydrogen in Alloys of Palladium With Silver,
Copper and Gold


PERIODICAL: Sb. tr. Gos. in-ta prikl. khimii, 1959, No. 42, pp. 182-198

TEXT: The author puts forward a scheme of distribution of electrons and "vacancies" in 4d- and 5s- bands in the Pd - Ag system and in 4d- and s- bands in the Pd-Cu system. Using simulation notions and assuming a limited number of vacancies for hydrogen dissolution in the Pd - Ag, Pd - Cu and Pd - Au systems, isothermal equations of hydrogen dissolution in the alloys are obtained. They serve to determine the magnitude of the chemical potential of hydrogen dissolved $\Delta \mu_H$, and the coefficient α , characterizing the deviation from the ideal state in the Langmuir equation. An equation is obtained for calculating

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S/081/60/000/012(I)/001/002
A006/A001

On the Solubility of Hydrogen in Alloys of Palladium With Silver, Copper and Gold
the differential heat of hydrogen dissolution $Q (\ominus)$ and its applicability
is demonstrated.

Authors' resume 

Translator's note: This is the full translation of the original Russian abstract.

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TVERDOVSKIY, N., metodist khimii

Practical seminar of the directors of chemistry laboratories
of the Institute of Teacher Improvement at the Central Institute
for Improving the Qualifications of Supervisory Personnel in
Public Education. Khim.v shkole 14 no.5:95-96 S-0 '59.
(MIRA 12:12)

1. Tsentral'nyy institut povysheniya kvalifikatsii rukovodya-
shchikh rabotnikov narodnogo obrazovaniya.
(Chemistry--Study and teaching)

TVERDOVSKIY, N. (Moskva)

Large flaws in a necessary book ("Collection of questions and problems in chemistry for secondary schools" by A.V. Reshetnikov. Reviewed by N. Tverdovskii). Khim. v shkole 13 no.5:75-77 S-0) (MIRA 11:9) '58.

(Chemistry--Problems, excercises, etc.)

TVERDOVSKIY, N., učitel'

Whom is this film intended for? Khim.v shkole 15 no.6:83-84
N-D '60. (MIRA 13:11)

1. Srednyaya shkola No.390, Moskva.
(Motion pictures in education) (Chemistry--Study and teaching)

TVERDOVSKIY, N.P. (Moskva).

Relationship between teaching chemistry and physics. Khim. v shkole
12 no.3:22-25 My-Je '57. (MIRA 10:6)
(Chemistry--Study and teaching)
(Physics--Study and teaching)