NICHIPOROVICH, A.A.; MALOFEYEV, V.

Principles of the formation of highly productive photosynthesizing systems. Fiziol.rast. 12 no.1:3-12 Ja-F '65.

(MIRA 18:3)

1. Institut fiziologii rasteniy imeni Timiryazeva AN SSSR, Moskva.

KRASNOVSKIY, A.A., otv. red.; GODNEV, T.N., akademik, red.; NICHIPOROVICH, A.A., prof., red.; TERENIN, A.N., akademik, red.; LITVIN, F.F., red.

[Biochemistry and biophysics of photosynthesis] Biokhimiia i biofizika fotosinteza. Moskva, Nauka, 1965. 318 p.
(MIRA 18:10)

1. Akademiya nauk SSSR. Nauchnyy sovet po probleme "Fotosintez."
2. Chlen-korrespondent AN SSSR (for Krasnovskiy).

ACC NR: AT6036297 SOURCE CODE: UR/0000/66/000/000/0204/0212

AUTHOR: Filippovskiy, Yu. N.; Nichiporovich, A. A.; Semenenko, V. Ye.

ORG: none

TITLE: The distribution of radiant energy in a Chlorella suspension

SOURCE: AN SSSR. Nauchnyy sovet po kompleksnoy probleme Fotosintez. Fotosinteziru-shchiye sistemy vysokoy produktivnosti (Photosynthesizing systems of high productivity). Moscow, Izd-vo Nauka, 1966, 204-212

TOPIC TAGS: chlorella, photosynthesis, ~~chlorella cultivation~~ radiation

ABSTRACT: A method of estimating the intensity of radiant energy in plane-parallel Chlorella cultivators was described. Experiments were conducted with *Chlorella sp. K.*, a thermophilic strain with relatively small cells and evenly distributed chromatophores. Chlorella was cultured at 36C in a cultivator 6 mm thick, illuminated from two sides with luminescent lamps (intensity of photosynthetically active radiation up to $40 \cdot 10^3$ erg/cm^2·sec from each side). Air containing 1.8% CO_2 was bubbled through the suspension at a rate of 200 liters/hr. The cylindrical cultivating tank had mirror ends to eliminate scattering of light through the end walls. The exponential dependence of spectral hemispherical coefficients of transmission of a Chlorella suspension on cell concentration and cell layer thickness was determined for all useful values of cell concentration and layer thickness. (The hemispherical coefficient of transmission τ_ω is defined as the

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ACC NR: AT6036297

ratio of the value of flux F_{τ_σ} emanating from the cell layer into half space 2π to the value of flux F_0 incident on the layer surface.) This exponential dependence is satisfied with identical accuracy for all wavelengths in the range of photosynthetically active radiation. Spectral directive coefficients of transmission (flux emanating from the solution in the direction of the flux incident on the surface) show selectivity at cell concentrations above $150 \cdot 10^6$ cells per milliliter. The dependence of spectral directive coefficients of transmission on cell concentration and cell layer thickness conforms to Bouguer's Law only at low cell concentrations. Values of a spectral hemispherical absorption coefficient for *Chlorella sp. K.* were obtained for a wide range of conditions. Experimental results can thus be used to calculate the light span in a Chlorella suspension. Orig. art. has: 5 figures and 10 equations.

SUB CODE: 06/ SUBM DATE: 25May66/ ORIG REF: 012/ OTH REF: 007/ ATD PRESS:5106

Card 2/2

ACC NR: AT6036296 SOURCE CODE: UR/0000/66/000/000/0193/0203

AUTHOR: Filippovskiy, Yu. N.; Semenenko, V. Ye.; Nichiporovich, A. A.

ORG: none

TITLE: Optical properties of a Chlorella suspension during the action of complex radiation spectra

SOURCE: AN SSSR. Nauchnyy sovet po kompleksnoy probleme Fotosintez. Fotosinteziruyushchiye sistemy vysokoy produktivnosti (Photosynthesizing systems of high productivity). Moscow, Izd-vo Nauka, 1966, 193-203

TOPIC TAGS: Chlorella, photosynthesis, mass culture, radiation, optic property

ABSTRACT: The problem of determining the propagation of radiation of complex spectral composition in a Chlorella suspension was discussed. Most researchers studying the propagation of monochromatic radiant fluxes in the photosynthetically active range of wavelengths in flat Chlorella cultivators have supported the hypothesis of the exponential attenuation of radiation in a Chlorella suspension. Quantitative analysis shows this approach to be inexact. Dependences of energy and quantum transmission coefficients of a Chlorella suspension (strain *Chlorella sp. K*) on the optical density and thickness of the cell layer were calculated for radiation spectra of light sources widely used in the mass cultivation of algae. The deep layers of a Chlorella suspension have a greater transparency for fluxes of photosynthetically active radia-

Card 1/2

ACC NR: AT6036296

tion from xenon lamps, incandescent reflector lamps (color temperature = 3000K), and luminescent lamps than do the surface layers of the suspension. Quantitative characteristics of this phenomenon were obtained. The quantum content in an energy unit of photosynthetically active radiation is constant for any elemental volume in a Chlorella cultivator in spite of great differences in the spectral composition of the light. The range of spectral transmission coefficient groups of Chlorella for different cell concentrations and layer thicknesses contains curves like those for leaves of higher plants. The dependence of the phothsynthesis of a Chlorella cell on the density of quantum fluxes obtained for optically thin suspension layers can be used as the basis for calculating the photosynthetic yield of cultivators and for designing apparatus for mass cultivation of algae. Orig. art. has: 4 figures and 5 formulas.

SUB CODE: 06/ SUBM DATE: 25May66/ ORIG REF: 008/ OTH REF: 002/
ATD PRESS: 5106

Card 2/2

NICHIPOROVICH, A.

"Resistance of bonded soils to displacement during calculation of Hydroengineering structures."

Dissertation for Doctor of Technical Sciences, All-Union Sci. Res. Inst. of Water supply, Sewerage, Hydraulic Engineering Structures and Engineering Hydrogeology.

Subject: Hydroengineering building and construction

Gidrotekhnicheskoye, stroitel'stvo, 12, 1946.

SIDOROV, A.A., kandidat tekhnicheskikh nauk, redaktor; BLIZNYAK, Ye.V. doktor tekhnicheskikh nauk, professor; OLESHKEVICH, L.V., kandidat tekhnicheskikh nauk, dotsent; AKHUTIN, A.M., doktor tekhnicheskikh nauk, professor; BEREZINSKIY, A.R., doktor tekhnicheskikh nauk, professor; GRISHIN, M.M., doktor tekhnicheskikh nauk, professor; DZHUNKOVSKIY, N.N., doktor tekhnicheskikh nauk, professor; ZHEMOCHKIN, B.N., laureat Stalinskoy premii, doktor tekhnicheskikh nauk, professor; MIKAYLOV, K.A., doktor tekhnicheskikh nauk, professor; NICHIPOROVICH, A.A., doktor tekhnicheskikh nauk, professor; NESTERUK, F.Ya., doktor tekhnicheskikh nauk; NEDRIGA, V.P., kandidat tekhnicheskikh nauk; SAFONOV, P.V., inzhener; LATYSHENKOV, A.M., kandidat tekhnicheskikh nauk, dotsent, redaktor; KUROKOV, V.S., kandidat tekhnicheskikh nauk, dotsent, redaktor; BARSOV, M.V., inzhener, redaktor; MEYSTER, V.A., kandidat tekhnicheskikh nauk, redaktor; LIPKIND, M.V., kandidat tekhnicheskikh nauk, redaktor; LYAPICHEV, P.A., kandidat tekhnicheskikh nauk, redaktor; KARPOV, I.M., kandidat tekhnicheskikh nauk, dotsent, redaktor; REPKIN, V.P., inzhener, redaktor; MEDVEDEV. L.Ya., tekhnicheskiy redaktor.

[Hydraulic engineering handbook]Spravochnik po gidrotekhnike, Moskva, Gos.izd-vo lit-ry, po stroit. i arkhit.1955. 828 p.
(MLRA 8:10)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut vodosnabzheniya, kanalizatsii, gidrotekhnicheskikh sooruzheniy i inzhenernoy gidrogeologii. 2. Zasluzhenyy deyatel' nauki i

(Continued on next card)

SIDOROV, A.A., kandidat tekhnicheskikh nauk, redaktor,and others... (Card 2)

[Hydraulic engineering handbook]Spravochnik to gidrotekhnike, Moskva, Gos.izd-vo lit-ry, po stroit i arkhit. 1955. 828 p. (Card 2) (MLRA 8:10)

2. Zasluzhenyy deyatel' nauki i tekhniki RSFSR(for Bliznyak)
3. Deystvitel'nyy chlen Akademii nauk AzSSR(for Mikaylov)
(Hydraulic engineering)

NICHIPOROVICH, A A

AID P - 3206

Subject : USSR/Hydraulic Engineering

Card 1/1 Pub. 35 - 10/19

Author : Nichiporovich, A. A., Dr. Tech. Sci., Prof.

Title : Prognosticating settling of concrete hydraulic installations built on non-rock foundations

Periodical : Gidr. stroi., 5, 32-38, 1955

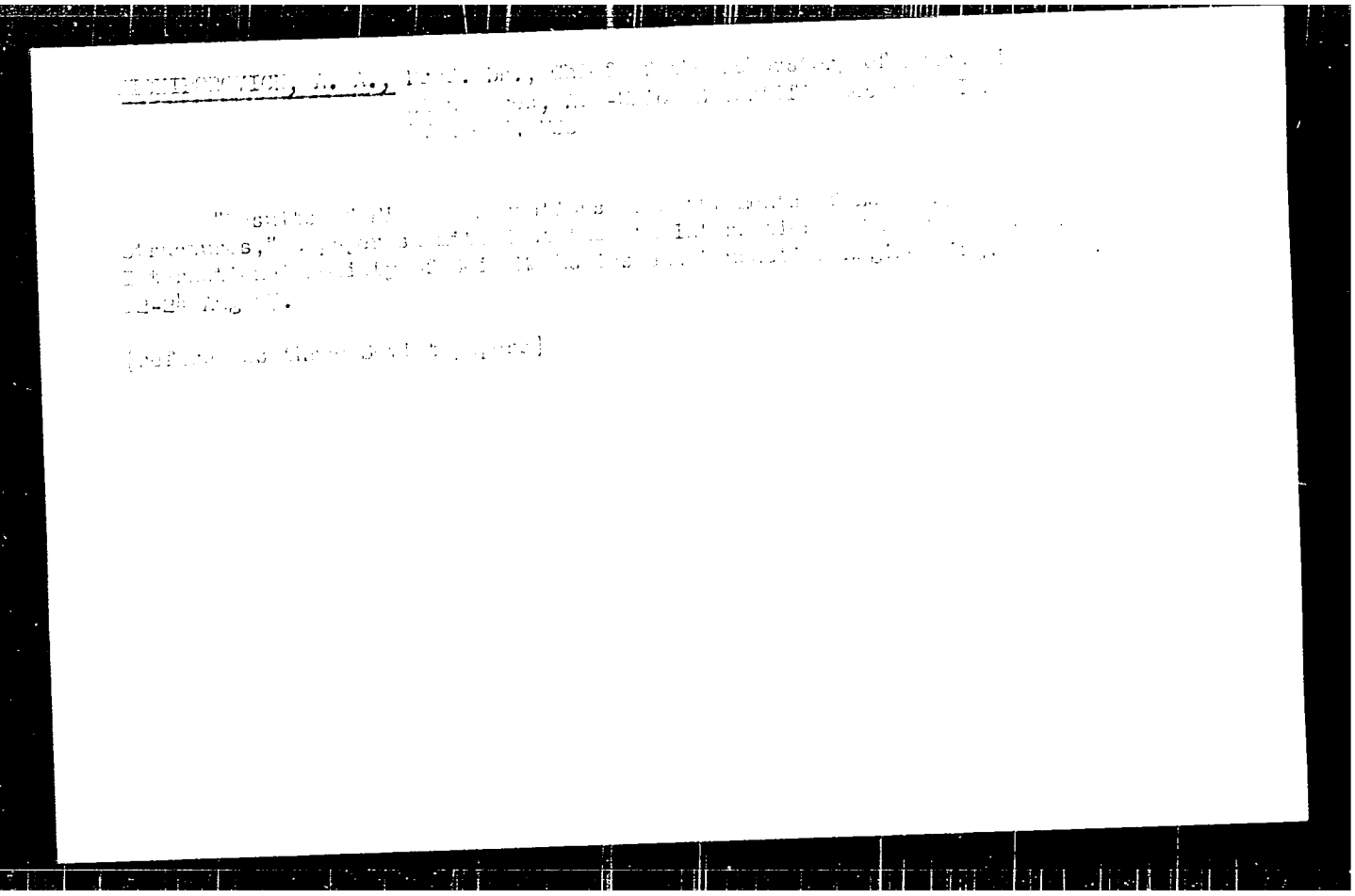
Abstract : The necessity of correct prognistication of vertical deformations in installations built on soft soil is stressed and new methods for forecasting the size of settling are advocated. The article reports in detail on various physical properties of the soil, mostly clay, tested, giving time and size of installation data. Names of Soviet scientists who specialized in the field are given. Eight diagrams.

Institution : None

Submitted : No date

NICHIPOROVICH, A.A., doktor tekhnicheskikh nauk, professor.

Landslide in the downstream slope of the Nikopol' dam during its construction. Gidr.stroi. 25 no.9:19-24 O '56. (MLRA 9:11)
(Nikopol' (Ukraine)--Dams)



MIKHAYLOV, K.A., professor; KHRUSTALEV, B.Ya., kandidat tekhnicheskikh nauk; LAGAL'KOV, N.I., inzhener, nauchnyy redaktor; SAFONOV, P.V., redaktor izdatel'stva; PERLIN, M.M., tekhnicheskiy redaktor

Strength of concrete hydraulic structures built on rockless soils; Prochnost' betonnykh vodopodpornykh sooruzhenii na neskal'nykh gruntakh. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. (MLRA 10:10)
189 p.
(Concrete construction)

NICHIPOROVICH, A.A., doktor tekhn.nauk, prof.

Designing the underground contour of pressure conduits on nonrocky soils. Gidr.stroi. 26 no.10:7-15 O '57. (MIRA 10:10)
(Hydraulic engineering)

Nichiporovich, A. A.

98-1-17/20

AUTHOR: Nichiporovich, A.A., Doctor of Technical Sciences, Professor

TITLE: The Fourth International Conference on Soil Mechanics and Foundation Engineering (IV Mezhdunarodnaya konferentsiya po mekhanike gruntov i fundamentostroyeniyu)

PERIODICAL: Gidrotekhnicheskoye Stroitel'stvo, 1958, # 1, pp 60-63 (USSR)

ABSTRACT: From August 12 to August 24, 1957, the Fourth International Conference on Soil Mechanics and Foundation Engineering was held in London. Long before the conference was convened, the Orgkomitet prepared the different reports. Of the 179 reports from 40 different countries, 16 were read by Soviet scientists. Prior to the opening of the conference, all reports were published in two volumes of 1,000 pages in the English and French languages. Mention must be made of the great organizational work accomplished by the Orgkomitet of the Soviet committee on the subject of soil mechanics (under the supervision of the member-correspondent of the USSR Academy of Sciences N.A. Tsytovich), pertaining to the preparation of the reports as well as their publication in the Russian language before the beginning of the conference. Besides participating in the work of the conference, the Soviet delegation of 18 persons looked into local

Card 1/2

The Fourth International Conference on Soil Mechanics and Foundation Engineering

scientific-research work, studied the work of the planning and construction organizations and visited several construction projects in eastern England and northern Scotland.
There is 1 table, 4 British, 2 Russian, 1 Israeli, 3 Italian, 2 Czechoslovakian, 3 USA, 2 Swedish, 2 Swiss, 1 Brazilian, 2 Indian, 2 Canadian, 1 Japanese, 1 Yugoslavian, 1 Australian, 1 German and 1 Turkish reference.

AVAILABLE: Library of Congress

Card 2/2

SOV-98-58-8-17/22

AUTHOR: Nichiporovich, A.A., Doctor of Technical Sciences, Professor

TITLE: **Planning and Construction Abroad of High Dams Using Local Materials** (Proyektirovaniye i stroitel'stvo vysokikh plotin iz mestnykh materialov za rubezhom)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, Nr 8, pp 48-53 (USSR)

ABSTRACT: The author compares all important foreign dams which were built since 1940 from local materials with those in the USSR. He finds that in the USSR the cost is still too high and that concrete dams are less expensive.
There are 2 tables, 6 figures and 9 references, 1 of which is Soviet 1 German and 7 English.

1. Dams--Construction 2. Dams--Materials 3. Dams--Costs

Card 1/1

NICHIPOROVICH, A.A., prof., doktor tekhn.nauk

"Engineering report on the construction of the Volga-Don Navigable Canal, the Tsimlyansk Hydro Project, and the Volga-Don irrigation structures; vol. 1" edited by S. IA. Zhuk, M.M. Grishin. Reviewed by A.A. Nichiporovich. Rech.transp. 17 no.10:55-56 O '58. (MIRA 11:12)

(Volga-Don Canal) (Tsimlyansk Hydroelectric Power Station)
(Zhuk, S. IA.) (Grishin, M.M.)

SOV/98-59-1-4/14

AUTHOR: Nichiporovich, A.A., Doctor of Technical Sciences, Professor, and Ryleyev, V.I., Engineer

TITLE: The Results of Actual Observations of Filtration in the Foundation of a Row of Water-Buttressing Structures (Resul'taty naturnykh nablyudeniy za fil'tratsiyey v osnovanii ryada vodopodpornykh sooruzheniy)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 1, pp 30-36 (USSR)

ABSTRACT: The authors compare the results of actual observations of filtration in the foundations of eight water-buttressing structures with the results of theoretical and experimental research previously done on models of these structures. As all natural conditions could not be taken into consideration when tests on models were made, theoretical data often considerably differed from data obtained by actual observations. According to the

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The Results of Actual Observation of Filtration in the Foundation of a Row of Water-Buttressing Structures

geological conditions, these eight structures were divided into three groups, and results of actual observations were given for each group and compared with the theoretically-obtained data. Engineers V.V. Burenkov and N.V. Yudin collaborated in the preparation and the analysis of the data described in detail in this article. There are eight profiles and one table.

Card 2, 2

NICHIPOROVICH, A.A., prof., doktor tekhn. nauk; ISTOMINA, V.S., doktor tekhn. nauk; TITOVA, V.I., kand. tekhn. nauk; BORSHCHEVSKAYA, N.M., red.izd-va; GILENSON, P.G., tekhn. red.

[Instructions for planning the underground contour of hydraulic structures not on rock foundations, and subject to water pressure] Ukazaniia po proektirovaniiu podzemnogo kontura vodopodpornykh sooruzhenii na neskal'nykh osnovaniiakh. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1960. 98 p. (MIRA 14:6)

(Hydraulic structures) (Seepage)

NICHIPOROVICH, A.A., prof., doktor tekhn.nauk

Dams built of local materials. Gidr.stroi. 30 no.8:46-53 Ag '60. (MIRA 13:8)

(Dams)

NICHIPOROVICH, A.A., prof., doktor tekhn. nauk; TSYBUL'NIK, T.I., nauchnyy sotr.; SHERSHUKOVA, M.A., red. izd-va; RUDAKOVA, N.I., tekhn. red.

[Forecasting the settling of hydraulic structures on cohesive soils] Prognoz osadok gidrotekhnicheskikh sooruzhenii na sviaznykh gruntakh. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 178 p. (MIRA 14:9)
(Foundations) (Hydraulic structures)

NICHIPOROVICH, A.A., doktor tekhn.nauk, prof.

Seventh International Congress on Large Dams; seepage control arrangements of earth and dumped rockfill dams made of bitumen and other materials. Gidr. stroi. 32 no.2:55-60 F '62. (Dams)

NOVIKOV, I.T.; NEPOROZHNIY, P.S.; GINZBURG, S.Z.; BELYAKOV, A.A.; ERISTOV, V.S.; VOZNESENSKIY, A.N.; IVANTSOV, N.M.; BOROVOY, A.A.; TERMAN, I.A.; ALEKSANDROV, B.K.; YURINOV, D.M.; NOSOV, R.P.; MIKHAYLOV, A.V.; NICHIPOROVICH, A.A.; ABELEV, A.S.; PROSKURYAKOV, B.V.; MENKEL', M.F.; KRITSKIY, S.N.; BELYY, L.D.

Mikhail Evgen'evich Knorre. Gidr. stroi. 32 no.5: My '62. (MIRA 15:5)
(Knorre, Mikhail Evgen'evich, 1876-1962)

NICHIPOROVICH, A.A., doktor tekhn.nauk, prof.; TSYBUL'NIK, T.I.

Determining pore pressure in slightly permeable soils in the body of a dam during the process of their consolidation. Trudy Lab. gidr.soorujh.VODGEO no. 4:5-37 '63. (MIRA 17:6)

NICHIPOROVICH, A. A.

"Deformation and stability of rockfill dams."

report presented at the Gen'l Exec Mtg 4 Int. Intl Conf, Intl Comm. on Large Dams, Edinburgh, 4-7 May 64.

[illegible], Ye.I., kand. tekhn.nauk, [illegible]; [illegible], doktor tekhn.nauk, [illegible], red.

[Construction specifications and [illegible]] [illegible]tel'nye normy i pravila. [illegible], Gos[illegible]. [illegible] Sec.I. [illegible] 58 p. ch.4.[illegible] specifications for design[illegible] [illegible] ([illegible]). [illegible] for design[illegible] [illegible] normy proektirova-niia ([illegible]). [illegible] specifications for design[illegible] [illegible] proektirovaniia ([illegible]). [illegible]

1. Russia [illegible] komitet [illegible] stroitel'stva. [illegible] 3. Vsesoiuzny nauchno-issledovatel'skiy institut [illegible], [illegible]zatsii, [illegible] i inzhenernoy [illegible]geologii [illegible] stroitel'stva i arkhitektury [illegible] (for Nichiporovich).

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136830(

MICHIPOROVICH, A.A.

Deformations of dams constructed of large-rubble materials. Trudy VODGEO no. 11:1-10 '65 (MIRA 19:1)

SOV/137-57-10-19154

Translation from Referativnyy zhurnal Metallurgiya 1957 Nr 10, p 102 USSR

AUTHORS Dovnar S A, Nichiporovich F V, Yushkov A V

TITLE On the Thermal Conductivity of Die Lubricants (K voprosu o termicheskoy provodimosti shtampovykh smazok)

PERIODICAL Sb nauchn tr Fiz-tekhn in-t AN BSSR 1956 Nr 3 pp 137-144

ABSTRACT A description of a laboratory installation provided for the experiments to investigate heat exchange upon contact between a heading tool and the specimen with various types of lubricants. Heat exchange was judged by the change in the temperature of a Cu heading tool in the upsetting of specimens of C... heated to 780° and 920°C. Various thicknesses of lubricant borax, NaCl, water glass and mica were applied to the specimen before heating and heavy oil before deformation. Mica displayed the least heat exchange with NaCl and borax following in order. The thermal properties of the lubricant depend to a considerable degree upon its physicochemical properties. The amount of heat going into the heading tool at a specimen temperature of 920° is less than at 780°. This is explained

Card 1/2

SOV/137-57-10-19154

On the Thermal Conductivity of Die Lubricants

by the reduction of the air pressure required for metal flow as temperature rises

M I -

Card 2/2

Nichiporovich, F. V.

24(0) PHASE I BOOK EXPLOITATION SOV/3371

Minsk. Belorusskiy politicheskiy institut

Sbornik nauchnykh rabot. Vyp. 60: Seriya fiziko-matematicheskaya (Collected Scientific Works. Nr 60: Physics and Mathematics Series) Minsk, 1957. 167. Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Ministerstvo vysshego obrazovaniya SSSR.

Tech. Ed.: S. Kh. Fesina; Editorial Board: N. A. Bessonov, Docent, Candidate of Physical and Mathematical Sciences (Resp. Ed.); N. V. Popova, Docent, Candidate of Physical and Mathematical Sciences; N. V. Afanas'yev, Docent, Candidate of Physical and Mathematical Sciences; and L. I. Chesnokov, Docent, Candidate of Physical and Mathematical Sciences (Resp. Ed. for this Number).

PURPOSE: This book is intended for students of the physical and mathematical sciences.

COVERAGE: This is a collection of 19 articles on mathematics, physics, and theoretical mechanics, prepared by members of the Belorusskiy politekhnicheskiy institut imeni I. V. Stalina (Belorussian Polytechnic Institute imeni I. V. Stalin) and other scientists. The mathematical material includes an analysis of problems relating to the theory of univalent functions of a complex variable, the boundary problem in the theory of vibrations, and a nomogram for the run-off of spring floods. The experimental works include studies of the electroerosion process, crystallisation from melts, abrasive polishing of crystals, stress distribution in the frame of an automobile, and the elastic properties of a body during its plastic deformation. References follow the individual articles.

SOV/137-58-9-19065

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 132 (USSR)

AUTHOR: Nichiporovich, E.V.

TITLE: Selection of Lubricants for Hot Stamping of Metals (K voprosu vybora smazok dlya goryachey ob"yemnoy shtampovki metallov)

PERIODICAL: V sb.: Mashinostroitel' Belorussii. Nr 4. Minsk, 1957, pp 23-28

ABSTRACT: An examination of lubricant (L) selection is made, and recommendations are presented on the method of determining the lubricating properties of salts of various compositions for hot-stamping purposes. The experiments were run on a double-pendulum testing machine. The design of the machine and its manner of function are presented. The quality of the L was determined in terms of the ratio of elastic energy emitted to total energy of blow. It is asserted that the higher this ratio the greater the friction and the poorer the L being tested. The derivation of an equation for calculating the coefficient of restitution is presented, as are the results of experiments with salts of various compositions. It is stated that the use of salts as L is capable of significantly diminishing the coefficient of

Card 1/2

SOV/137-58-9-19065

Selection of Lubricants for Hot Stamping of Metals

restitution and consequently of increasing the energy of plastic deformation. Of the L investigated, the following showed the best properties $CaCl_2$ (75%) + + KCl (25%) and $CaCl_2$ (70%) + NaCl (31%) (sic!!). Use of these compositions is more appropriate than that of table salt. They reduce the coefficient of restitution by 15%; this is very important not only from the point of view of an increase in efficiency, but from that of increasing the life of forging dies as well.

G.F.

1. Metals--Processing 2. Dies--Performance 3. Lubricants--Selection 4. Salts --Applications

Card 2/2

NICHIPOROVICH, F.V.

Elastic behavior of a body in the process of plastic deformation.
Sbor. nauch. rab. Bel. politekh. inst. no.60:147-168 '57.
(MIRA 13:2)

(Elasticity) (Deformations (Mechanics))

DOVNAR, S.A., dotsent, kand.tekhn.nauk; NICHIPOROVICH, F.V., dotsent, kand.tekhn.nauk

Effect of testing temperatures on the dynamic hardness and elasticity of metals. Sbor.nauch.trud.Bel.politekh.inst. no.76:67-73 '59. (MIRA 13:6)
(Metals, Effect of temperature on)

HICHIPOROVICH, G.A.

Sorption leak detector. Prib.i tekh.eksp. no.4:84-87 Jl-Ag '60. (MIRA 13:9)
(Vacuum apparatus--Testing)

ACC NR: AP6034238 (N) SOURCE CODE: UR/0120/66/000/005/0186/0188

AUTHOR: Nichiporovich, G. A.

ORG: none

TITLE: Inverse magnetron vacuum gage for measurement of pressures in the range from $1 \times 10^{-12} \div 1 \times 10^{-4}$ torr

SOURCE: Pribory i tekhnika eksperimenta, no. 5, 1966, 186-188

TOPIC TAGS: vacuum measurement, manometer, pressure measuring instrument, MAGNETRON, CRYOGENIC DEVICE

ABSTRACT: The VIM-1 vacuum gage for use in cryogenic installations is described. The VIM-1 uses one of three (MM-14, MM-14S, or MM-14M) types of manometeric converters which have a cold cylindrical cathode closed at both ends and an axially mounted anode. The free electrons in this inverse magnetron cavity in which the electric and magnetic fields are orthagonal cause the gas to be ionized even when its pressure is as low as 10^{-13}—10^{-14} torr. The gas discharge current is stable when the anode voltage is $U_a > 4$kv and magnetic intensity $H > 1.5$koe. For linear operation U_a should be 6 kv. The MM-14, unlike the other converters does not have a built-in magnetic field and may measure the vacuum only in installations which have $H > 1.5$koe. Pressures in the range of 10^{-12}—10^{-14} torr may be measured directly. If the pressures below 10^{-12} torr are to be measured, an amplifier capable of amplifying currents of the

Card 1/2 UDC: 531.788

ACC NR: AP6034238

order of 10^{-13} amp without excessive noise contribution is required. Orig. art. has: 2 figures.

SUB CODE: 09,20/ SUBM DATE: 02Sep65/ ORIG REF: 001/ OTH REF: 003/

Card 2/2

ACC NR: AP7001953 SOURCE CODE: UR/0120/66/000/006/0150/0154

AUTHOR: Nichiporovich, G. A.

ORG: none

TITLE: Comparative calibration of an ionization magnetron manometer and a magnetic electrodischarge manometer under superhigh vacuum conditions

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1966, 150-154

TOPIC TAGS: manometer, ionization, magnetron, ~~manometer, magnetic electro-discharge manometer~~, vacuum measurement

ABSTRACT: Operation of these three manometers was compared: (A) A hot-cathode ionization magnetron-type manometer developed by J. M. Lafferty (J. Appl. Phys., 1961, 32, no. 3, 424); a Soviet-made version is described in some detail; (B) A Soviet-made cold-cathode MM-14S inverse-magnetron manometer

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UDC: 531.788.7

ACC NR: AP7001953

operating in a constant magnetic field produced by a permanent magnet; anode voltage, 6000 v; (C) A Soviet-made Baillard-Alpert-type IM-12 manometer. All three manometers were compared on a common vacuum system. These results are reported: (1) The discharge-current-vs.-pressure curve of the B-manometer is usable within 10^{-12} —10^{-4} torr; (2) The current-vs.-pressure relation of the A-manometer is linear within 10^{-12}—10^{-6} torr; (3) The lowest pressure measurable by the C-manometer is 2×10^{-10} torr. Orig. art. has: 3 figures, 7 formulas, and 1 table.

SUB CODE: 20 / SUBM DATE: 05Nov65 / ORIG REF: 001 / OTH REF: 006

Card 2/2

KHOLMSKIY, V.G., doktor tekhn. nauk; SHCHERBINA, Yu.V., kand. tekhn. nauk;
NICHIPOROVICH, L.V., inzh.

Selection of optimum design and operational solutions using electronic digital computers and discrete descent techniques. Energ. i elektrotekh. prom. no.2:8-10 Ap-Je '64.

L 22472-66
ACC NR: AP6013610 SOURCE CODE: UR/0143/65/000/008/0007/0014

AUTHOR: Shcherbina, Yu. V. (Candidate of sciences); Michiporovich, L. V. (Engineer)

ORG: Kiev "Order of Lenin" Polytechnic Institute (Kiyevskiy ordena Lenina politekhnicheskiy institut)

TITLE: Bases of algorithmization of calculations of operating conditions of open electrical networks using the "Ural" series computer

SOURCE: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 8, 1965, 7-14

TOPIC TAGS: computer, algorithm, electric network

ABSTRACT: Selecting the "Ural" type computer due to its great suitability for the type of problem at hand (single address instruction system, possibility of usage of half memory locations, flexible re-addressing system), the authors develop the basic positions in an algorithm for calculating operating states in open electric power networks, as developed and tested many times in 1961-64. A typical problem has the net plan, with parameters of loads and voltages assigned at a certain initial point. The distribution of current or power through the sectors of the system, the voltages at all points and the summary power losses must be calculated. Loads are considered to be assigned in current rather than in power. The advantage of the algorithm presented in detail in this article is the great speed of computa-

UDC: 621.316.13:518.5

Card 1/2

L 22472-66

ACC NR: AP6013610

0

tion. A disadvantage is the requirement that points and sectors be numbered in order. The authors are now developing an algorithm without this deficiency. Orig. art. has: 1 figure, 2 formulas, and 1 table. [JPRS]

SUB CODE: 09 / SUBM DATE: 15Jul64 / ORIG REF: 004

Card 2/2 BK

SHCHERBINA, Yu.V., kand. tekhn. nauk; NICHIPOROVICH, L.V., inzh.

Selection of optimal branch cut points in 10(6) kv. networks of large cities using digital computers. Energ. i elektrotekh. prom. no.3:12-14 Jl-S '66. (MIRA 18:9)

L 15528-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3005235 S/0056/63/045/002/0013/0017

AUTHORS: Nichiporuk, B.; Strugal'skiy, Z. S.

TITLE: Investigation of fluctuations of electron-photon showers in xenon

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 13-17

TOPIC TAGS: electron-photon shower, xenon, longitudinal development, shower maximum, bubble chamber, Xe

ABSTRACT: The electron-photon showers produced by gamma quanta resulting from the decay of neutral pions, created in interactions between 9-Bev/c negative pions and xenon nuclei, were investigated in a 30-liter xenon bubble chamber, with an aim at tracing in detail the development of the shower over its entire depth and at studying the fluctuations in the longitudinal development of the shower. The average total shower energy was 4 BeV. The procedure was based on an experimental determination of the variation of the average number of the electrons and photons and their mean-square fluctuations due to the gamma quanta with the depth of the shower. The experimental results agreed well with the cascade curve calculated for the xenon. The position of the maxima of the shower

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L 15528-63

ACCESSION NR: AP3005235

2

development fluctuate between 4 and 7 radiation lengths (3.8 cm for xenon) with an average of 5 radiation lengths. The fluctuations in showers with total energy 4 BeV are minimal in xenon near the maximum of shower development. "The authors are grateful to I. M. Gramenitskiy for discussions."
Orig. art. has: 1 figure and 2 tables.

ASSOCIATION: Ob"yedinennyy institut yaderny"kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 07Jan63 DATE ACQ: 06Sep63 ENCL: 002

SUB CODE: PH NO REF SOV: 006 OTHER: 022

Card 2/42

GORDEYEV, G.S., prof.; YAKUSHKIN, D.I.. Prinimali uchastiye: GORSKAYA, N.V.; GRANOVSKAYA, A.Ye.; YEVSTIGNEYEVA, Yu.G.; KRYLOV, M.V.; LEYKIN, D.I.; MAKHOVETSKIY, V.B.; MEYENDORF, A.L.; NAZARENKO, V.I.; NICHIPOREK, O.K.; PAVLOV, L.I.; RUMYANTSEVA, N.V.; SOSENSKIY, I.I.; CHERNEVSKIY, Yu.V.. TULUPNIKOV, A.I., red.; SOLOV'YEV, A.V., prof., red.; RAKITINA, Ye.D., red.; ZUBRILINA, Z.P., tekhn.red.

[Agriculture in capitalist countries; a statistical manual] Sel'skoe khoziaistvo kapitalisticheskikh stran; statisitcheskii sbornik. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958. 247 p. (MIRA 12:5)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki sel'skogo khozyaystva. 2. Otdel nauchnoy informatsii po ekonomike i organizatsii sel'skogo khozyaystva zarubezhnykh stran Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for all except Tulupnikov, Solov'yev, Rakitina, Zubrilina). 3. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Tulupnikov). 4. Zamestitel' direktora Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Solov'yev).
(Agriculture--Statistics)

NICHIPORUK, V.A.

Some indications of protein metabolism following peroral use of massive doses of BCG vaccine in young school children. Pat., klin.i terap.tub. no.8:36-38 '58. (MIRA 13:7)

1. Iz L'vovskogo nauchno-issledovatel'skogo instituta tuberkuleza (direktor - G.I. Chemeris, nauchnyy rukovoditel' - prof. I.T. Stukalo).
(PROTEIN METABOLISM) (BCG VACCINATION)

PETROSYAN, L.G.; KOZINA, Z.I.; GUZANOVA, I.G.; NICHIPORUK, V.A.

Methodology of determining the permeability of oil-bearing formations from electric logging data. Prikl. geofiz. no.33:169-175 '62. (MIRA 15:10)

(Oil well logging, Electric)
(Oil sands--Permeability)

MICHIPURENKO, S.P.; DIROVA, S.A.

On the presence of the maximum ultimate Newtonian viscosity in ceramic masses [with summaries in Russian and English]. Dop. AN URSR no.3:290-292 '57. (MLRA 10:4)

1. Institut budivel'nikh materialiv Akademii arkhitekturi i budivnitstva URSR. Predstavleno akademikom Akademii nauk USSR A.V.Dumanskim.

(Ceramics)

1ST AND 2ND GROUPS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH GROUPS

The pharmacodynamics of magnesium sulfate. VIII.
The effect of intravenous injections of magnesium sulfate
on dogs. A clinical study. G. Nichita and I. Pahomeanu
Mesaros (Univ. Bucharest, Roumania). *Bull. soc. med.*
Roumania **17**, 93-104 (1935) (in French). $MgSO_4$ (40%
soln.) can be administered intravenously to dogs in thera-
peutic doses of 0.05 to 0.15 g. per kg. of body wt. In this
quantity the dose can be repeated once or twice within
short intervals and causes transient changes in the body
functions. The dose of 0.2 to 0.25 g. can be repeated only
once during the day with an interval of at least 1 hr., and
it has an analgesic and anesthetic effect on the animal.
Doses in excess of 0.25 g. cause respiratory failure and
death through asphyxia. **IX. The action of magnesium**
sulfate on the salivary, biliary, and renal secretions of the
dog. G. Nichita and M. Stanescu. *Ibid.* 116-25.
Intravenous injections of $MgSO_4$ inhibit the activity of the
salivary glands in dogs. The normal salivary secretions

are completely suppressed by even the smallest doses of
$MgSO_4$, and the secretion stimulated by injection of pilo-
carpine is considerably decreased. The secretion of bile is
also inhibited in proportion to the amt. of $MgSO_4$ adminis-
tered, but unlike the effect of pilocarpine, no choleretic or
cholecystokinetic effects result from the application of
$MgSO_4$. The increase in urinary vol. presumably is due to
cardiovascular changes brought about by $MgSO_4$, and
injections of pilocarpine counteracted the diuresis. Ad-
ministration of $CaCl_2$ following injection of $MgSO_4$ does not
modify the effect on the salivary and bile secretions; it
does, however, augment the diuresis. The injection of
$CaCl_2$ at the moment of appearance of respiratory failure
(sometimes followed by cardiac failure) revives the heart
and respiratory functions. Injections of $MgSO_4$ produce
a discrepancy between the thoracic and abdominal respira-
tion, since, while the thoracic respiration is decreased, the
abdominal respiration is increased by the strong contrac-
tions of the diaphragm. **X. The effect of intravenous**
injections of magnesium sulfate on dogs. A graphic study.
G. Nichita, I. Popesco, and I. Pahomeanu Mesaros. *Ibid.*
126-32. Intravenous injections of $MgSO_4$ have the same
pharmacodynamic effect on dogs anesthetized with chlora-
lose as on nonanesthetized animals, except for the decreased
resistance of the first group to the doses of $MgSO_4$. The
$MgSO_4$ causes the following effects: acceleration of the

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136830(

NICHITA, C., cand. in st. tehnica; SCHOBEL, K., ing.

Chopper for roots used in poultry and swine breeding
Mec electrif agric 8 no.5:23-26 S-O '63.

1. Research Institute for Mechanization of Agriculture.

NICHITA, T.

Contributions to the study of respiratory changes in eggs of chicken and ducks.

p. 675
Vol. 6, no. 5, May 1956
COMUNICARILE
Bucuresti

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 12
December 1956

RUMANIA/Human and Animal Physiology. Metabolism.

Abs Jour: Ref Zhur-Biol., No 6, 1958, 26734.

Author : G. Nichita, I.R. Dan and M. Popescu-Baran.
Inst :
Title : The Preparation and Utilization of Nutritive Yeast.

Orig Pub: Bul. stiint. Acad. RPR. Sec. biol. şi ştiinţe agric., 1956, 8, No 3, 685-696.

Abstract: Technical improvements are described for the process of growing the nutritive yeast Torula utilis on hydrolysate of wheat chaff. It was established on a group of young pigs that the proteins of nutritive yeast (imported) produce a greater effect on growth and fattening of the animals than do the proteins of cereals and agricultural waste, as well as proteins of animal derivation. When 5 grams of nutritive

Card : 1/2

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NICHITA, Ch.

RUMANIA / Farm Animals. Small Horned Stock. C-2

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105678.

Author : Nichita, Ch.
Inst : Not given.
Title : Contribution to the Study of Normal and Pathologic Energy Metabolism in Gray Lambs Obtained from Crossing of the Karakul x Tsurkan Breeds.

Orig Pub: Probl. zootehn. si veterin., 1957, No 7, 15-25.

Abstract: Energy metabolism at rest in grey albinoid lambs with a chronic digestive disorder and in the last period of their life was 14% lower than the control metabolism. Energy metabolism at rest in grey yearling ewes, with normal pigmentation, affected with acute gastroenteritis, decreases during the course of disease by 40% as compared with the control.

NICHITA, G.; HAIMOVICI, Niculina

Comparative studies of basal metabolism in white rats and hamsters (Cricetus). Studii cerc biol anim 14 no.1:7-16 '62.

1. Comunicare prezentata de V. Ghetie, membru corespondent al Academiei R.P.R., si membru al Comitetului de redactie, "Studii si cercetari de biologie; Seria biologie animala."

NICHITA, G.; BURLACU, G.

Specific dynamic action of food metabolites. Experimental studies on birds. Studii cerc biol anim 14 no.4:495-506 '62.

1. Comunicare prezentata de V. Ghetie, membru corespondent al Academiei R.P.R. si membru al Comitetului de redactie, "Studii si cercetari de biologie, Seria biologie animala".

DAVID, Boris, ing.; NICHITA, Irina, fiz.

Application of spectral analysis of emission in geochemical prospecting. Rev min 14 no.8:370-373 Ag '63.

Rumania /Chemical Technology. Chemical Products and Their Application I-6

Mineral salts. Oxides. Acids. Bases.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 33234

Author : Braniste C., Nichita Orest, Sertan Silvia

Inst : Jassy Polytechnic Institute

Title : Utilization of Byproduct Sodium Sulfate, Formed in the Manufacture of Sodium Bichromate, for the Production of Sodium Silicate

Orig Pub: Bul. Stiint. Politehn. Iasi, 1955, 1, No 1-2, 79-88

Abstract: Study of the conditions of the production of Na_2SiO_3 from Na_2SO_4, which is a byproduct of manufacture of $Na_2Cr_2O_7$. Experiments on

Card 1/2

Rumania /Chemical Technology. Chemical Products and Their Application I-6
Mineral salts. Oxides. Acids. Bases.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 13234

determination of optimal composition of mixture for fusion at 1200 , have shown that the best composition is (in parts by weight): sand 100, Na_2SO_4 75, charcoal 0.8 and Na_2CO_3 3.7%; duration of fusion 2 hours. The product thus obtained is a semi-transparent substance of bluish shade, which is a mixture of $SiO_2.2Na_2O$ and $2SiO_2.Na_2O$; the product differs little from Na_2SiO_3 that is obtained from Na_2CO_3. Dissolution of the product is effected in an autoclave at a pressure of 5-6 atmospheres.

Card 2/2

RUMANIA/Chemical Technology. Chemical Products and Their Application. H-13
Ceramics. Glass. Binders. Concrete.

Abs Jour: Referat Zhur-Khimiya, No 5, 1958, 15362.

Author : Chelarescu Al., Nichita O., Mihul An., Paunel E.
Inst : Rumanian Academy
Title : Study of Tuffs to the South-East of the Town of Bacau (Rumania) Part I.

Orig Pub: Studii si cercetari stiint. Acad. RPR Fil. Iasi Fiz. si stiinte tehn., 1956, 7, No 2, 53-73

Abstract: The investigated tuffs can be utilized as agglomerate for light concrete.

Card : 1/1

COUNTRY : Rumania
CATEGORY :

ABS. JOUR. : [illegible]

AUTHOR : [illegible]

TITLE : A Method for the Determination of the Composition of Large-Pore Concretes. I, II.

ORIG. PUB. : Bul Inst Politehn Iasi, 3, No 3-4, 271-280 (1957)

ABSTRACT : [illegible] four laboratory studies undertaken for the purpose of determining the effect of various factors on the thickness of the film of hydrated cement surrounding the particles of aggregate are given. The data obtained permit a calculation of the optimum cement/water ratio for a given grade of large-pore concrete.

Ya. Natlis

CARD: 1/1

* A., Paunel, E., Dinu, V., Tudoran, A., Dumitrescu, I., Ciubotaru, V., and Orlovschi, N.

RUMANIA/Cosmochemistry. Geochemistry. Hydrochemistry.

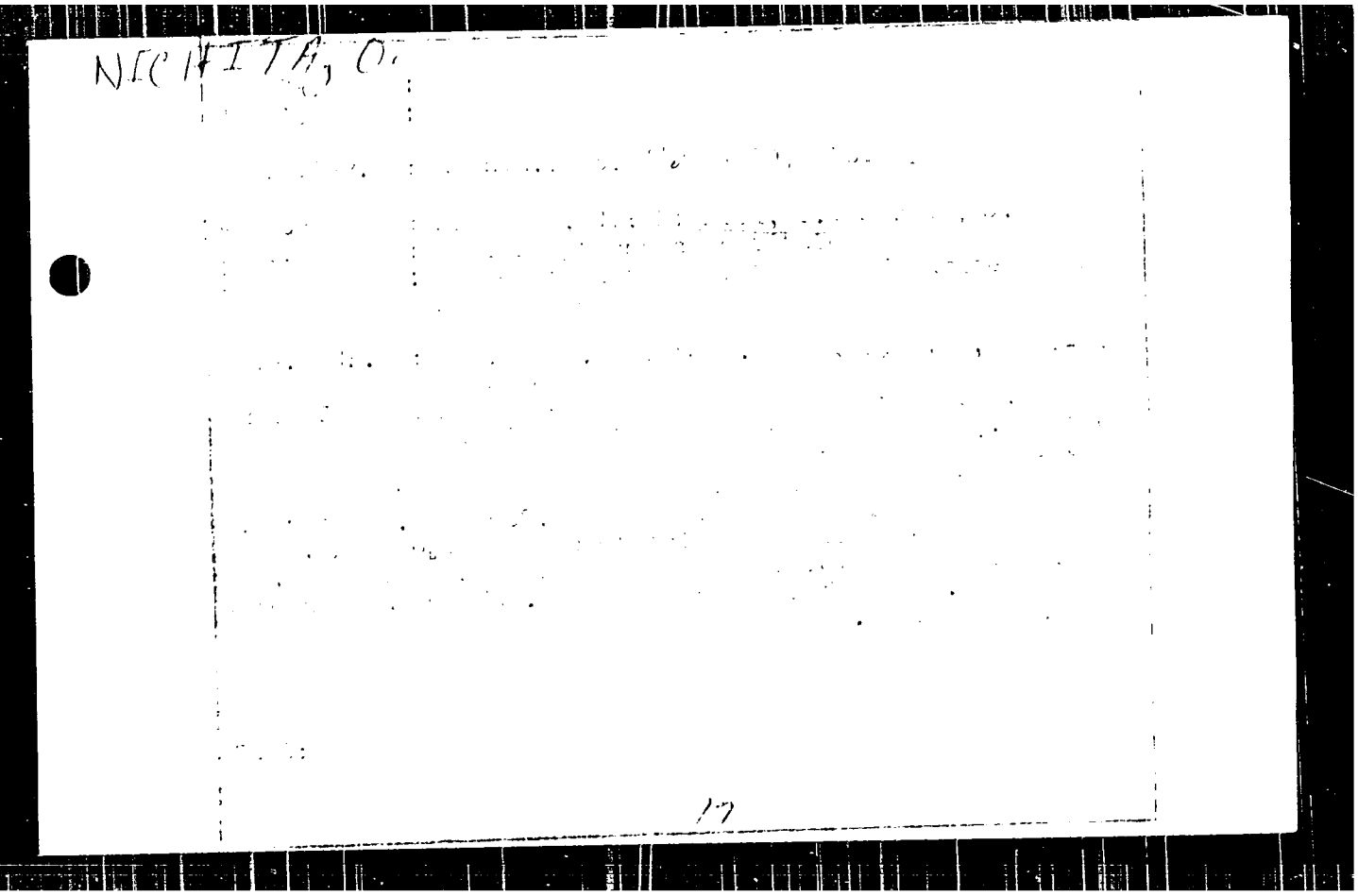
Abs Jour: Ref Zhur-Khim., No 24, 1958, 81076.

Author : Savul M., Ababi V., Nichita O.
Inst :
Title : Zink, Lead, and Copper - Dispersed Elements in the Volcanic Deposits of the Calimani Mountains (RNR)

Orig Pub: Acad RPR Fil. Iasi. Chim., (1957), 7, No 2, 89-116.

Abstract: Based on the published and experimental data (including previous investigations of the author) the distribution of Zn, Pb, and Cu present in various deposits and minerals was studied. In the 23 mineral samples, an average content (in %) was: Zn-6.62 x 10^{-3}, Pb - 2.66 x 10^{-3}, Cu - 4.46 x 10^{-3}. The limits of variation (in %, basis

Card : 1/2



CALINICENCO, N.; NICHITA, O.; VISCRIAN, I.; TIBU, Margareta; ANTONESCU, V.

Contributions to the study and measurement of the radioactivity of certain rocks. Studii fiz tehn Iasi 10 no.1:67-72 '59 (EEAI 9:3)

1. Filiala Iasi a Academiei Republicii Populare Romine.
(Rocks) (Radioactive substances)

CHELARESCU, Al., prof.; NICHITA, O.; PAUNEL, Elisabeta; TUDORAS, A.

Study of the oolitic limestones of Scheia, in the region of Iasi. Studii fiz tehn Iasi 11 no.1:51-58 '60. (EEAI 10:3)

1. Comitetul de redactie, Studii si cercetari stiintifice, Fizica si stiinte tehnice, Membru (for Chelarescu).
(Rumania--Oolite)

NICHITA, O.; BOIEZ, Cornelia

Utilization of the clay merl schist from the Baia-Mare region as a local agricultural fertilizer. Studii fiz tehn Iasi 11 no.1:149-153 '60. (EEAI 10:3)

(Rumania--Fertilizers and manures)
(Schists) (Clay) (Marl)

CHELARESCU, Al, prof.; NICHITA, O.; MIHUL, A.; PAUNEL, E.; BIGU, Ch.

Deposit of the white sand in the Miorcan-Hudesti area, a source of raw materials for the fine glass. Studii fiz tehn Iasi 12 no.1:67-77 '61.

1. Membru al Comitetului de redactie, Studii si cercetari stiintifice, Fizica si stiinte tehnice (for Chelarescu)

PAUNEL, Elis; CHELARESCU, Al., prof.; NICHITA, Orest; COTRUT, Gh.; MIHUL, Anatolie; BOGHIAN, Ariadna

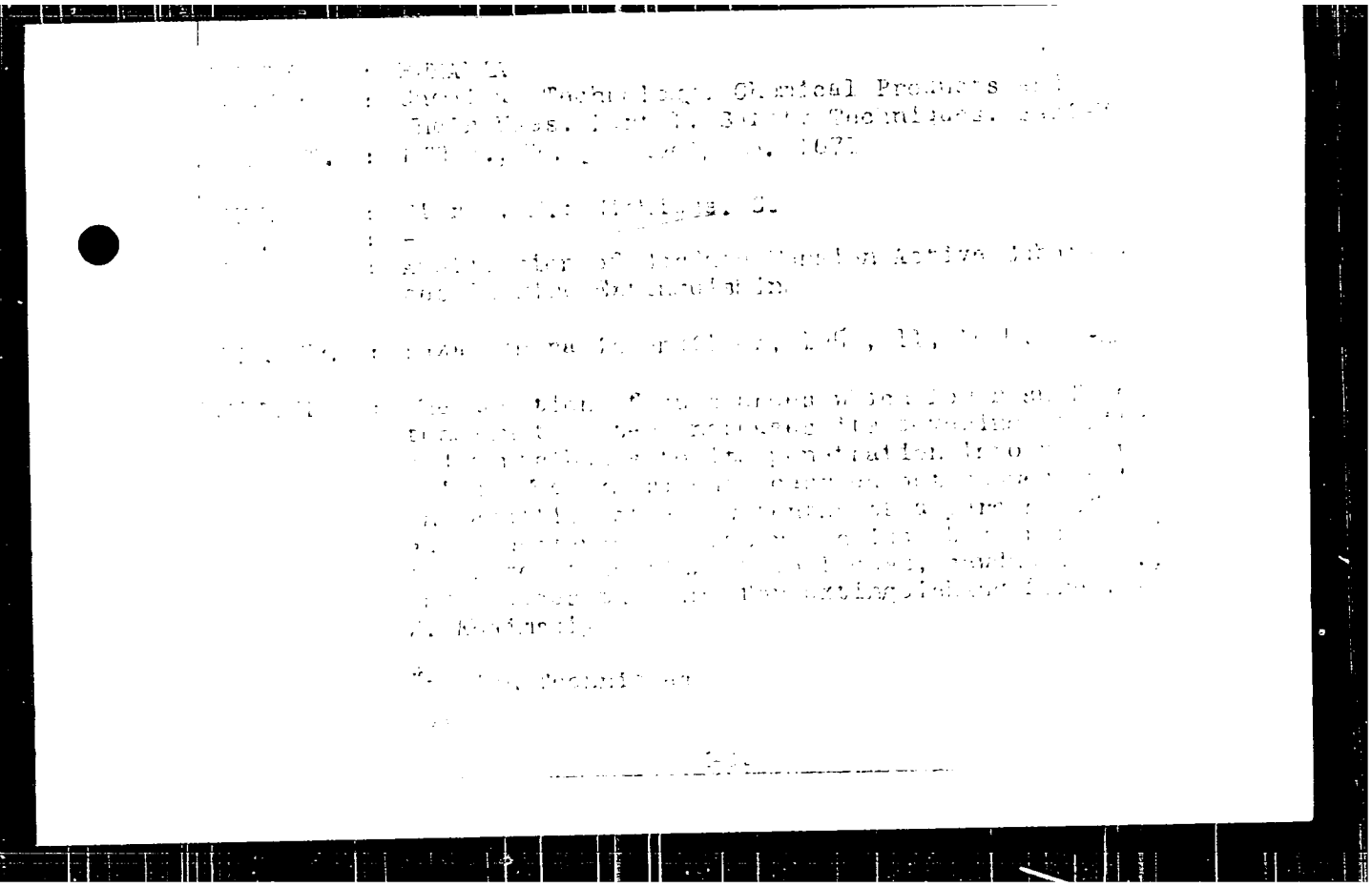
Studies on the limestones of the Ripiceni-Prut region as building material. Studii fiz tehn Iasi 12 no.2:267-282 '61.

1. Membru al Comitetului de redactie, "Studii si cercetari stiintifice, Fizica si stiinte tehnice" -Filiala Iasi- (for Chelarescu).

NICHITIN, I.

"New ideas in silviculture in the light of Michurinist agrobiology." p22
Analele Romano-Sovietice. Seria Silvicultura-Industrial Lemnului Si A Hartieli.
Series a II-a, v. 7, no. 16, Nov/Dec 1952, Bucresti.)

SO: Monthly List of ~~Russian~~ EAST EUROPEAN Accessions, Library of Congress, September 1953, Uncl.



NICHITUS, Gh.

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Obtaining cellulose in high yield. V. Diaconescu, Emanuel Poppel, Gh. Nichitus, Etus Weiss, Elena Calisiu, Dorel Feldman, [redacted], Asandei, Gh. Rozmarin, and Cristofor Simionescu. *Bul. inst. politeh. Iași* [N.S.] 4, 213-20(1958).—High yields of cellulose (up to 65%) are obtained by digesting 6400 kg. wood with NaOH (670 kg.), and 70 kg. Na_2S, so that the total alky. is 16.2% (on the wood basis). The so-called active alky. is 11.87%. The digestion required 2 hours and 10 min. at max. pressure, maintaining this for another 10 min., degassing for 5 min., and then washing for 6 hrs. The pulp contained 77.57% cellulose, 14.16% lignin, 6.30% pentosans, and 76.09% α-cellulose. Mella Paschit-Horowitz

NICHKEVICH, O.N., kandidat fiziko-matematicheskikh nauk

"Method of determining evaporation in irrigated lands." Meteor. i gidrol. no.2:55-57 F '52. (MLRA 8:9)
(Evaporation) (Preobrazhenskii, T.N.)

LAKHNO, Ye.S., kand.med.nauk; NICHKEVICH, O.N., kand.geograficheskikh nauk; SVERCHKOV, A.N., inzh.

Air ionization in Kiev and its environment. Gig. i san. 25 no.3: 99-100 Mr '60. (MIRA 14:5)

1. Iz Ukrainskogo nauchno-issledovatel'skogo instituta kommunal'noy gigiyeny.
(KIEV—AIR, IONIZED)

NICHKEVICH, S.N.; BLAGOVESHCHENSKIY, P.P.

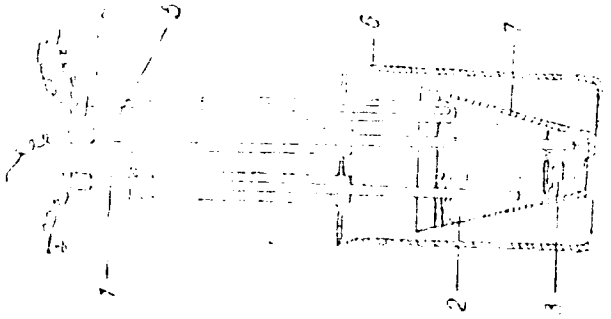
Work of the Rostov, Yaroslavl Province Hydrometeorological Station.
Meteor. i gidrol. no.4:41-44 Ap '57. (MLRA 10:5)
(Rostov (Yaroslavl Province)--Meteorological observatories)

AUTHOR:

TITLE:

PERIODICAL:

ABSTRACT:



[illegible]

Mr. [illegible]: (1) anode; (2) electrolyte; (3) [illegible]; ( ) thermocouple; (5) molybdenum lead to [illegible]; ( ) porcelain container; (7) aluminum shield.

Tests showed that for better Zr diffusion it was important to break up the oxide films, formed on zirconium, by cathoding. Yields are shown in Table A.

[illegible]

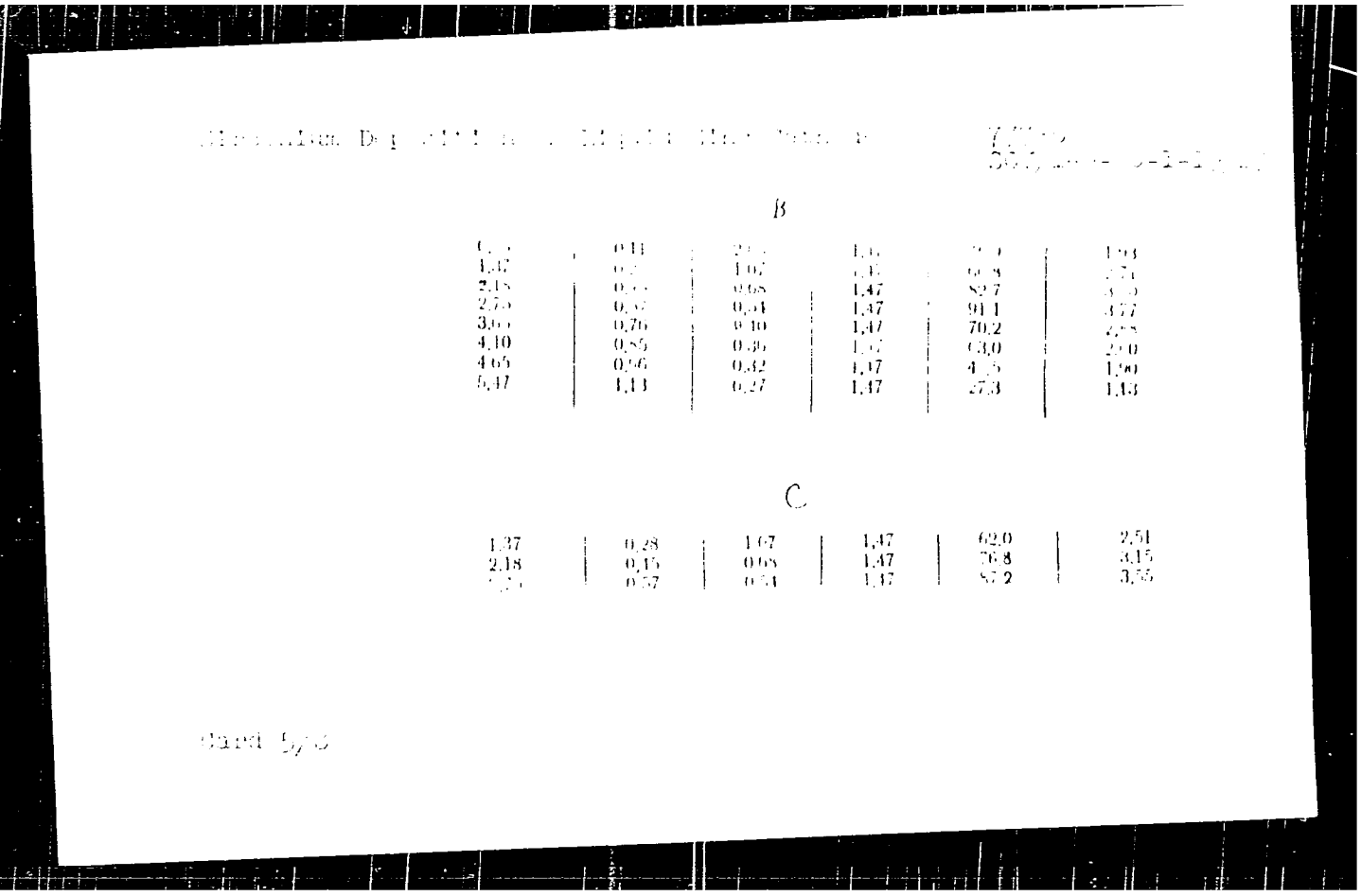
[illegible] Deposition on [illegible] Cathode

77730
SOV [illegible]

Table A. Results of experimental electrolysis. (1) Electric current, a; (2) cathode current density, a/cm²; (3) duration of electrolysis, hr; (4) current quantity a/hr; (5) yield with reference to current, %; (6) Zr content in alloy, %. (A) In closed electrolyzers without stirring; (B) In closed electrolyzers with stirring (60 rpm); (C) In open electrolyzers with stirring (60 rpm).

(1)	(2)	(3)	(4)	(5)	(6)
A					
0 [illegible]	0 11	2[illegible]	1 47	30 6	1 [illegible]
1 17	0,[illegible]	1[illegible]	1 47	[illegible]9 6	1,[illegible]
2,71	0 [illegible]7	0 [illegible]4	1 10	17 [illegible]	1 98
4,20	0,[illegible]7	0,3[illegible]	1 47	3[illegible]	1,18

Card 4/8



B

[illegible]	0,11	[illegible]	1,47	[illegible]	1,93
1,47	0,2	1,07	1,47	62,8	2,71
2,15	0,[illegible]	0,68	1,47	82,7	[illegible]
2,75	0,[illegible]	0,64	1,47	91,1	3,77
3,60	0,76	0,40	1,47	70,2	2,58
4,10	0,85	0,36	1,47	63,0	2,10
4,65	0,96	0,42	1,47	41,5	1,90
5,47	1,13	0,27	1,47	27,3	1,13

C

1,37	0,28	1,07	1,47	62,0	2,51
2,18	0,35	0,68	1,47	76,8	3,15
[illegible]	0,57	0,34	1,47	87,2	3,55

[illegible]

Zirconium Deposition on Liquid Zinc Cathode

77730
SOV/14[illegible]-1-19[illegible]7

Polarization of liquid cathode was measured by means of a reference lead cathode and a loop oscillograph. The data are given in Fig. 2.

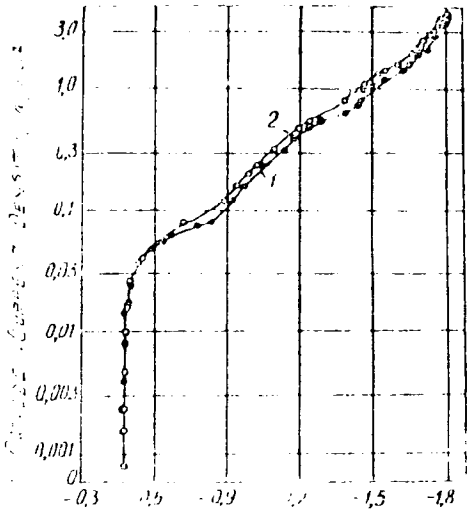


Fig. 2. Polarization of liquid zinc cathode in a fused mixture of KCl and NaCl + 15% (1) and 20% (2) potassium fluorozirconate.

Card 6/8

Zirconium Deposition on Liquid Zinc Cathode

777[illegible]
SOV/149-60-1-19/27

At low current densities a discharge of Zn ions takes place. With increasing current densities Zr deposition in the form of intermetallic compound begins. An accumulation of Zr in the upper layers of the cathode causes considerable polarization. A further increase in current density causes a discharge of Zr^{4+} ions into metallic zirconium. Phase analysis of Zn-Zr alloys. Microphotography of slides disclosed two phases: Zn, hardness 44.9 kg/mm^2, and light-colored grains, hardness 229.4 kg/mm^2 (considerably higher than that of Zr), which are of an intermetallic compound $ZrZn_{12}$. This was confirmed by radiograms. In their conclusions the authors recommend the following optimal conditions for electrolytic separation of zirconium: temperature 700°, cathode current density 0.[illegible] a/cm^2 with continuous stirring, permitting [illegible]0% current yield for extraction into an alloy. There are 3 figures; 1 table; and 2[illegible] references, 2[illegible] Soviet,

Card 7/8

Zirconium Deposition on Liquid Zinc Cathode 77730
SOV/[illegible]

2 German, 1 U.K. The U.K. reference is: British Patent [illegible] (S.A. 46, [illegible] y).

ASSOCIATION: Ural Polytechnic Institute Ural'skiy politekhnicheskiy institut)

SUBMITTED: June 11, 1959

Card [illegible]

NICHKOV, I.F.; SKIBA, O.V.; RASPOPIN, S.P.

Electrolytic dissolving of zirconium oxide-carbon anodes in chloride melts. Izv. vys. ucheb. zav.; tsvet. met. 3 no.3:115-119 '60. (MIRA 14:3)

1. Ural'skiy politekhnicheskiy institut.
(Zirconium—Electrometallurgy)
(Chemistry, Metallurgic)

S/080/60/033/009/015/021
A003/A001

AUTHORS: Nichkov, I.F., Raspopin, S.P., Bazhkov, Yu.V.

TITLE: The Interaction of Uranium-Containing Melts of Halide Salts With Bismuth

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 9, pp. 2176-2179

TEXT: The interaction of bismuth metal with uranium-containing melts of potassium, sodium, lithium and calcium chlorides was investigated. In the experiments recrystallized dehydrated chemically pure salts were used. The experiments were carried out in atmospheres of air and purified argon to ascertain the effect of moisture and oxygen. A sharp decrease of the uranium concentration to a certain very low level was observed in the melt in all cases. The difference of experiments conducted with the air and the argon atmosphere was not considerable. The final concentration did not depend on the initial concentration. The interaction of bismuth with uranium-containing binary systems was studied on 2-g batches of a mixture containing 25 weight % of uranium tetrachloride. The total amount of uranium passed from the melt into a crystalline precipitate of black color on the bismuth surface. The chemical analysis of the

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A003/A001

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precipitate has shown that it contains (weight %): uranium 41.6-77.3, bismuth 2.5-8.5, alkali metal 2-16. Roentgen-phase analysis pointed to the formation of a compound. In the case of the interaction of $KCl-UCl_4$ with bismuth probably the compounds $xKCl \cdot yBiCl_3 \cdot zUCl_3$ were obtained. The data of the analyses make it probable that the following reaction takes place: $3U^{4+} + Bi \rightarrow 3U^{3+} + Bi^{3+}$. There are 3 figures, 1 table and 18 references: 15 Soviet, 3 English.

SUBMITTED: March 14, 1960

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S/020/60/133/03/031/065
B004/B011

AUTHORS: Smirnov, M. V., Mikhkov, I. F., Raspopin, S. P., Perfil'yev, N. V.

TITLE: Investigation of the Thermodynamics of the Reaction $UO_2(s) + \frac{1}{2}C(gr) + Cl_2(g) = UOCl_2(s) + \frac{1}{2}CO_2(g)$ by Means of the Method of Electromotive Forces

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 133, Nr 3, pp 601-604 (USSR)

ABSTRACT: It had been stated in earlier papers (Refs 1-3) that electrodes pressed from metal oxides and carbon are reversible with respect to the corresponding cation in chloride melts. This allows their utilization for investigating the thermodynamic processes and some reactions by measuring the emf. The authors had found in reference 1 that $ThOCl_2$ in melts of chlorides or chlorides and fluorides are practically insoluble. They accepted this for $UOCl_2$ as well and investigated the reaction between uranium dioxide carbon electrodes and melts of alkali chlorides containing UCl_4. By measuring the temperature de-

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Investigation of the Thermodynamics of the Reaction $UO_2(s) + \frac{1}{2}C(gr) + Cl_2(g) = UOCl_2(s) + \frac{1}{2}CO_2(g)$ by Means of the Method of Electromotive Forces

pendence of the emf in elements of type $UO_2 + C + UOCl_2$ | melt NaCl + KCl + UCl_4 | Cl_2, C, the change ΔZ of the isobaric potential of the reaction mentioned in the title was determined. The production of the uranium dioxide and carbon electrodes pressed with 4000 kp/cm² is described. The molar ratio UO_2 : C was varied between 1 : 1.6 and 1 : 200. The electrolyte was either a eutectic mixture of LiCl + KCl or an equimolar mixture of NaCl + KCl. The UCl_4 dissolved in this melt was purified by a repeated distillation in vacuum. A lead standard electrode was used. The electrolytic cell (Fig 1) was situated in a metal block which was heated by an automatically controlled electrical resistor furnace. The emf ε between the dioxide-C electrode and the lead electrode was measured until a constant equilibrium value appeared. This depended solely on the temperature, at which the experiment was made; however, it

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occurred the earlier, the higher the temperature and the UCl_4 content in the melt, the electrode is destroyed. With high UCl_4 content in the melt (Fig 2). The appearance of the equilibrium potential corresponds to the reaction $UO_2(s) + UCl_4(melt) \rightleftharpoons 2UOCl_2(s)$. Experimental data are on the straight line $\mathcal{E} = (0.713 + 4.6 \cdot 10^{-4}T)v$ (Fig 3). Herefrom, the authors calculated for the reaction $UO_2(s) + \frac{1}{2}C(gr) + Cl_2(g) = UOCl_2(s) + \frac{1}{2}CO_2(g)$

$\Delta Z = (-32900 - 4.2T)$ cal/mol $UOCl_2$, and the heat effect
$\Delta H = -32.9$ kcal/mol $UOCl_2$ as well as the entropy
$\Delta S = 2.2$ cal/degree.mol $UOCl_2$. The formation heat and the entropy of the $UOCl_2$ were calculated on the strength of the thermodynamic data offered in reference 2: $\Delta H^o_{UOCl_2}$ = - 255.9 kcal/mol, $S^o_{UOCl_2}$ = 49.2 cal/degree.mol

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value for the formation heat is in good agreement with the data of reference 7, whereas entropy differs considerably. This could be explained by a different structure of the $UOCl_2$ forming under the authors' experimental conditions. There are 3 figures and 9 Soviet references.

ASSOCIATION: Institut elektrokhimii Ural'skogo filiala Akademii nauk SSSR (Institute of Electrochemistry of the Ural Branch of the Academy of Sciences, USSR)

PRESENTED: September 19, 1959 by V. I. Spitsyn, Academician

SUBMITTED: September 18, 1959

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S/149/61/000/002/006/017
A006/A001

AUTHORS: Nichkov, I.F., Dmitriyev, V.Ye., Raspopin, S.P.

TITLE: Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloric Salts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 2, pp. 81 - 87

TEXT: To complete information on the anodic behavior of pure lead and bismuth in molten chlorides of alkali metals, needed for a correct analysis of data on the anodic behavior of Bi-Th-Pb alloys, the authors present results from investigations on the anodic polarization of bismuth, lead and bismuth, alloyed with thorium and lead. The electrolyte was prepared using pure LiCl, NaCl, KCl. The equimolar NaCl-KCl mixture and the eutectic KCl-LiCl mixture were blast cleaned after melting with dry hydrogen chloride and subsequently degassed in a vacuum. The melts obtained were cooled, analyzed as to their bismuth content, and used to prepare electrolytes with the necessary $BiCl_3$ content. Purification of bismuth metal was carried out by chlorination under an electrolyte layer for 2 hours with dry hydrogen chloride. To eliminate electro-negative impurities the metal was sub-

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A006/A001

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jected to anodic dissolving for 3 hours at a current density of C.05 amp/cm^2. To obtain bismuth alloy with thorium the grit of these metals was pressed into small bars which were alloyed in an alundum crucible in pure argon atmosphere at 1,300°C. This method was used to obtain bismuth alloys with 2.5 weight % thorium and ternary alloys on bismuth base containing 2.5% Th + 1.0% Pb and 2.5 % Th + 5.0% Pb. Polarization of anodes was measured in a closed refractory glass cell (Fig. 1). The cell was placed in a protective container in a furnace with an automatic thermoregulator maintaining a constant temperature of 700 ± 5°C. The alloy investigated was placed in one of the branches of the cell after melting of the electrolyte. A molybdenum wire protected by a porcelain tube was employed as power connection. A bismuth cathode was placed in another branch of the cell. The anode potential was measured in relation to the comparison lead electrode at the moment of polarization current break, with the aid of a loop oscillograph. The vibrator indices were recorded on a photographic film. The readings were taken with a MIP -12 (MIR-12) microscope. The results of measurement given in a series of graphs, show that a considerable difference exists between the anode potentials when dissolving bismuth and lead, and also thorium contained in the alloy. The different electro-

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A006/A001

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chemical behavior of Th, Pb and Bi during the process of anodic dissolving in molten chloric salts can be used for the selective separation of Th and Pb from alloys with bismuth. A table shows the time of electrolysis required for the full elimination of lead and thorium from the alloys.

Figure 1:

Schematic drawing of the cell; 1 - cathode power connection; 2 - anode power connection; 3 - tube for blowing through the electrolyte; 4 - thermocouple; 5 - electrolyte; 6 - comparison lead electrode; 7 - bismuth cathode; 8 - anode investigated.

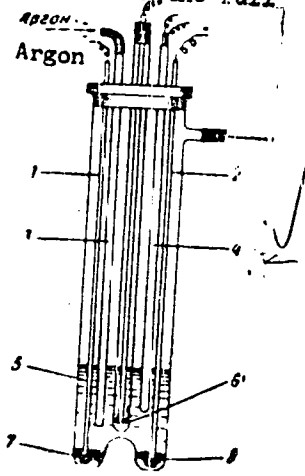

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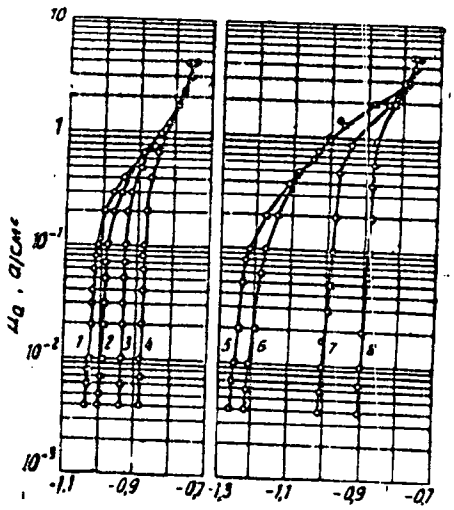
Figure 2: *

Polarization of a bismuth anode. Composition of electrolyte: 1 - KCl-LiCl; 2 - KCl-LiCl+ 0.1 weight %; $BiCl_3$; 3 - KCl-LiCl + 1.0 weight % $BiCl_3$; 4 - KCl-LiCl + 5 weight % $BiCl_3$; 5 - KCl-NaCl; 6 - KCl-NaCl + 0.1 weight % $BiCl_3$; 7 - KCl-NaCl + 1 weight % $BiCl_3$; 8 - KCl-NaCl+ + 5 weight % $BiCl_3$.



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Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloric Salts

Figure 3:*

Polarization of a lead anode. Composition of electrolyte: 1 - KCl-NaCl; 2- KCl-LiCl; 3 - KCl-LiCl + 1 weight % $PbCl_2$; 4 - KCl-LiCl + 10 weight % $PbCl_2$.

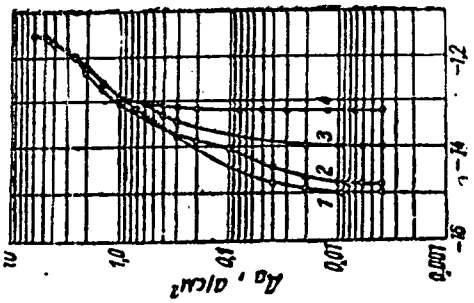
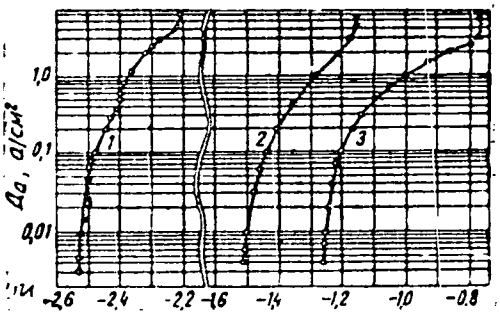


Figure 4:*

Polarization of anodes in KCl-NaCl electrolyte; 1 - thorium anode at 720°C; 2 - lead anode at 700°C; 3 - bismuth anode at 700°C.



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Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chloride Salts

Figure 5:*

Anode polarization of Bi+2.5 weight % Th alloy in KCl-NaCl (1) and KCl-LiCl (2) melts.

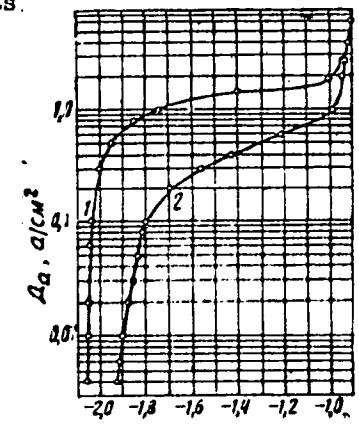
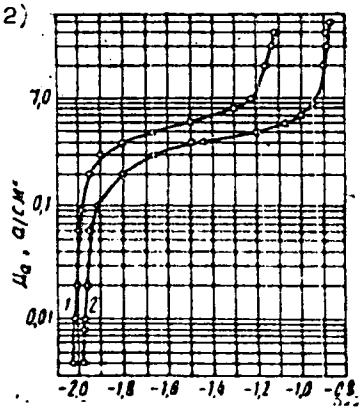


Figure 6:*

Anode polarization of Bi+2.5 weight % Th+5 weight % Pb alloys in KCl-NaCl electrolyte (1) and of Bi+2.5 weight % Th + 1 weight % Pb alloy in KCl-LiCl electrolyte (2)



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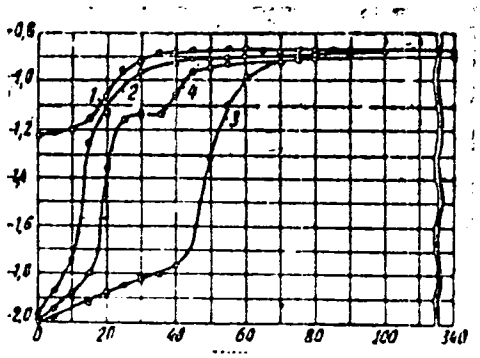
Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chlorine Salts

Figure 7:

Anode polarization in KCl-LiCl electrolyte of alloys: 1 - Bi+5 weight % Pb at i = = 0.2 amp/cm^2; 2 - Bi+2.5 weight % Th at i = 0.1 amp/cm^2; 3 - Bi+2.5 weight % Th at i = 0.04 amp/cm^2; 4 - Bi+2.5 weight % Th + 1.0 weight % Pb at i = 0.04 amp/cm^2.



Anode potential in relation to chlorine electrode

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Anodic Dissolving of Bismuth Alloys With Thorium and Lead in Molten Chlorine Salts

Table: Time required for the dissolving of alloy components

Сплав Alloy	Weight, g			Количество электричества, необходимого для растворения, а-ч		Сила тока, а	Время, необходимое для растворения, мин.	
Состав Composition	общ. total	Pb	Th	Pb	Th	b	Pb	Th
Bi + 5 вес. % Pb	3,7	0,185	—	0,048	—	0,10	29	—
Bi + 2,5 вес. % Th	4,0	—	0,100	—		0,05	—	28
Bi + 2,5 вес. % Th	7,7	—	0,192	—	0,023	0,05	—	53
Bi + 1,0 вес. % Pb + + 2,5 вес. % Th	4,0	0,040	0,100	0,010	0,045 0,023	0,05	13	28

a) Amount of current required for dissolving, amp/hr
b) Current intensity, amp
c) Time required for dissolving, min.

There are 7 figures, 1 table and 15 references: 14 Soviet and 1 non-Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

SUBMITTED: June 6, 1960

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40825

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AUTHORS Raspopin, S. P., Nichkov, I F., and Smirnov, M V

TITLE: The electrolysis of fused chlorides of alkali metals with anodes made of a pressed mixture of uranium dioxide and carbon

SOURCE Akademiya nauk SSSR Ural'skiy filial. Institut elektrokhimii. Trudy, no 2, 1961, Elektrokhimiya rasplavlennykh solevykh i tverdykh elektrolitov. 85-90

TEXT: Similar investigation had been carried out by other Soviet investigators using the same electrodes or ones made of pressed pure uranium dioxide. The electrolytic dissolution of the above anodes in an equimolar fused mixture of sodium and potassium chlorides was carried out at 680°C and current densities up to 1 amp/cm^2. The current efficiency at a current density of 0.5 amp/cm^2 is almost 100 %, but decreases with decreasing current densities. This is apparently due to the formation of an insoluble uranium oxychloride rather than of quadrivalent ions, as was believed earlier. The chief product of the anodic dissolution of uranium in the fused salt is UCl_4. The amount of uranium dissolved varies from 0.025/g/amp hr at ia = 0.0015 amp/cm^2 to 2.4 g/a.hr at ia = 1a/cm^2. The amount of slime in the electrolyte increases with the carbon content of the anode and with current density The preparation of electrodes is discussed in detail There are 5 table

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AUTHORS Nichkov, I F , Raspopin, S P , and Smirnov, M V

TITLE The polarization of carbon-dioxide uranium anodes in melts of alkali metals chlorides

SOURCE Akademiya nauk SSSR Ural'skiy filial Institut elektrokhimii Trudy no 2 1961 Elektro-khimiya rasplavlennykh solevykh i tverdykh elektrolitov 91-95

TEXT This work was undertaken to determine the highest current density at which $UOCl_2$ forms and to find the products of the anodic dissolution of carbon dioxide uranium anodes at higher current densities The polarization of these anodes in an equimolar mixture of fused sodium and potassium chlorides at current densities from 10^{+4} to 10 a/cm^2 was investigated at 700 and 800°C The electrolytic processes change with increasing current density in the following order: 1) formation of $UOCl_2$; 2) dissolution of uranium oxychloride and uranium dioxide or their chlorination, resulting in the passage of U^{4+} ions into the solution 3) dissolution of uranium dioxide and the passage of UO_2^{2+} ions into the solution without the participation of carbon, and finally, 4) the evolution of gaseous chlorine There is 1 figure

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