PIRALOV, F. I.

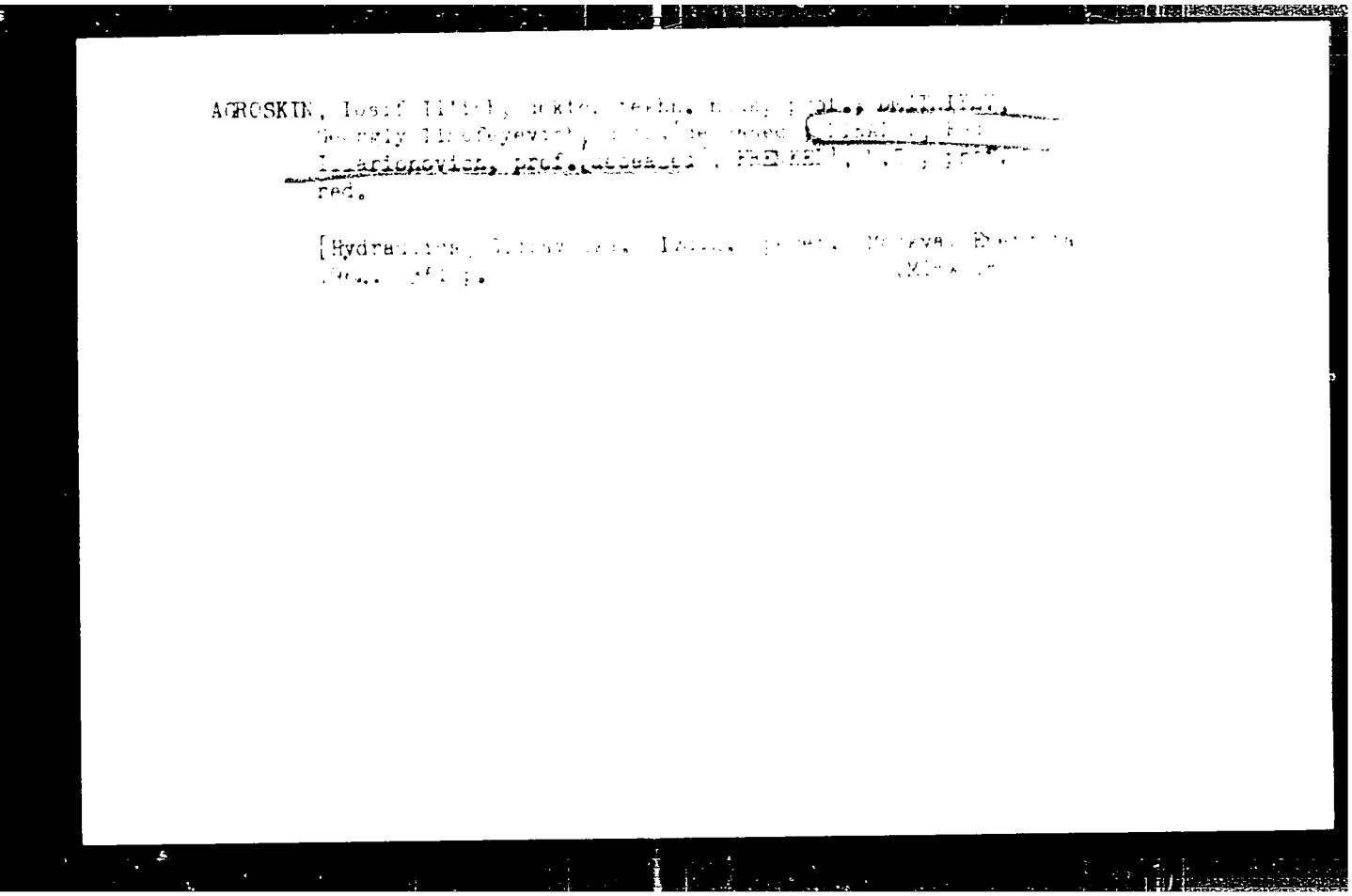
The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Agroskin, I.I. Dmitriyev, G.T. Piralov, F.I.	"Hydraulics" (textbook, 2d edition)	Moscow Institute of Water Economy Engineers imeni V. R. Vil'yams

SO: W-30604, 7 July 1954

PIKALOV, F.I., prof. (deceased)

Spiral movement of a nonviscous noncompressible liquid.
Trudy VNIIGIM 2:193-203 '63. (MIRA 17:6)



AGROSKIN, Iosif Il'ich, [illegible]

red.

[Hydra[illegible]

PIKALOV, F.I., prof., doktor tekhn.nauk

Theory of similitude and model studies of hydraulic phenomena. Nauch.zap. MIIVKH 21:3-45 '59. (MIRA 13:8)

(Hydraulic models)

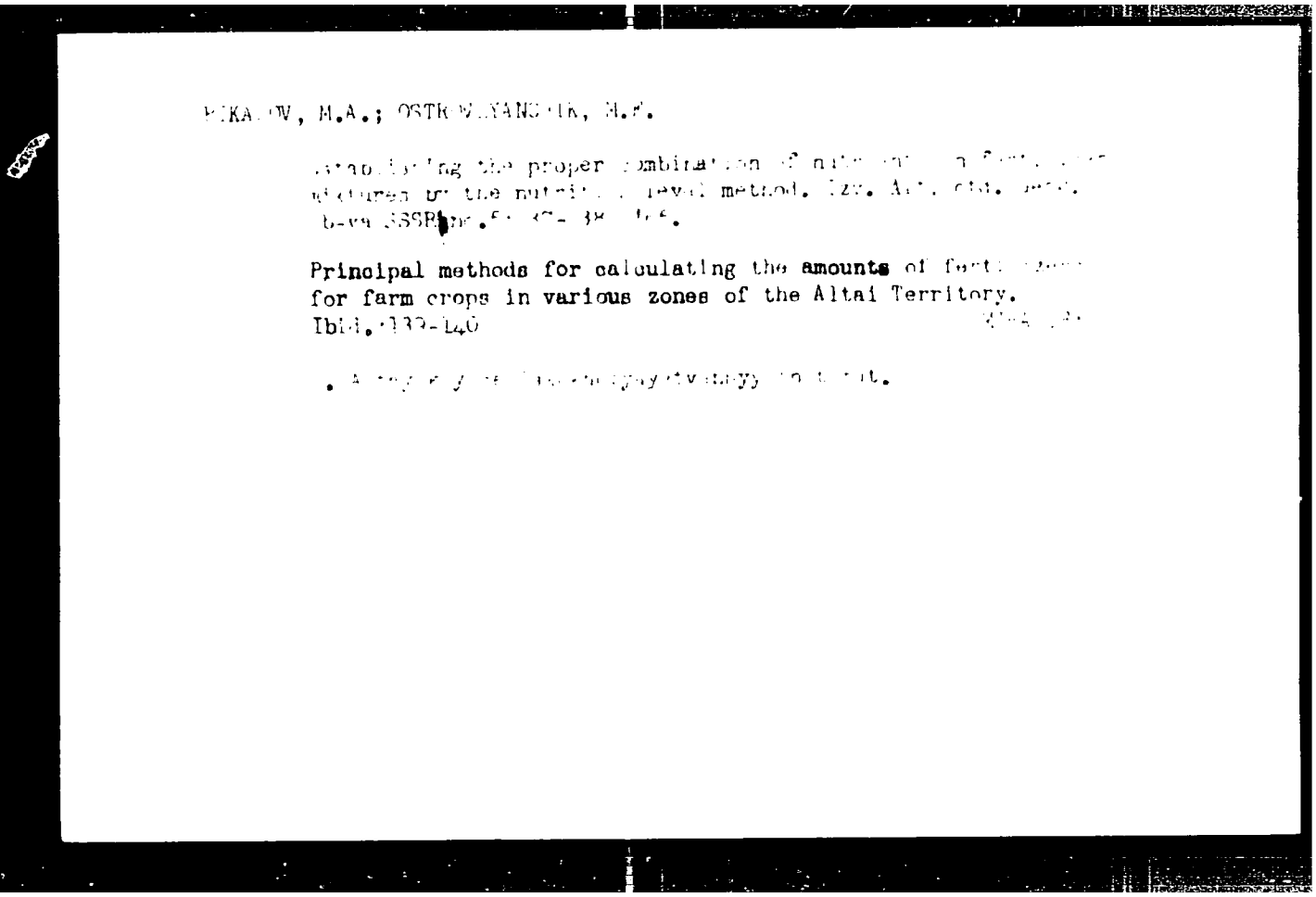
PIKALOV, M.A., starshiy prepodavatel'; KOTEL'NIKOV, V.I., assistent

Schools are able to do it. Khim.v shkole 14 no.5:77-78
S-O '59. (MIRA 12:12)

1. Kafedra pochvovedeniya i agrokhimii Altayskogo sel'skokhozyaystvennogo instituta.
(Soil chemistry)

ORLOVSKIY, N.V.; KARPACHEVSKIY, L.O.; MAKAROVA, G.A.; PIKALOV, M.A.

In reference to the textbook "Agricultural chemistry". Reviewed by N.V.Orlovskii and others. Pochvovedenie no.5:127-130 My '56. (Agricultural chemistry--Textbooks) (MLRA 9:9)



MIKA.OV, M.A.; OSTROVYANCHIK, M.F.

...ing the proper combination of ... fer... ...
...tures by the nutrient level method. Izv. Alt. otd. ...
...va SSSR [illegible] 37-38 [illegible].

Principal methods for calculating the amounts of fert... ...
for farm crops in various zones of the Altai Territory.
Ibid., 133-140

... [illegible].

BRODETSKIY, L.V.; PIKALOV, P.G.

Automatic combustion control in air preheaters. Stal' 18 no.1:21-22 Ja '58. (MIRA 11:1)

1.Stalinskiy metallurgicheskiy zavod.
(Air preheaters) (Automatic control)

PIKALOV, P.G.

AUTHORS: Brodetskiy, L.V., and Pikalov, P.G. 133-1-5/24

TITLE: An Automatic Control of Heating Blast Heating Stoves (Avtomaticheskoye regulirovaniye nagreva vozdukhon-agrevateley)

PERIODICAL: Stal', 1958, No.1, pp. 21 - 22 (USSR).

ABSTRACT: Schemes for automatic control of heating stoves based on the control of gas supply according to air supply and air supply according to gas supply are discussed. It is concluded that the former method is more rational as it permits utilising the maximum capacity of the blower. There are 3 figures.

ASSOCIATION: Stalino Metallurgical Works (Stalinskymetallurgicheskiy zavod)

AVAILABLE: Library of Congress

Card 1/1

PIKALOV, Petr Ivanovich, Geroy Sotsialisticheskogo Truda; RAZINKOV, P., red.; PAVLOVA, S., tekhn.red.

[Work organization in painter brigades] Organizatsiia truda v brigade maliarov. Moskva, Mosk.rabochii, 1959. 37 p.
(MIRA 12:12)

(Moscow--Painting, Industrial)

PIKALOVA, L.D.

Late results of surgical intervention in lamellar cataracts.
Uch.zap. UEIGB 5:181-184 '62 (MIRA 16:11)

BELOPOL'SKIY, Isay Il'ich; PIKALOVA, Liliya Grigor'yevna; SENCHENKOV, A.F., red.; LARIONOV, G.Ye., tekhn. red.

[Design of electric transformers and small chokes] Raschet transformatorov i drosselei maloi moshchnosti. Moskva, Gosenergoizdat, 1963. 270 p. (MIRA 16:7)
(Electric transformers) (Electric coils)

PIKALOV, V., podpolk

Demands of modern war [illegible] military discipline. [illegible]
no.22:67-71 N '64. (MIRA 17:12)

L 57593-65 EWT(d)/EWT(m)/EWP(w)/FA/ENA(d)/EWP(v)/T-2/EWP(k)/EWP(h)/EWP(1)
Pf-4 EM

ACCESSION NR: AP5017857 UR/0286/65/000/011/0090/0090
620.178

AUTHOR: Pikalov, V. K.; Gusev, A. G.; Altukhov, V. D.; Kutepov, M. A.; Mamonov, V. I.; Mukhin, N. V.

TITLE: Aerodynamic-load simulator for aircraft components. Class 42, No. 171613

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 90

TOPIC TAGS: aerodynamic load simulator, test equipment, aerodynamic load, aircraft aerodynamic load test

ABSTRACT: An Author Certificate has been issued for an aerodynamic-load simulator for testing aircraft components, particularly rudders, ailerons, and landing-gear flaps. The unit consists of a frame with drums and suspension units and a loading system having a cylinder, a beam, cables, and straps. To load a test piece inclined at a large angle, and to simplify the control of the magnitude of the applied simulating force, the shaft holding the frame-suspension units coincides with the test piece's rotation axis. In addition, the frame is

Card 1/3

L 57593-65
ACCESSION NR: AP5017857

connected to the test piece by a system of loading straps and to the beam and loading cylinder by cables running through the drums. Orig. art. has: 1 figure. [LB]

ASSOCIATION: Organizatsiya gosudarstvennogo komiteta po aviatsionnoy tekhnike SSSR (Organization of the State Committee on Aviation-Technology SSSR)

SUBMITTED: 16Jul64 ENCL: 01 SUB CODE: AC, ME

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4041

Card 2/3

L 57595-65
ACCESSION NR: AP5017857 ENCLOSURE: 01

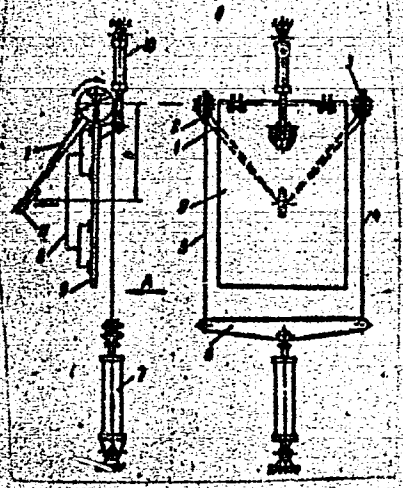


Fig. 1. Aerodynamic-load simulator

1 - Frame; 2, 3 - drums; 4, 5 - cables; 6 - beam; 7 - loading cylinder; 8 - loading straps; 9 - test piece; 10 - extend/retract actuator; 11 - corbel.

Card 3/3

L 57601-65 EWT(d)/EWT(l)/EWT(m)/EWP(w)/FA/EPF(n)-2/T-2/EWP(k) Pf-4 TT/SM

ACCESSION NR: AP5017876 UR/0286/65/000/011/0119/0119

621.643.758.2/3

629.13.01/06

24
B

AUTHOR: Pikalov, V. K.

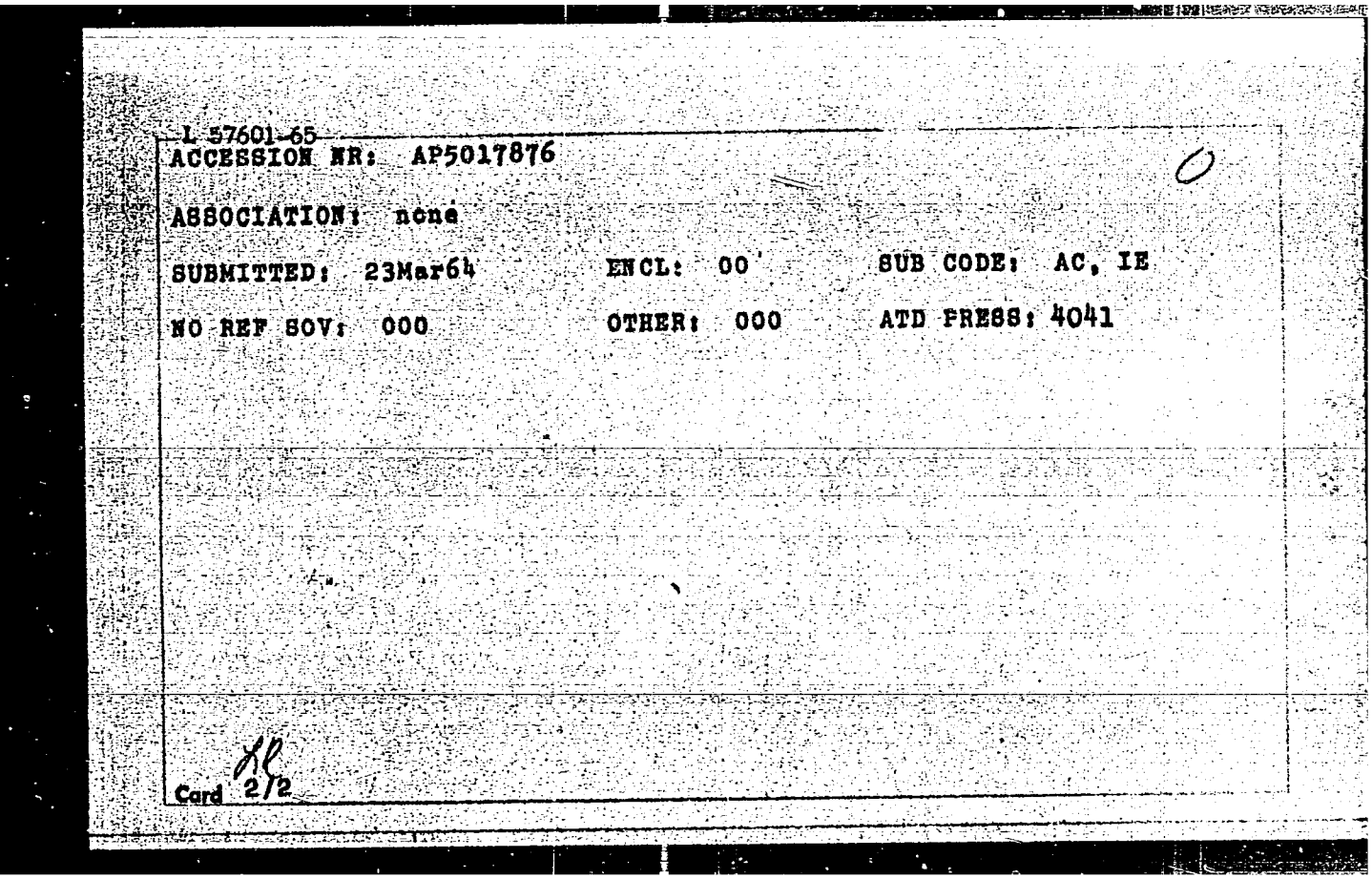
TITLE: Articulated joint in aircraft hydraulic pipe systems. Class 47, No. 171704

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 119

TOPIC TAGS: hydraulic pipe system, articulated joint, aircraft hydraulic pipe system

ABSTRACT: An Author Certificate has been issued for an articulated joint in an aircraft's hydraulic pipe system. The joint consists of gland packing, protective washers, and two hollow rotating cylindrical elbows connected to the pipe-end pieces by means of balls. To feed fluid to any point in a hemispherical space, and to transmit torque, the ends of the rotating elbows are interconnected in such a way that their axes of rotation in the pipe-end pieces remain mutually perpendicular and are spaced. [LB]

Card 1/2



L 57601-65
ACCESSION NR: AP5017876

ASSOCIATION: none

SUBMITTED: 23Mar64 ENCL: 00 SUB CODE: AC, IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4041

Card 2/2

L 05626-67 EWT(1)/EWI(m)/T/EWP(t)/ETI IJP(c) DS/JD/GG

ACC NR: AP6024498 SOURCE CODE: UR/0181/66/008/007/2242/2244

AUTHOR: Pikalova, I. S.

ORG: Tomsk Polytechnic Institute im. S. M. Kirov (Tomskiy politekhnicheskiy institut)

TITLE: Investigation of the breakdown of rock salt in the micron and submicron range of thicknesses

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2242-2244

TOPIC TAGS: sodium chloride, dielectric breakdown

ABSTRACT: The investigation was carried out at a constant voltage. The samples were prepared in accordance with a procedure recently developed by the author (PTE v. 13, 100, 1965). The sample thickness was 4 - 0.3 μ. The electrode used for breakdown was a mixture of butyl alcohol with salt. The results show that the breakdown voltage first decreases with increasing thickness, reaching a minimum (~2.0 kv) at a sample thickness 1.6 μ, and then rising again. This is similar to the breakdown in gases (Paschen's law). The breakdown field intensity increases sharply with decreasing thickness, the maximum obtainable value being 1.2×10^8 v/cm, which is close to the value determined by the binding forces between the ions. The reasons for the success of the experiment, compared with failure of earlier experiments, are presented. Orig. art. has: 2 figures.

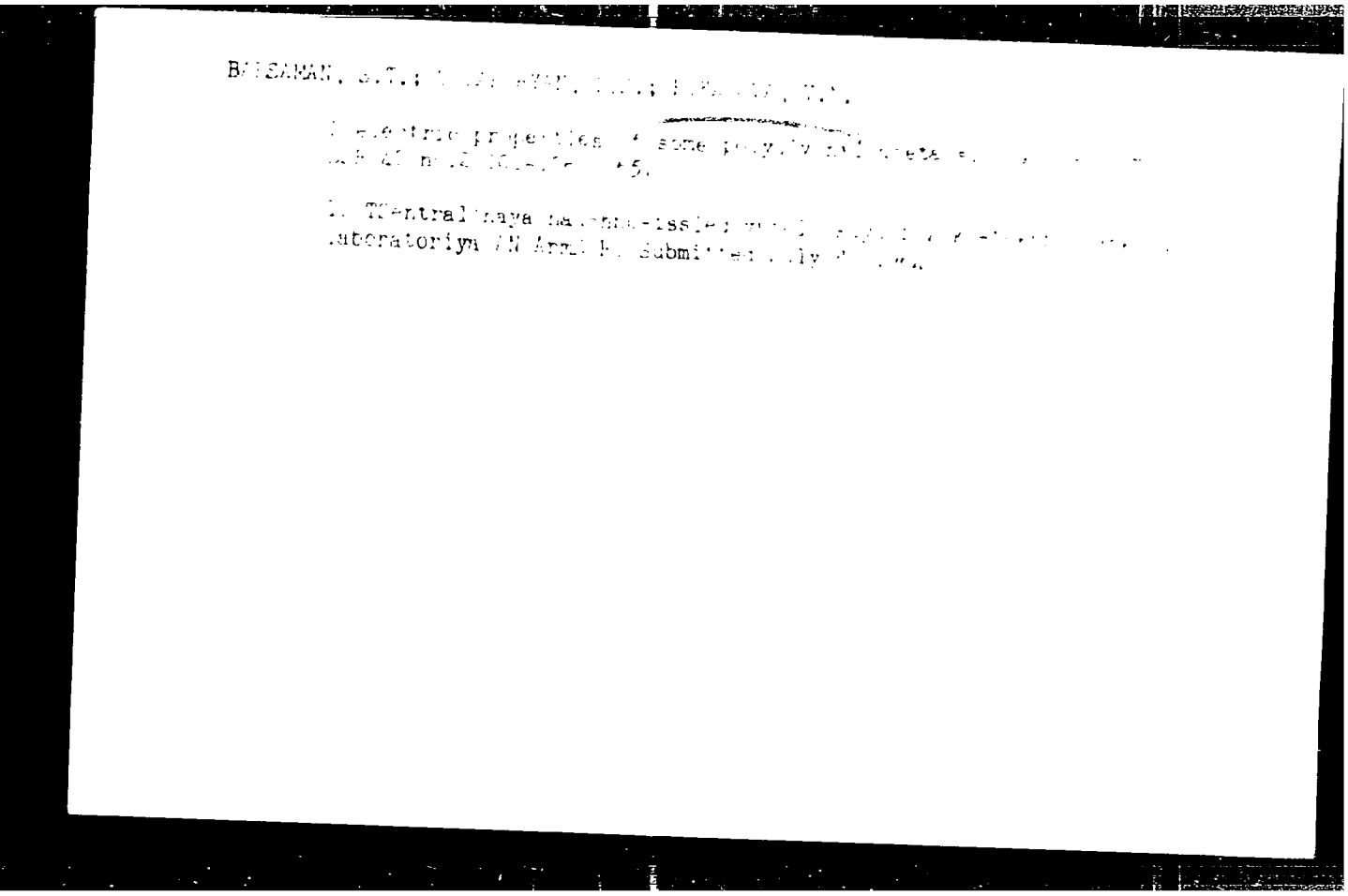
SUB CODE: 20/ SUBM DATE: 29Dec65/ ORIG REF: 004/ OTH REF: 001

Card 1/1

KOCHARYAN, N.M.; BARSAMYAN, S.T.; PIKALOVA, V.N.

Dipole moments of vinylethynylcarbonols. Dokl. AN Arm.SSR 38 no.5:295-299 '64. (MIRA 17:6)

1. TSentral'naya nauchno-issledovatel'skaya fiziko-tekhnicheskaya laboratoriya AN Armyanskoy SSR.



KOCHARYAN, N.M.; MATSOYAN, S.G.; BARSAMYAN, S.T.; PIKALOVA, V.N.; TOLAP-CHYAN, L.S.; MORLYAN, N.M.

Dielectric loss, dielectric constant, and the effective dipole moment of polydimethylvinylethynylcarbinol. Dokl. AN Arm. SSR 37 no.1:7-13 '63. (MIRA 16:11)

1. TSentral'naya nauchno-issledovatel'skaya fiziko-tekhnicheskaya laboratoriya AN Armyanskoy SSR. 2. Chlen-korrespondent AN Armyanskoy SSR (for Kocharyan).

L 53815-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EEC(t)/T Pc-4/Pr-4/Pt-7/
P1-4 IJP(c) GG/RM UR/0252/65/040/002/0101/0106
ACCESSION NR: AP5011083 54
49
AUTHORS: Barsemyan, S. G.; Tolepbergan, L. S.; Pikalova, V. N. B

TITLE: The dielectric properties of some polydivinyl acetals

SOURCE: AN ArmSSR. Doklady, v. 40, no. 2, 1965, 101-106

TOPIC TAGS: polyvinyl, acetal plastic, dielectric property, glass transition temperature, polymerization

ABSTRACT: Previous work on dielectric properties of polyvinyl acetals has been on material obtained by acetalization of aldehydes of polyvinyl alcohol, which always contain hydroxide and residual acetato groups along with the acetal groups. The recent method of S. G. Matsoyan and his group on cyclic polymerization permits complete acetalization, and the present authors have investigated the dielectric properties of some of these 100% polyvinyl acetals: polydivinylmethylal, polydivinylacetaldehyde, and two forms of polydivinylbutyraldehyde--industrial and laboratory. Dielectric loss and dielectric constant were measured at 400, 1000, and 5000 cycles in the temperature range 20-100C. The temperature dependence of resistivity was also determined. The dielectric loss maximum, the increase in dielectric constant, and the break in resistivity all shifted to higher temperatures for

Card 1/2

polydivinyl-methylal as compared with polydivinylacetaldehyde. This is apparently due to the larger amount of aldehyde residue, which increases the glass point. A similar shift in industrial polydivinylbutyraldehyde as compared with the laboratory variety is due to the much greater molecular weight of the latter (6.7 times as great). The latter also has a higher glass point than the industrial variety, which may be due to replacement of the acetal group by strongly polar and smaller hydroxyl and acetate groups in the laboratory variety. The industrial variety has notably higher dielectric constant and dielectric loss than the laboratory variety, probably for the same reason. "In conclusion, the authors express their thanks to N. M. Kocharyan for his constant interest in the work, and S. G. Matsoyan and M. G. Voskanyan (IOKh AN Armenian SSR) for synthesizing the investigated substances and for valuable discussions during preparation of this article." Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: TsNI fiziko tekhnicheskaya laboratoriya Akademii nauk Armyanskoy SSR (TsNI Physical and Technical Laboratory, Academy of Sciences, Armenian SSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: OC, EM

NO REF SOV: 009 OTHER: 003

KOCHARYAN, N.M.; AKOPYAN, A.N.; BARSAMYAN, S.T.; TOLAPCHYAN, L.S.; PIKALOVA, V.N.

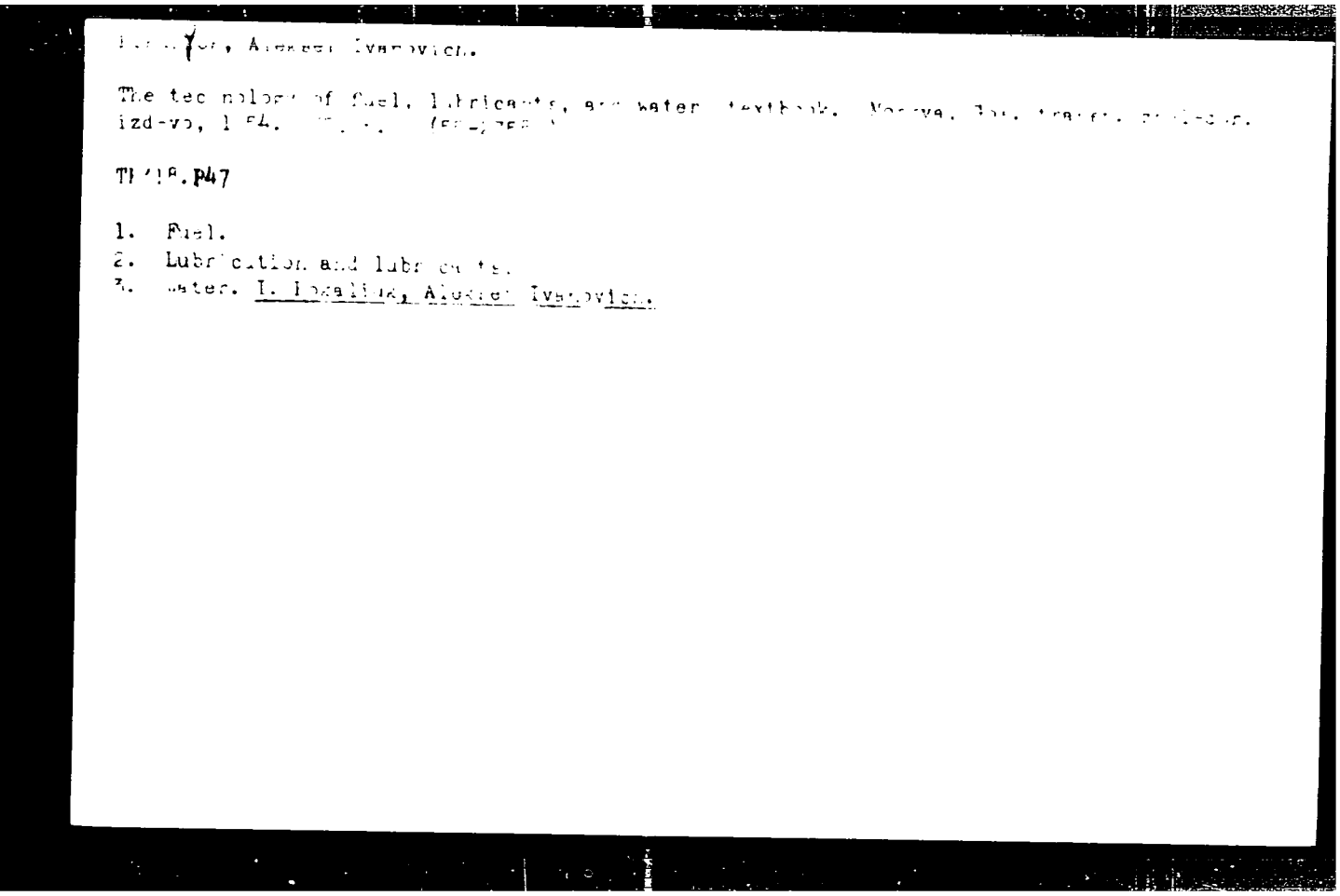
Dielectric properties of chlorinated polytetrachlorohexatriene. Dokl. AN Arm. SSR 37 no.5:263-267 '63. (MIRA 17:9)

1. Chlen-korrespondent AN Armyanskoy SSR (for Kocharyan).

KRUGLIKOVA, R.I.; PIKALOV, V.Ye.

Mannich reaction with primary amines. Obtaining ethyl-bis-(4-diethylaminobutyne-2-yl-1)amine. Izv.vys.ucheb.zav.; khim. i khim.tekh. 8 no.2:349-351 '65. (MIRA 18:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova, kafedra organicheskoy khimii.

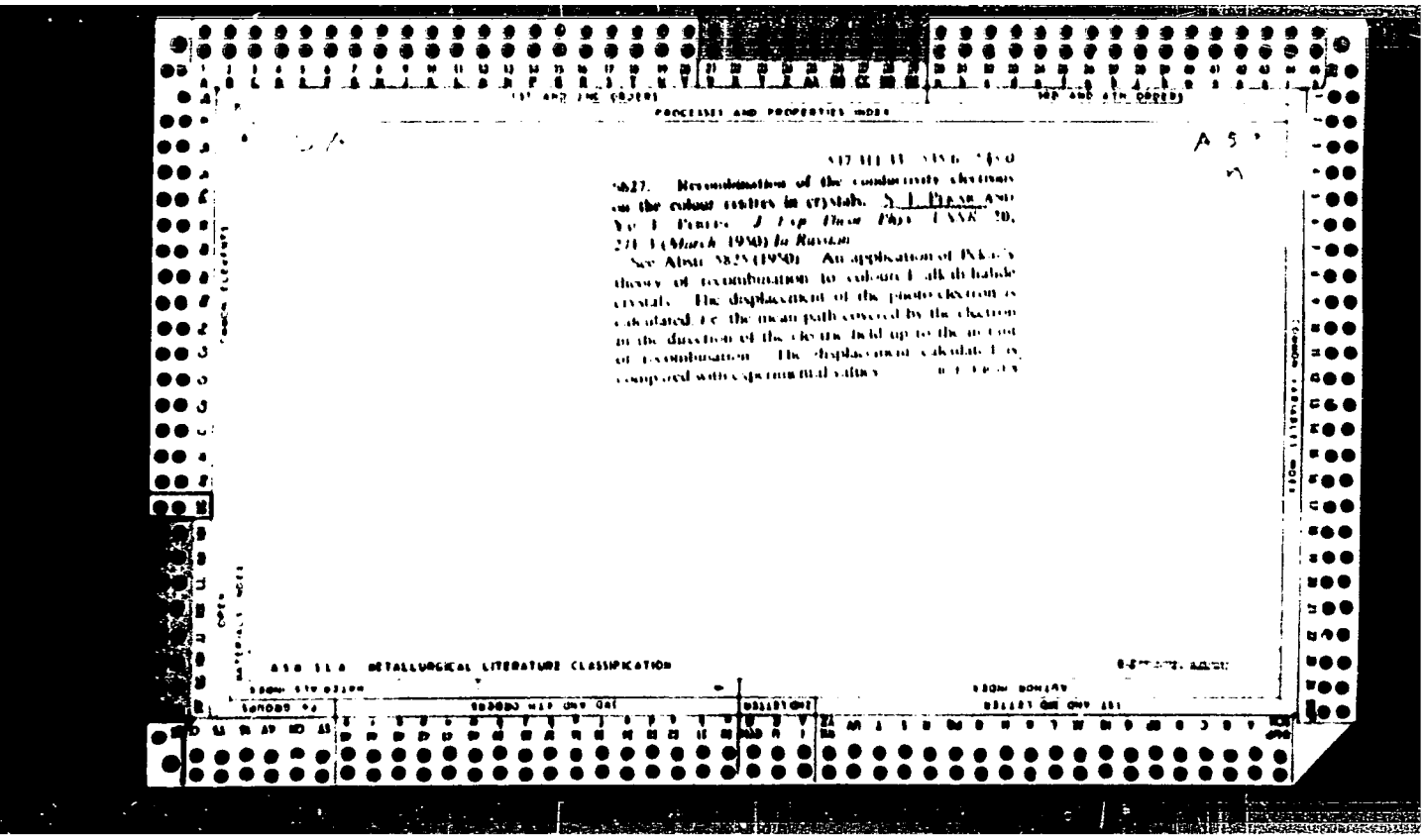


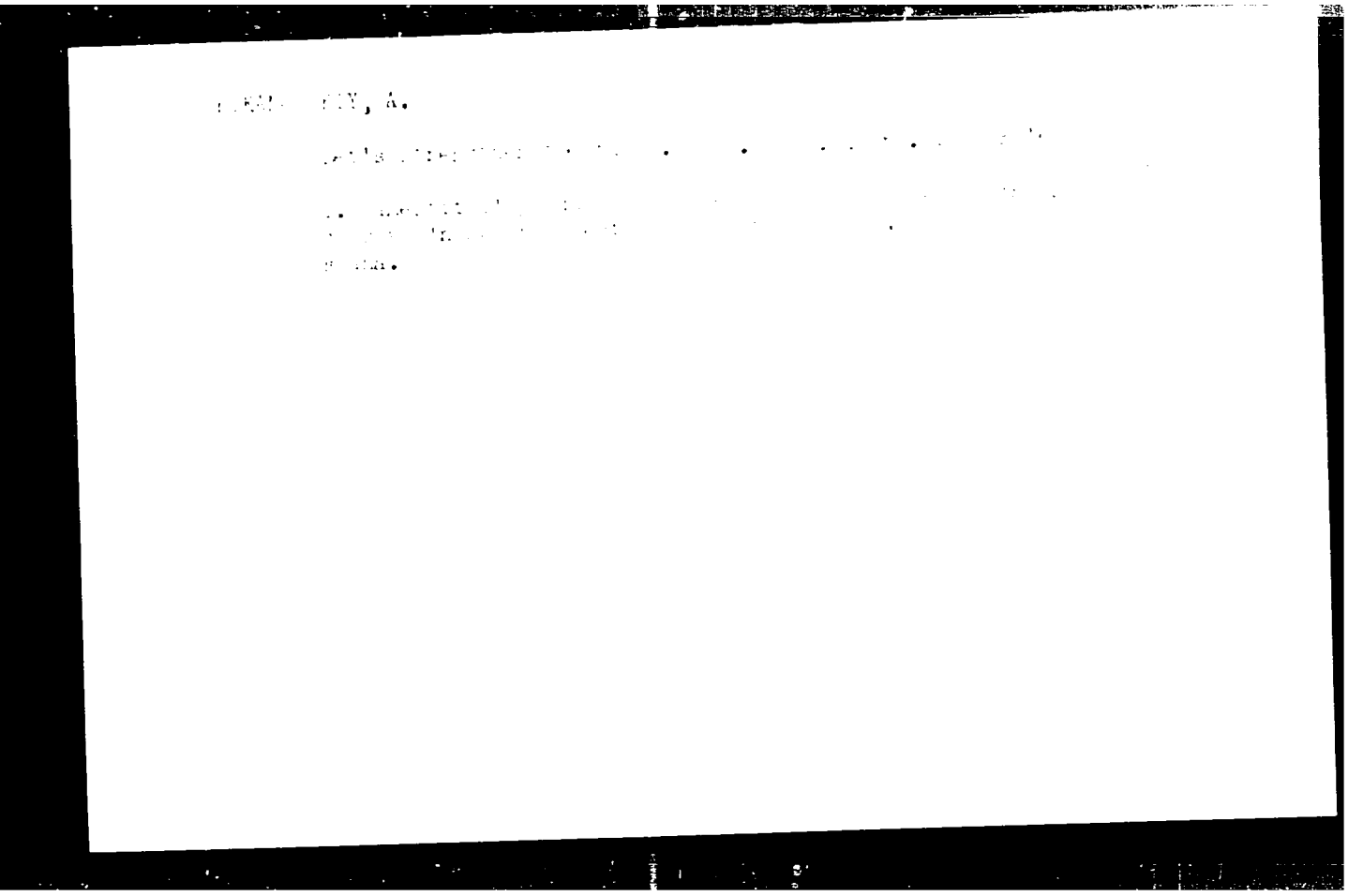
[illegible], Alekseĭ Ivanovich.

The tec nolor[illegible] of fuel, lubricants, and water [illegible]. Moskva, Izd. [illegible] izd-vo, 1 54. [illegible]

TH[illegible].P47

1. Fuel.
2. Lubrication and lubricants.
3. Water. I. [illegible], Alekseĭ Ivanovich.





PIKANOVSKIY, L D

Category : USSR/General Problems - Problems of Teaching A-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 2792

Author : Pikanovskiy, L.D.
Title : Explaining the Topic "Rotary Motion."

Orig Pub : Fizika v shkole, 1956, No 4, 44-48

Abstract : No abstract

Card : 1/1

PIKANOVSKIY, L.D. (Simferopol')

Teaching the subject "Rotational motion". Fiz.v shkole 16 no.4: 44-48 Jl-Ag '56. (MLRA 9:9)
(Motion--Study and teaching)

B. N.; NEMETS, O. F.; PIKAR, F.; STRYUK, Yu. S.; TOKAREVSKIY, V. V.

"Investigations of the Lowest States of Mg^{25}."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

IF AN UkSSR, KGU [Inst Physics, AS UkSSR, Kiev State Univ]

DOBRIKOV, V.N.; PIKAR, F.; NEMETS, O.F.; STRYUK, Yu.S.; TOKAREVSKIY, V.V.

Low-lying states of Mg^{25}. Izv. AN SSSR. Ser. fiz. 28 no.10:1714-1716 O '64. (MIRA 17:12)

1. Institut fiziki AN UkrSSR i Kiyevskiy gosudarstvennyy universitet.

NEMETS, O.F. [Niemets', O.F.]; [illegible], F.; [illegible], V.V. [Tokarevs'kyi, V.V.]

Angular distribution of [illegible] deuteron [illegible] scattered by certain light and medium nuclei. Ukr. fiz. zhur. [illegible] 604-609 Je '64.

[illegible] Institut fiziki AN [illegible], Kiyev. [illegible] Kyuri, Orse, Frantsiya [illegible]

ACCESSION NR: AP4037606 S/0056/64/046/005/1898/1900

AUTHORS: Nemets, O. F.; Pikar, F.; Tokarevskiy, V. V.

TITLE: Inelastic scattering of deuterons by some even tin isotopes

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1898-1900

TOPIC TAGS: tin, level energy, deuteron reaction, angular distribution, nuclear spectroscopy, inelastic scattering, quadrupole moment

ABSTRACT: Measurements were made, at a deuteron energy 13.6 MeV, of the differential cross sections of the inelastic scattering from the isotopes $Sn^{116, 118, 120, 122, 124}$ with excitation of the first 2^+ levels and of the states which form a gross-structure peak at $Q \approx -2.5$ MeV. The deuterons were recorded by a selective scintillation spectrometer described by the author previously (PTE, No. 2, 34, 1962). The absolute cross sections were determined by a method

Card 1/4

ACCESSION NR: AP4037606

similar to that described by the authors previously (Izv. AN SSSR, ser. fiz. v. 27, 927, 1963). A comparison of the inelastic scattering spectra of deuterons with the spectra of protons from the (d, p) stripping reaction on the isotopes of $Sn^{118, 120}$ shows that the excitation probability of single-particle states is very low in the inelastic scattering, whereas the quadrupole 2^+ levels are excited one order of magnitude more intensely than in (d, p) stripping. Orig. art. has: 2 figures.

ASSOCIATION: Institut fiziki Akademii nauk Ukrainskoy SSR (Institut of Physics, Academy of Sciences UkrSSR); Joliot-Curie Laboratory, Orsay, France

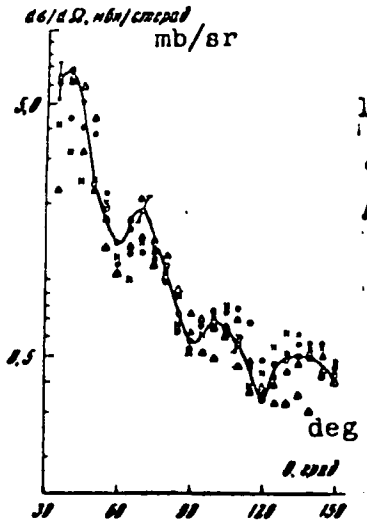
SUBMITTED: 28Jun63 DATE ACQ: 09Jun64 ENCL: 02

SUB CODE: NP NR REF SOV: 004 OTHER: 001

Card 2/4

ACCESSION NR: AP4037606

ENCLOSURE: 01



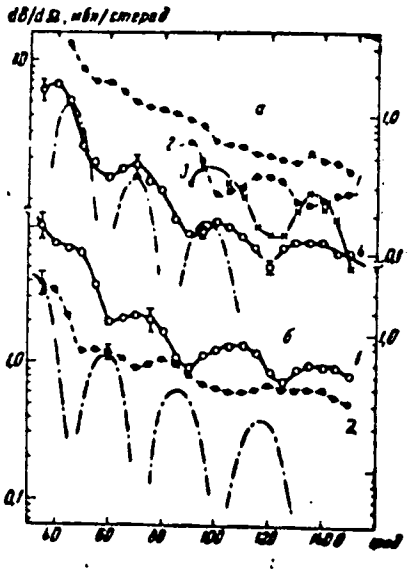
Angular distributions of deuterons inelastically scattered by tin isotopes:

• - Sn^{116}, × - Sn^{118}, ○ - Sn^{120}, △ - Sn^{122}, ▲ - Sn^{124}. Abscissa - laboratory angle of scattering, ordinate - differential cross section in mb/sr

Card 3/4

ACCESSION NR: AP4037606

ENCLOSURE: 02



Angular distributions of 13.6-MeV deuterons inelastically scattered by tin isotopes: a - scattering by Sn^{120}, b - scattering by Sn^{116}. Dash-dot curves - Huby-Newns theory. Other curves pertain to various levels and peaks. Ordinates - differential cross section in mb/sr (left - curves a4 and b2, right - other curves). Abscissas - scattering angles of deuterons in the laboratory system.

Card 4/4

S/0056/64/046/005/1900/1901

ACCESSION NR: AP4037607

AUTHOR: Nemets, O. F.; Pikar, F.; Slyusarenko, L. I.; Tokarevskiy, V. V.

TITLE: Elastic scattering of deuterons by strontium and tin isotopes

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1900-1901

TOPIC TAGS: strontium, tin, deuteron, elastic scattering, angular distribution, diffraction pattern

ABSTRACT: The elastic scattering of 13.6-MeV deuterons by strontium and tin isotopes. Measurements in the angle range 10 -- 150° were made with a selective scintillation spectrometer. The strontium targets were polystyrene films impregnated with $SrCO_3$. In the angle region $\theta \rightarrow 30°$, the peaks corresponding to elastic scattering by the strontium could be separated reliably from the peaks corresponding to the elastic scattering by carbon and oxygen. The tin targets were free-standing foils 3 -- 4 mg/cm^2 thick with 90% enrichment. In the region of angles larger than 25° the angular distributions of Sr h ve a clear out diffraction structure, which changes little on going from isotope o isotope. The angular distributions obtained for the tin isotopes are in good agreement with those of N. Cindro

Card 1/8

NEMETS, O.F.; PIKAR, F. [Picard, F.]; SLYUSARENKO, L.I.; TOKAREVSKIY, V.V.

Elastic deuteron scattering on nitrogen, oxygen, and argon.
Zhur. eksp. i teor. fiz. 45 no.4:850-851 O '63. (MIRA 16:11)

1. Institut fiziki AN UkrSSR. 2. Sotrudnik Laboratorii yadernoy fiziki imeni Zholio-Kyuri, Orse, Frantsiya.

PIKAREVICH, E.

FILIPPOV, A., inzh.-polkovnik; PIKAREVICH, E., inzh.-podpolkovnik, kand. tekhn. nauk.

New method for phase timing. Tankist no.1:32-36 Ja '58. (MIRA 11:3)
(Tank (Military science)) (Diesel engine--Maintenance and repair)

CZECHOSLOVAKIA/Human and Animal Physiology - Thermoregulation. T

Abs Jour : Ref Zhur. Biol., No 3, 1959, 12567

Author : Pikartova, G.
Inst : -
Title : Influence of Temperature Variations and Chlorpromazine (Animazine) on Body Temperature and Respiration in Infant Rats.

Orig Pub : Physiol. bohemosl., 1958, 7, No 1, 63-73

Abstract : No abstract.

Card 1/1

HAHN, P.; KOLDOWSKY, O.; PIKARTOVA, H.

Effect of chlorpromazine on young rats of various ages. Cesk. pediat. 15 no.10:873-879 O '60.

1. Fyziologicky ustav CSAV, Ustav pro peci o matku a dite, Praha.
(CHLORPROMAZINE pharmacol)

PIKARTOVA, H.

Temperature of newborn during cooling. Cesk. pediat. 13 no.3:213-218 5 Apr 58.

1. Ustav pro peci o matku a dite, Praha-Podoli, reditel prof. J. Trapl vedouci pediatrickeho sektoru prof. Kamil Kubat.

(BODY TEMPERATURE, in inf. & child
in newborn during cooling (Cz))
(INFANT, NEWBORN, physiol.
temperature during cooling (Cz))
(COLD, eff.
on temperature of newborn (Cz))

PIKARTOVA, Hana

Skin temperature of full-term & premature infants. Cesk. pediat. 13 no.4: 333-338 5 May 58.

1. Ustav pro peci o matku a dite, Praha-Podoli, reditel prof. Dr. Jiri Trapl. Vedouci pediatrickeho sektoru prof. Dr. Kamil Kubat.

(SKIN, physiol.
temperature of full-term & premature inf. (Cz))
(INFANT, PREMATURE, physiol.
skin temperature (Cz))
(INFANT, physiol.
same)
(BODY TEMPERATURE
skin, in full-term & premature inf. (Cz))

PIKARTOVA, Hana, MUDr.

Temperature measurement in children. Cesk. pediat. 12 no.11:997-1000 5 Nov 57.

1. Ustav pro peci o matku a dite, Praha-Podoli, reditel prof. MUDr Jeri Prapl, vedouci pediatrickeho sektoru prof. MUDr Kamil Kubat.

(BODY TEMPERATURE measurement in child. (Cz))

ZELENKA, J., dr.; STANINCOVA, V., dr.; PIKARTOVA, H., dr.

A system in premature infant care in the district hospital at Cheb. Cesk.pediat. 11 no.2-3:170-176 Mar 56.

1. Z krajskeho oddeleni pro nedonosene pri OUNZ Cheb. primar MUDr Jiri Zelenka, ordinar MUDr Vera Stanincova.
(INFANT, PREMATURE
care, system)

ZELENKA, J., Dr.; ERHARTOVA, M., Dr.; PIKARTOVA, H., Dr.

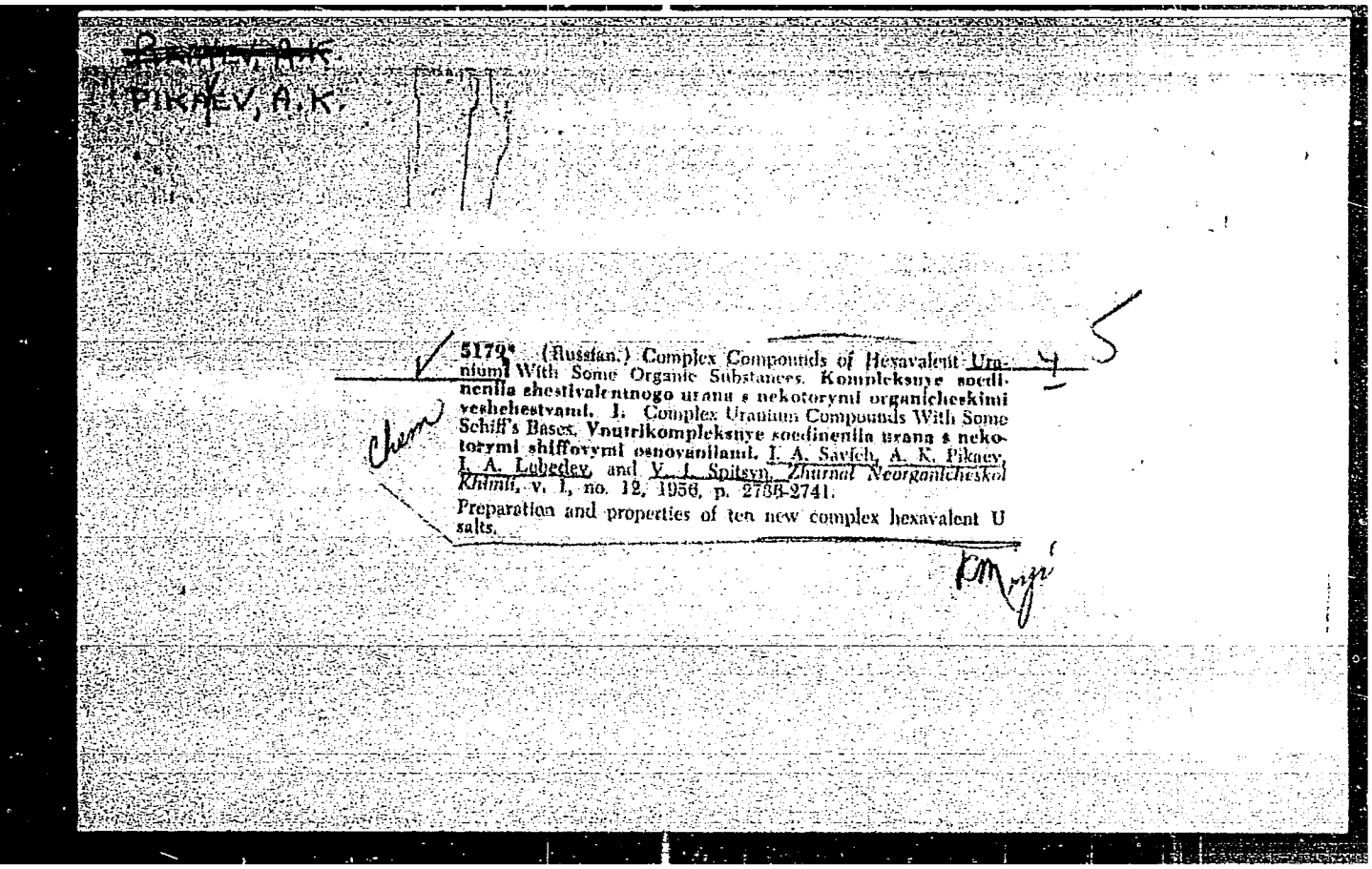
Pneumonia due to influenza in infants and children in Spring 1953 at the pediatric department of OUNZ Cheb. Pediat. listy, Praha 9 no.5: 261-263 Sept-Oct 54.

1. Z detsko-kojeneckeho odd. OUNZ Cheb, primar MUDr Jere Zelenka
(PNEUMONIA, in infant and child
caused by influenza, statist. in Czech.)
(INFLUENZA, in infant and child
causing pneumonia, in Czech., statist.)

SPITSYN, V.I., akad., red.; KOLLI, I.D., kand. khim. nauk, red.; ZHELIGOV-SKAYA, N., kand. khim. nauk [translator]; MEN'KOVA, [illegible], [translator]; PATSUKOVA, N., kand.khim. nauk [translator]; PASHINKIN, A., kand. khim. nauk [translator]; PIKAYEV, A., kand. khim. nauk [translator]; SEMENENKO, K., kand. khim. nauk [translator]; TUROVA, N. [translator]; MANUYLOVA, G.M., red.; RYBKINA, V.P., tekhn. red.

[Inorganic polymers] Neorganicheskie polimery. Moskva, Izd-vo inostr. lit-ry, 1961. 470 p. Translations from foreign journals. (MIRA 14:13)

(Polymers)



PIKAEV, A.K.

5179* (Russian.) Complex Compounds of Hexavalent Uranium With Some Organic Substances. **Kompleksnye soedinenila shestivalentnogo urana s nekotorymi organicheskimi veshchestvami.** I. Complex Uranium Compounds With Some Schiff's Bases. **Vnutrikompleksnye soedinenila urana s nekotorymi shiffovymi osnovaniiami.** I. A. Savich, A. K. Pikaev, I. A. Lubedev, and V. I. Spitsyn. *Zhurnal Neorganicheskoi Khimii*, v. 1, no. 12, 1956, p. 2738-2741.

Preparation and properties of ten new complex hexavalent U salts.

PIKAYEV, A.K., RYKOV, A.G., SPITSYN, V. I., and SAVICH, I. A.

"Complex Compounds of Hexavalent Uranium With Some Organic Substances; Part 2 -- Inner-Complex Salts of the Uranyl Ion With Some Derivatives of 2-Naphthol and of 1,2-Naphthoquinone," by I. A. Savich, A. K. Pikayev, A. G. Rykov, and V. I. Spitsyn, Moscow State University, Zhurnal Neorganicheskoy Khimii, Vol 1, No 12, Dec 56, pp 2742-2745

According to the article, compounds of the uranyl ion with 3-bromo--1,2-naphthoquinonemonoxime-1 and 3,4-dichloro-1,2-naphthoquinone-monoxime-1 were obtained. It was established that the compound of 3-bromo-1,2-naphthoquinonemonoxime-1 with uranyl forms crystalline solvates with water and alcohol. The solubility of these solvates in water was determined.

Sum 1258

PIKAYEV, A. K., RYKOV, A. G., SPITSYN, V. I., and SAVICH, I. A.

"Complex Compounds of Hexavalent Uranium With Some Organic Substances; Part 3 -- Precipitation of Uranium From Aqueous Solutions by Means of Some Substances Related to 1-Nitroso-2-Naphthol," by I. A. Savich, A. K. Pikayev, A. G. Rykov, and V. I. Spitsyn, Moscow State University, Zhurnal Neorganicheskoy Khimii, Vol 1, No 12, Dec 56, pp 2746-2748

It has been established that 3-bromo-1,2-naphthoquinonemonoxime-1 can be used as a precipitant for uranium. The precipitation of uranium with this reagent is complete and takes place at p_H = 2.7. It has furthermore been established that 3,4-dichloro-1,2-naphthoquinonemonoxime-1 cannot be used as a reagent for the precipitation of uranium.

Sum 1258

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SAVICH, I.A.; PIKAYEV, A.K.; LEBEDEV, I.A.; SPITSYN, Vikt.I.

Synthesis of the series of Schiff bases formed from aromatic o-oxyaldehydes and heterocyclic amines. Vest.Mosk.un. Ser.mat., mekh.,astron.,fiz.,khim.11 no.1:225-231 '56. (MIRA 10:12)

1. Kafedra neorganicheskoy khimii Moskovskogo universiteta. (Aldehydes) (Bases (Chemistry)) (Amines)

PIKAYEV, A. K., LABEDEV, I. A., SPITSYN, V. I., andSAVICH, I. A.

"Synthesis of a Number of Schiff Bases Derived From Aromatic o-Hydroxyaldehydes and Heterocyclic Amines," by I. A. Savich, A. K. Pikayev, I. A. Labedev, and V. I. Spitsyn, Chair of Inorganic Chemistry, Moscow State University, Vestnik Moskovskogo Universiteta, Vol 11, No 1, Jan/Feb 57, pp 225-231

According to the text of the paper, 13 hitherto unknown Schiff bases have been synthesized. Their properties are described. It has been established that these bases can be used for the precipitation of a number of cations. The precipitates formed by Cu^{++}, Ni^{++}, Ag^{+}, Fe^{++}, Fe^{+++}, Co^{++}, UO_2^{++}, Cr^{+++}, La^{+++}, and Zr^{4+} with 2-(2-hydroxy-1-naphthylamino) pyridine were found to have specific colors which vary from cation to cation. These colors are listed.

[Comment: Methods for the precipitation and analytical determination of uranium, zirconium, and lanthanum are of importance in connection with nuclear energy work.]

Sum 1253

5(4)

AUTHOR: Pikayev, A. K.

TITLE: The Effect of Accelerated Electrons on Aqueous Solutions of Monochloroacetic Acid (Deystviye uskorennykh elektronov na vodnyye rastvory monokhloruksusnoy kisloty)

SOV/62-59-5-25/40

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 5, pp 923-924 (USSR)

ABSTRACT: The present paper deals with a radiometric investigation within a wide interval of concentration of the organic compound mentioned in the title, which is very easily soluble in water. For the purpose of this investigation, the monochloroacetic acid of the type "pure", which is used for industrial purposes, was once more purified. Electrons accelerated to 1.0-1.5 mev served as a radiative source. The current in the solution at the time of exposure was measured by means of a molybdenum wire tube. The strength of the radiation dosage was determined by means of a ferrosulfate dosimeter. By the radiolysis of the monochloroacetic acid hydrochloric acid is used. Its yield is, roughly speaking, independent of the strength of the radiation dose, but it depends on the concentration of the

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The Effect of Accelerated Electrons on Aqueous Solutions of Monochloroacetic Acid SOV/62-59-5-23/43

initial solution. After irradiation hydrogen peroxide and carbonyl compounds were found in the solutions. Molecular chlorine was not found. Basing upon an assumption made by Garrison (Ref 8) the formation of HCl is explained by the fact that it is formed by the action of atomic hydrogen, while the OH radicals are mainly used up for dehydrogenation. The author thanks P. Ya. Glazunov and I. V. Vereshchinskiy for their interest in this work and for their advice. There are 1 figure and 10 references, 5 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: August 7, 1959; after revision, February 6, 1959

Card 2/2

5(4)
AUTHORS: Pikayev, A. K., Glazunov, P. Ya. SOV/62-59-6-34/36

TITLE: Action of Hard X-Rays on the System KJ-KJO_3-H_2O-$CHCl_3$ (Deystviye zhestkikh rentgenovskikh luchey na sistemu KJ-KJO_3-H_2O-$CHCl_3$)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1137 - 1139 (USSR)

ABSTRACT: The action of hard X-rays on aqueous solutions of potassium iodide and potassium iodate was investigated. The solutions are saturated with chlorine containing hydrocarbons. In an acid medium a reaction occurs between KJ and KJO_3, which leads to separation of iodine. By radiolysis of aqueous solutions of the chlorine derivatives of hydrocarbons, large quantities of HCl are produced (Refs 1-7). Thus with respect to the system mentioned in the title, the radiation-chemical stability of the chlorine containing hydrocarbons present in the solution may be determined from the amount of the iodine separated. The X-ray target attachment and the ionization control chamber, by means of which the measurements were carried out, are schematically given in figure 1. The maximum intensity of the X-rays was 1 Mev, the

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Action of Hard X-Rays on the System $KJ-KJO_3-H_2O-CHCl_3$ SOV/62-59-6-34/36

dose was measured with a ferrosulphate dosimeter, the X-ray intensity was controlled in an ionization chamber. The iodine separated by the radiation was determined by sodium thiosulphate. It could be seen that the quantity of the iodine separated increased with an increase in the integral dose (in the range of $1.0.10^{17}$-$1.5.10^{18}$ ev/ml) (Fig 2). Experiments with CCl_4 and CH_3Cl_3 showed a smaller increase. Experiments with a lower dose range showed no dependence of the iodine separation on the intensity of the dose. In the two-phase system (chloroform in aqueous solution of potassium iodide and potassium iodate) an increase in the quantity of the separated iodine with an increase in the concentration of KJ and KJO_3 could be observed. It is assumed that the separation of J is mainly due to the action of the atomic H which is formed by the radiation of the system. There are 2 figures, 1 table, and 7 references.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

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5.2500

77091
SOV/62-59-12-35/43

AUTHORS: Pikayev, A. K., Glazunov, P. Ya.

TITLE: Brief Communication. Investigation of Radiolytic Oxidation of Divalent Iron With Doses of 10^{21} ev/ml·sec

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniy khimicheskikh nauk, 1959, Nr 12, pp 2244-2245 (USSR)

ABSTRACT: The results are given of the radiolytic oxidation of divalent iron with accelerated electrons with an initial energy of 0.9-1.0 mev, with doses of 10^{21} ev/ml·sec. To determine the yield of the oxidation of divalent iron, a 3×10^{-3}M solution of Mohr salt in 0.8N H_2SO_4 with addition of 10^{-3}M NaCl was used. The trivalent iron was determined spectrophotometrically. The value of the molar extinction coefficient of Fe^{+3} in 0.8N H_2SO_4 at 304 mμ was assumed to be 2,170 (at 24°). The change in the molar extinction

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coefficient with temperature (0.7% per 1 degree) was taken into account in the calculations. All solutions were irradiated in a glas cell with a glass membrane. A high-voltage linear accelerating tube was used as the source of electron pulse radiation. The apparatus used in experiments is shown in Fig. 1. The value of the energy absorbed by the ferrous sulfate solution was determined with platinum wire soldered into the cell, using the ballistic galvanometer. The results of the experiments are shown in Table 1. There is 1 table; 1 figure; and 5 references, 1 Soviet, 3 U.S., 1 U.K. The U.S. and U.K. references are: Keene, J. P., Radiation Res., 6, 424 (1957); Hutchinson, F., Radiation Res., 9. 13 (1958); Schuler, R. H. , Allen, A. O., J. Chem. Phys., 24, 56 (1956); Sutton, H. C., Rotblat, Nature, 180, 1332 (1957).

Brief Communication. Investigation of Radiolytic Oxidation of Divalent Iron With Doses of 10^{21} ev/ml·sec

77091
SOV/62-59-12-35/43

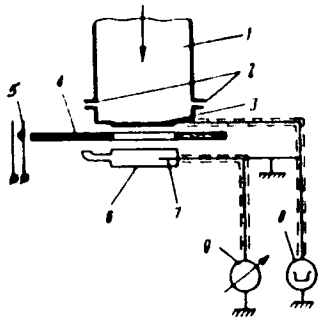

Fig. 1. Diagram of the apparatus: (1) lower part of the accelerating tube; (2) insulation; (3) outlet beryllium window (250 μ thick); (4) aluminum curtain shutter; (5) contacts for transmitting synchronizing light pulse to release mechanism of the modulator; (6) glass cell with membrane; (7) platinum wire; (8) oscillograph with a delaying record; (9) ballistic galvanometer.

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Table 1. The yield of oxidation of divalent iron with doses of $\sim 10^{21}$ ev·sec.

NUMBER OF PULSES	AVERAGE CURRENT IN SOLUTION PER PULSE (NR. OF ELECTRONS)	ENERGY OF ELECTRONS IN mev	CALCULATED DOSE PER PULSE IN ev	OPTICAL DENSITY OF THE IRRADIATED SOLUTION OF MOHR SALT AT λ = 304 mμ	$G(Fe^{3+})$, ions / 100 ev
10	$1,28 \cdot 10^{11}$	0,85	$10,88 \cdot 10^{16}$	0,080	16,7
10	$1,35 \cdot 10^{11}$	0,85	$11,48 \cdot 10^{16}$	0,088	16,8
10	$1,25 \cdot 10^{11}$	0,85	$10,63 \cdot 10^{16}$	0,071	15,4
10	$1,61 \cdot 10^{11}$	0,85	$13,69 \cdot 10^{16}$	0,088	14,2
15	$1,32 \cdot 10^{11}$	0,85	$11,22 \cdot 10^{16}$	0,112	15,3
20	$1,40 \cdot 10^{11}$	0,85	$11,9 \cdot 10^{16}$	0,156	15,1
20	$1,43 \cdot 10^{11}$	0,85	$12,16 \cdot 10^{16}$	0,196	15,1
21	$1,30 \cdot 10^{11}$	0,85	$11 \cdot 05 \cdot 10^{16}$	0,160	13,9
20	$1,39 \cdot 10^{11}$	0,85	$11,82 \cdot 10^{16}$	0,167	16,6
20	$8,85 \cdot 10^{11}$	0,95	$8,41 \cdot 10^{16}$	0,114	15,6
30	$8,85 \cdot 10^{11}$	0,95	$8,41 \cdot 10^{16}$	0,171	15,6
40	$9,6 \cdot 10^{11}$	0,95	$9,12 \cdot 10^{16}$	0,254	16,6
50	$1,01 \cdot 10^{11}$	0,95	$9,6 \cdot 10^{16}$	0,329	15,8

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Brief Communication. Investigation of Radiolytic Oxidation of Divalent Iron With Doses of 10^{21} ev/ml·sec

77091
SOV/62-59-12-35/43

ASSOCIATION: Institute of Physical Chemistry of the Academy of Sciences, USSR (Institute fizicheskoy khimii Akademii nauk SSSR)

SUBMITTED: May 5, 1959

Card 5/5

~~66033~~ 69635

S/074/60/029/04/03/005
B008/B014

21.6100 5.2400

AUTHOR: Pikayev, A. K.

TITLE: Radiochemistry of Aqueous Solutions of Inorganic Nitrogen Compounds VI

PERIODICAL: Uspekhi khimii, 1960, Vol. 29, No. 4, pp. 508-524

TEXT: This is a survey of publications dealing with radiolysis of aqueous solutions of inorganic nitrogen compounds. Though a great number of papers have been devoted to this important and complicated problem of radiochemistry, the mechanism of radiolytic conversions of the above-mentioned compounds has not yet been fully explained. The bonding of nitrogen in the presence of water and under the action of ionizing radiation was studied in Refs. 1 - 8. Refs. 9 - 15 deal with the radiolysis of aqueous ammonia-, hydrazine-, and hydroxylamine solutions, and Refs. 16 - 21 with the radiochemical oxidation of nitrite to nitrate (Table 1). Numerous research workers, including Soviet, studied radiochemical conversions of nitrates in aqueous solutions. The data available in publications on radiochemical yields of nitrite, the main product of radiolysis of aqueous nitrate solutions, are summed up in table 2 (Refs. 1 - 3, 18,

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Radiochemistry of Aqueous Solutions of Inorganic Nitrogen Compounds

S/074/60/029/04/03/005
B008/B014

22 - 36). The second main product obtained by reducing nitrates in aqueous solutions under the action of ionizing radiations is hydrogen (Refs. 23, 24, 37 - 41). Fig. 1 illustrates the dependence of $G(H_2)$ upon the concentration of the NO_3' ion in solution (Refs. 37, 38) (G = radiolytic yield per 100 ev of absorbed energy). Molecular nitrogen and nitrogen oxides are produced by treating aqueous nitrate solutions with rays having a high ionization density (Refs. 27, 31, 38, 39). By radiolysis of aqueous nitrate solutions oxygen and hydrogen peroxide are produced as oxidation products (Refs. 19, 23, 24, 27, 41, Tables 2, 3). Concerning radiolysis of aqueous nitric acid solutions, there are only few data available in publications (Refs. 42 - 44, Table 4). Concerning the mechanism of radiolytic reduction of the NO_3' ion, research workers disagree. This applies especially to concentrated solutions in which the solute is exposed to direct and indirect radiation (Refs. 1 - 3, 23 - 26, 28, 29, 32, 35, 36, 45 - 50). Fig. 2 illustrates the influence exerted by $NaNO_3$ upon the reduction of Ce^{4+} in 0.8 N H_2SO_4 (Ref. 45). Fig. 3 shows the dependence of $G(NO_2')$ on the KNO_3 concentration in solution (Refs. 28, 29, 47) while Fig. 4 shows the dependence of $G(NO_2')$ on the concentration of $NaNO_3$ in solution

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69635

Radiochemistry of Aqueous Solutions of Inorganic Nitrogen Compounds

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B008/B014

(Ref. 41). Table 5 contains the yields of nitrite (ions/100 ev) resulting from direct action of the γ-radiation of Co^{60} according to data from Ref. 47. The experimental data available are insufficient for an exact definition of one or the other radiolytic conversion mechanism of nitrates in aqueous solutions. The following Soviet personalities are referred to: V. D. Orekhov, A. I. Chernova, M. A. Proskurnin, M. T. Dmitriyev, S. Ya. Pshezhetskiy, V. A. Sharpatyy, A. A. Zansokhova, N. A. Bakh, V. I. Medvedovskiy, A.A.Revina, V. D. Bityukov, A. M. Kabakchi, V. A. Gramolin, V. M. Yerokhin, G. G. Ryabchikova, V. I. Duzhenkov, P. Ya. Glazunov, Ye. V. Zhuravskaya, A. A. Zaytsev, V. N. Kosyakov, A. G. Rykov, Yu. P. Sobolev, G. N. Yakovlev, V. N. Molin. There are 4 figures, 5 tables, and 50 references, 23 of which are Soviet.

ASSOCIATION: In-t fizicheskoy khimii AN SSSR (Institute of Physical Chemistry of the AS USSR)

Card 3/3

PIKAYEV, A.K.; GLAZUNOV, P.Ya.

Radiolytic reduction of tetravalent cerium at dose rates up to 10^{23} eV/ml.sec. Izv.AN SSSR Otd.khim.nauk no.5:940-942 My '60. (MIRA 13:6)

1. Institut fizicheskoy khimii Akademii nauk SSSR.
(Cerium) (Radiation)

86483

Q1 6100

S/062/60/000/011/014/016
B013/B078

AUTHORS: Pikayev, A. K., Glazunov, P. Ya.

TITLE: Effect of Solution Concentration on the Radiation Yield in Oxidation of Bivalent Iron With Strong Doses of Radiation

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 11, pp. 2063 - 2064

TEXT: In this brief report, mention is made of the investigation of the effect of strong radiation doses upon the size of $G(Fe^{3+})$ with varying concentrations of Mohr's salt. The strong radiation doses were as previously (Refs. 2-4), produced with the aid of pulsating electron radiation. The initial electron energy amounted to 0.8-0.9 Mev. Experiments and measurements of the doses of radiation were carried out by methods described earlier (Refs. 3 and 4). The dependence of $G(Fe^{3+})$ on the concentration of the solution can be seen in the figure. Curve 1 shows this dependence at a dosis of $\sim 10^{21}$ ev/ml·sec and Curve 2 at a dosis of

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86483

Effect of Solution Concentration on the Radiation Yield in Oxidation of Bivalent Iron With Strong Doses of Radiation

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B013/B078

35.10^{22} ev/ml.sec. Each value of $G(Fe^{3+})$ represents an average of 8-12 measurements. Experiments have shown that an increase of the dosis will lead to a contraction of the concentration range in which $G(Fe^{3+})$ will not depend upon the concentration of the initial solution. The results determined show that the phenomena connected with the competition of reactions: radical-radical and radical-dissolved substance, will show up more markedly with a strong dosis. It is noted that with a low concentration of the solution and with a strong dosis the reaction $HO_2 + HO_2 \rightarrow H_2O_2 + O_2$ probably plays a substantial part. The course of this reaction obviously leads to a reduction of $G(Fe^{3+})$. There are 1 figure and 5 references: 3 Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

SUBMITTED: April 27, 1960

Card 2/2

5(4) 5.4500(B) 68615

AUTHORS: Glazunov, P.Ya., Pikayev, A.K. S/020/60/130/05/027/061
B004/B014

TITLE: Investigation of the Radiolytic Oxidation of Divalent Iron With Strong Radiation Doses

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 5, pp 1051-1054 (USSR)

ABSTRACT: The authors describe a circuit designed for strong radiation doses with pulses of 1-5 μsec. The circuit of the pulse instrument is illustrated in figure 1. Discharge in the moderator is effected by a high-voltage thyratron that is controlled by means of a blocking oscillator. The remote starting of the modulator was accomplished via an IS-50 flash-tube and an FEU-19 photoelectronic multiplier. The dark current was suppressed by a special circuit which controlled the cathode of the electron gun via an artificial line by means of a positive blocking potential and a decoupler of the type DGTs-27. Electronic radiation was measured with the help of an integrator and a scaler of the type PS-10000 (Fig 2). The following data were obtained for rectangular pulses: duration of 5 μsec, 100-120 ma, doses of up to 10^{23} ev/ml.sec with an energy of 0.9 mev. The

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Investigation of the Radiolytic Oxidation of Divalent Iron With Strong Radiation Doses

S/020/60/130/05/027/061
B004/B014

formation of Fe^{3+} in a solution of $FeSO_4$ in 0.8 N H_2SO_4 was spectroscopically determined. The values of $G(F^{3+})$ are listed in table 1. These values notably decrease with a dose increase above 10^{22} ev/ml.sec and become lower than the values obtained by the authors in an earlier paper (Ref 2). The authors give the reactions produced by water radiolysis. The drop of $G(Fe^{3+})$ is explained by the greater probability of recombination of the radicals H and OH with a strong radiation dose as a result of overlapping of the tracks of ionized particles. There are 2 figures, 1 table, and 6 references, 3 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

PRESENTED: September 28, 1959, by V.I. Spitsyn, Academician

SUBMITTED: September 25, 1959

Card 2/2

5.3630
5.4500(B)

AUTHORS: Spitsyn, Vikt. I., Academician, Afanas'yeva, N. A., Pikayev, A. K., Kolli, I. D., Glazunov, P. Ya.

8000 4
S/020/60/131/05/034/069
B011/B117

TITLE: Radiation Method of Synthesis for Some Derivatives of Phosphonitryl Chloride

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 5, pp 1106-1108 (USSR)

TEXT: The authors investigated the possibility to synthetize the butyl phosphonitryl ether by radiation of a mixture consisting of tetrameric phosphonitryl chloride and n-butyl alcohol with a high-energy electron flux at room temperature. An electron accelerator giving up to 1.0-1.2 Mev (Ref 14) was used as the radiation source. The solutions were irradiated in glass cells equipped with a thin glass membrane. n-Butyl alcohol was cooled and stirred with air saturated with n-butanol vapor. The course of the reaction was checked with an Ostwal'd viscosimeter and by checking the chlorine content in the resulting compounds. It was found that, for both chlorine atoms in tetrameric phosphonitryl chloride, butoxy radicals are substituted. Then, the authors described a typical experiment in order to obtain butyl phosphonitryl ether. With radiation using 0.6 Mev electrons and a current of 3 μa in the solution for six hours and with an integral dose of $1.5 \cdot 10^{22}$ ev/ml at a maximum temperature of 30°, a

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Radiation Method of Synthesis for Some Derivatives of Phosphonitryl Chloride

S/020/60/131/05/034/069
B011/B117

viscous brown liquid with a disagreeable smell remained, when n-butanol had been distilled off. Its analytical data corresponded to phosphonitryl ether of n-butyl alcohol. The yield was nearly twice as much as compared to the yields, obtained with methods according to reference 9, i.e. 45%. Table 1 shows the results of viscosity measurements of the irradiated 5% solutions of the tetramer in n-butyl alcohol as well as of chlorine determinations in the products obtained. Figure 1 shows the characteristic changes of viscosity of a 5% solution of the tetramer in butanol as a function of the integral radiation dose. The authors come to the conclusion that the character of the radiolytic reaction mentioned is complicated. The rapid decrease of the chlorine content and the reduction of viscosity at the very beginning of radiation are probably due to a substitutional chain reaction. The substance dissolved is probably exposed chiefly to the action of hydrogen atoms forming when n-butyl alcohol is being radiolyzed. By reaction with atomic hydrogen, the ring of the tetramer is split. Mono- and dimeric radicals are formed, and chlorine atoms are split off as HCl (see schemes (1) - (5)). Hydrogen atoms resulting from the reactions (4) and (5) react again with the tetramer, and so on. If radiation is further prolonged, an inverse reaction between HCl and the butoxy derivatives due to a high HCl concentration is possible, besides ring formation (Table 1). For this reason, a maximum

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Radiation Method of Synthesis for Some Derivatives of Phosphonitryl Chloride

S/020/60/131/05/034/069
B011/B117

appears on the curve (Fig 1); the second minimum is apparently due to the suppression of the inverse reaction. The method mentioned in the title has several advantages as compared to current-type procedures. When a 2% solution of phosphonitryl chloride trimer in absolute dioxane was irradiated, $(PNClC_4H_8O_2)_x$ - a substitution product of one dioxane molecule for one chlorine atom of phosphonitryl chloride - was obtained (Table 2). This compound is highly resistant to hydrolysis. Its structure is being further studied. There are 1 figure, 2 tables, and 14 references, 3 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR). Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: January 16, 1960

Card 3/3

S/020/60/132/02/45/067
B004/B007

AUTHORS: Spitsyn, Vikt. I., Academician, Pirogova, G. N., Pikayev, A. K., Glazunov, P. Ya.

TITLE: The Action of High-energy Electrons on Complex Compounds of Platinum

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 2, pp. 406-408

TEXT: The authors investigated the action of a beam of accelerated electrons on the solid platinum compounds $K_2[PtCl_6]$, $(NH_4)_2[PtCl_6]$, $K_2[PtCl_4]$, $(NH_4)_2[PtCl_4]$, $[Pt(NH_3)_4]Cl_2.H_2O$, cis- and trans-$[Pt(NH_3)_2.Cl_2]$. The synthesis of these compounds and their analyses are given in Table 1. A 1-Mev accelerating tube served as radiation source. The irradiation cell is shown in Fig. 1. The experiments were carried out in dry argon at constant temperature (90-95°C for the chloroplatinites, 145-150°C for the other compounds), at which no decomposition as yet occurs without irradiation. The metallic platinum separated as a result of irradiation was gravimetrically determined. Table 2 gives the initial metallic platinum yield in atoms/100 ev for the individual compounds.

Card 1/2

The Action of High-energy Electrons on Complex Compounds of Platinum

S/020/60/132/02/45/067
B004/B007

The steric configuration influences the stability of the compounds. Figs. 2 and 3 show the course taken by the reduction. After the adsorption of a certain total dose, the reduction stops. The authors ascribe this to the oxidizing action of the atomic chlorine formed. Complexes containing reducing components (NH_3 or NH_4^+) are more intensely decomposed. The reduction of aqueous solutions of platinum compounds is effected with lower doses, probably because of the simultaneous action of radiolysis products of water. There are 3 figures, 2 tables, and 7 references, 5 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: February 9, 1960

Card 2/2

89027

S/020/60/135/004/032/037
B004/B056

5.4500(B)

AUTHORS: Pikayev, A. K., and Glazunov, P. Ya.

TITLE: Radiolytic Reduction of Tetravalent Cerium in the Presence of Monovalent Thallium With High Radiation Doses

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4, pp. 902 - 905

TEXT: The aim of the present work was to study the effect of strong radiation doses on the course of radiolytic processes in aqueous solutions. The authors give an account on radiation-chemical processes in sulfuric acid solutions of Ce^{4+} and Tl^{+} at radiation doses of up to 10^{23} ev/ml.sec. Irradiation was done by monoenergetic electron pulses (0.8 Mev) in a glass cell with a glass membrane approximately 60μ thick glass membrane and having a volume of 7 ml (thickness of the fluid layer: 5 mm). The resulting quantity of Ce^{3+} was determined spectrophoto-

Radiolytic Reduction of Tetravalent Cerium in the Presence of Monovalent Thallium With High Radiation Doses

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B004/B056

metrically. The molar extinction coefficient of Ce^{4+} in 0.8 N H_2SO_4 at 320 mμ was assumed to be 5580, according to Ref. 4. Tl^{3+} was determined indirectly by the addition of Fe^{2+} and by spectroscopic determination of iron oxidized to Fe^{3+} by Tl^{3+} and Ce^{4+}. The Ce^{4+} content of the solution had been ascertained before. This method was satisfactory up to doses of 10^{22} ev/ml.sec. When doses are higher, determination becomes less accurate because of the low Tl^{3+} concentration. $G(Ce^{3+})$ was determined in air-saturated 0.8 N H_2SO_4 which contained 2.10^{-4} M Ce^{4+} and 10^{-2} M Tl^{+}. A decrease of $G(Ce^{3+})$ was observed with increasing dose rate (Fig. 1). At a constant dose ($4.5 \cdot 10^{22}$ ev/ml.sec) and a constant Ce^{4+} concentration (2.10^{-4} M), $G(Ce^{3+})$ increased in proportion to the logarithm of Tl_2SO_4

concentration. The following was found for $G(Tl^{3+})$: At about 10^{21} ev/ml.sec: 1.5 ± 0.15 ions/100 ev; at 5.10^{22} ev/ml.sec: 0.4 ± 0.2 ions/100 ev. The reactions for the radiolytic process are written according to Ref. 5: $H_2O \longrightarrow H, OH, H_2, H_2O_2$ (0); $Ce^{4+} + H \longrightarrow Ce^{3+} + H^+$ (1); $2Ce^{4+} + H_2O_2 \longrightarrow 2Ce^{3+} + 2H^+ + O_2$ (2); $Tl^+ + OH \longrightarrow Tl^{2+} + OH^-$ (3); $Ce^{4+} + Tl^{2+} \longrightarrow Ce^{3+} + Tl^{3+}$ (4), with the conclusion: $G(Ce^{3+})_{Tl^+} = G_H + G_{OH} + 2G_{H_2O_2}$ (5), where $G(Tl^{3+}) = G_{OH}$ (6).

(G_H, G_{OH}, $G_{H_2O_2}$ are the yields in water radiolysis products). For the case of low doses the following relation is written according to Refs. 5,

6: $G(Fe^{3+}) = 3G_H + G_{OH} + 2G_{H_2O_2}$ (7); $G(Ce^{3+}) = G_H - G_{OH} + 2G_{H_2O_2}$ (8); equations 5, 7, and 8 give: $G(Ce^{3+})_{Tl^+} - G(Ce^{3+}) = 2G_{OH}$ (9); $3G(Ce^{3+})_{Tl^+} - G(Fe^{3+}) = 4G_{H_2O_2} + 2G_{OH}$ (10). Substitution of $G(Fe^{3+})$, $G(Ce^{3+})$ and $G(Ce^{3+})_{Tl^+}$, measured at 5.10^{22} ev/ml.sec, in equations 9 and 10 gave negative $G_{H_2O_2}$ values for all Tl^+ concentrations. The conclusion is drawn that in the case of strong doses, side reactions of Tl^{2+} and Tl^{3+}, chiefly with H_2O_2 take place. This also explains the deviation of Ce^{4+} reduction from linearity in the presence of Tl^+ and at strong doses. As a consequence of increased concentration, heavier competition of radical - radical and radical - solute interactions, as well as intensi-

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Radiolytic Reduction of Tetravalent Cerium in the Presence of Monovalent Thallium With High Radiation Doses

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B004/B056

fication of the side reactions occur. There are 4 figures and 10 references: 6 Soviet, 3 US, and 1 French.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

PRESENTED: June 25, 1960 by V. I. Spitsyn, Academician

SUBMITTED: June 22, 1960

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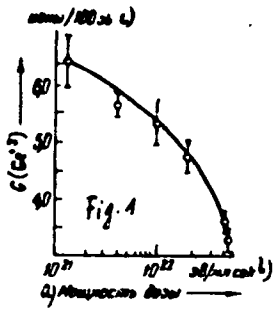
89027

S/020/60/135/004/032/037
B004/B056



Legend to Fig. 1: a) dose rate; b) ev/ml.sec; c) ions/100 ev

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5.2500 (1273, 1350, 1042)
21 3100

21971
S/186/61/003/001/007/020
A051/A129

AUTHORS: Gel'man, A.D., Mefod'yeva, M.P., Pikayev, A.K., Glazunov, P.Ya.

TITLE: The effect of ionizing radiation on the valency state of neptunium in aqueous solutions

PERIODICAL: Radiokhimiya, v. 3, no. 1, 1961, 31-36

TEXT: A study was made of fast electrons acting upon Np^{V} in $HClO_4$ (0.02-3.4 n), HNO_3 (0.05 n) and H_2SO_4 (0.86 n solutions, as well as in 0.8 n H_2SO_4. The authors investigated the radiolytic reduction of Np^{V} in these solutions, as well as the radiolytic oxidation of Np^{IV} in the sulfuric acid solutions. Np^{VI} in the $HClO_4$ solution was prepared by heating a solution of neptunium salt with concentrated nitric acid (Ref 2). Np^{IV} in the H_2SO_4 solution was prepared by alkaline precipitation of the hydroxide. The concentrations of neptunium in the investigated solutions was determined by spectrophotometry. Two series of measurements of self-reduction of Np^{V} in the solution were carried out, the correctration of which was close to that of the irradiated solutions. The re action

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The effect of ionizing radiation ...

ship curves D_{980} to the standing time of the solutions are given in Fig. Fig 2 shows the difference in the accumulation of $Np^{(VI)}$ when the solution is irradiated and Fig 3 is a diagram of the apparatus used for irradiating the solutions. An electron accelerator of 1.2 - 1.3 Mev served as the source of ionizing radiation (Ref 3). The relationships of the quantity of $Np^{(V)}$ formed to the amount in irradiation of a 0.001 M solution of $Np^{(VI)}$ in 0.86 n H_2SO_4 (curve 1) and 0.001 M $Np^{(VI)}$ in 0.05 n HNO_3 (curve 2) are shown in Fig 4. Using the slopes of the curves 1 and 2 (Fig 4) the initial yields of $Np^{(V)}$ could be computed. $G_{NpO_2^+}$ yield equals 3.0 for 0.86 n H_2SO_4 and 8.25 ion/100 ev for 0.05 n HNO_3. When an aqueous solution of $Np^{(IV)}$ is irradiated with fast electrons, the oxidation of $Np^{(IV)}$ to $Np^{(V)}$ takes place, but not that of $Np^{(VI)}$. Curve 3 (Fig 4) shows the relationship of the quantity of $Np^{(V)}$ formed to the amount obtained when irradiating a 0.001 M solution of $Np^{(IV)}$ in 0.8 n H_2SO_4. Thus, the authors conclude that the most stable valency state of neptunium in the radiochemical sense is $Np^{(V)}$, i.e., the neptunoyl ion NpO_2^+. The authors calculated the value of $G_{NpO_2^+}$ and found it to be largely dependent on the nature of the acid used.

Card 2/

It was found that the oxidation of Np ... Np ... in 0.8 n H_2SO_4 takes place as a result of the presence of OH radicals and hydrogen peroxide.

2H ... Np ... OH → Np ...

Np ... H ... → Np ... H ... H

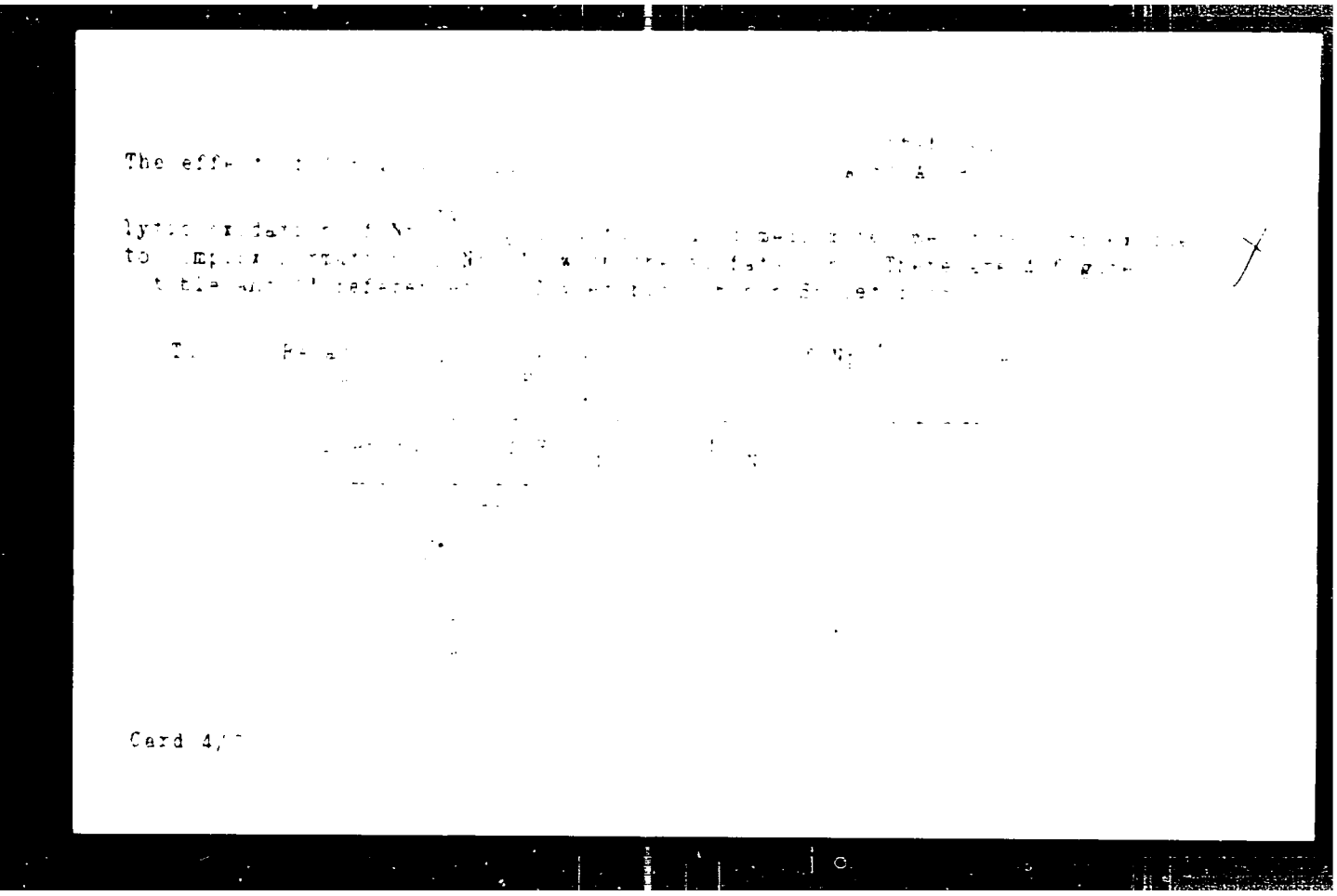
Th ... Np ... may ...

4H ... Np ... H → Np ... H

H H → H

The ... the pr...

Card 3/



Card 4/

STOLYARCHIK, L.E.; PIKAYEV, A.K.

After-effects in air-saturated sulfuric acid solutions of ferrous sulfate containing ethyl alcohol and subjected to pulsed radiation of electrons. Dokl. AN SSSR 141 no.5:1147-1150 D '61. (MIRA 14:12)

1. Institut fizicheskoy khimii AN SSSR i Institut yadernykh issledovaniy Pol'skoy Akademii nauk. Predstavleno akademikom V.I. Spitsynym.

(Iron sulfate)
(Radiation)

S/081/62/000/004/008/087
B149/B101

5 46CC

AUTHORS: Pikayev, A. K., Glazunov, P. Ya.

TITLE: Investigation of certain radiochemical processes in aqueous solutions at relatively high dose rates

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 73-74, abstract 4B512 (Tr. Tashkentsk. konferentsii po mirn. ispol'zovaniyu atomn. energii, v. 1, 1959. Tashkent, AN UzSSR, 1961, 354-360)

TEXT: A method of obtaining and measuring single electron pulses in a linear acceleration electron tube is described. Pulse parameters: rectangular shape, duration 5 μsec, pulse current - up to 150 ma, electron energy 0.8-1.0 Mev dose rate up to 10^{23} ev/ml·sec. The action of pulsed radiation on aqueous solutions of Fe^{2+} and Ce^{4+} sulfates was studied. Starting from a dose rate of 10^{21} ev/ml·sec, $G(Ce^{3+})$ increases whereas $G(Fe^{3+})$ decreases with increasing dose rate. This effect is
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explained by overlapping of the tracks of the ionizing particles. At high dose rates owing to the increased effects based on the competition between radical - radical and radical - dissolved substance reactions, the zone of concentration in which $G(F^{3+})$ is independent of the concentration of the solution contracts. [Abstracter's note: Complete translation.]

Card 2/2

5/844/62/000/000/015/129
D290/D307

AUTHORS: Pikayev, A. K. and Firsunov, P. Ya.

TITLE: Radiolytic changes in aqueous solutions of various inorganic compounds at high dose rates

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy [illegible] mii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, [illegible], 107-115

TEXT: This paper is a continuation of earlier studies by the same authors of variations in the yields of radiolysis products in aqueous solutions of inorganic compounds at high dose rates. [illegible] solutions of ferrous ammonium sulfate in 0.8N H_2SO_4 were irradiated in the absence of oxygen, as well as mixtures of Tl_2SO_4 and $Ce_2(SO_4)_3$ and of Ce^{3+} and Ce^{4+} sulfates saturated with air, a mixture of HCOOH, $Fe_2(SO_4)_3$ and $CuSO_4$ in 0.01N H_2SO_4 saturated with air. The solutions were irradiated with pulses of fast electrons (pulse

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Radiolytic ... [illegible] ...

... [illegible] ... electron beam, .5 - 1.0 Mev; ... irradiated at ... 10^{-5} ev/ml-sec. The yields of radiolysis ... measured as a function of the dose rate were found to ... the yields at low dose rates; the differences were ... 10^{-1} ev/ml-sec. The authors compare the results with ... with an attempt to explain them by the fact that ... of ionizing particles may overlap at high dose rates. ... lapping may lead to competition between radical ... oil-solvent reactions, and to an increase in the ... rious secondary reactions. On this basis the ... lar mechanisms that could explain the result. ... ures and 2 tables.

Association: Institut Fizicheskoy Khimii AN SSSR (Institute of Physical Chemistry, AS USSR)

Card 2/2

A3228

S/844/62/000/000/027/129
D244/D307

AUTHORS: Gel'man, A. D., Mefod'yeva, M. P., Pikayev, A. K. and Glazunov, P. Ya.

TITLE: Radiolysis of aqueous solutions of tetra- and hexavalent neptunium

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 167-170

TEXT: In connection with the recovery of Np from atomic reactors, the radiolytic reduction of Np^{VI} was investigated in perchloric, sulphuric and nitric acid solutions. Also investigated was the oxidation of Np^{VI} in H_2SO_4 solutions. The radiation source was an electron accelerator, the energy of electrons being up to 1.0 - 1.3 Mev. The dosage was about 4.5×10^{15} ev/ml.sec and the initial energy of electrons 0.7 to 0.8 Mev. All solutions were saturated with air. In

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Radiolysis of aqueous ... S/844/62/000/000/027/129
D244/D307

solutions of Np^{VI} in $HClO_4$, H_2SO_4, and HNO_3, the reduction to Np^V but not to Np^{IV} took place. In 4 M HNO_3, the reduction of Np^{VI} ceased almost completely. In $HClO_4$, the formation of Np^V was proportional to the radiation dose (from ~6 to 8 x 10^{18} ev/ml). $G(NpO_2^+)$ in HNO_3 solutions decreased with the increasing concentration of HNO_3. In 0.86 N H_2SO_4 solutions $G(NpO_2^+)$ increased with the dosage. Np^{IV} is oxidized to Np^V without the formation of Np^{VI}. In 0.8 N H_2SO_4 containing 0.001 M Np^{IV}, the formation of Np^V increased with the dosage. Thus the form of Np which is most stable to the radiation is Np^V. It is believed that the reduction of Np^{VI} in 0.86 N H_2SO_4 is due to the action of H and H_2O_2 and the oxidation of Np^{IV} is caused by the action of OH radicals and H_2O_2. There are 2 figures and 2 tables.

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Radiolysis of aqueous ...

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D244/D307

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry AS USSR)

Card 3/3

SAVICH, I.A.; PIKAYEV, A.K.; LEBEDEV, B.G.; KUZ'MICHEVA, Ye.U.; SPITSYN, Vikt.I.

Certain properties of chelate-type salts of uranyl with Schiff bases. Zhur.neorg.khim. 7 no.3:498-509 Mr '62. (MIRA 15:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova, kafedra neorganicheskoy khimii i Institut fizicheskoy khimii AN SSSR.

(Uranyl salts) (Schiff bases)

BARSOVA, L.I.; PIKAYEV, A.K.; SPITSYN, Vikt.I., akademik; BALANDIN, A.A., akademik

Radiolysis of aqueous solutions of certain rhodium compounds. Dokl.AN SSSR 144 no.2:344-346 My '62. (MIRA 15:5)

1. Institut fizicheskoy khimii AN SSSR i Moskovskiy gosudarstvennyy universitet im. M.V.Lomonsova.
(Rhodium compounds) (Radiation)

S/844/62/000/000/086/129
D423/D307

AUTHORS: Spitsyn, V. I., Afanas'yeva, N. A., Kolli, I. D., Pikayev, A. K. and Glazunov, F. Ya.

TITLE: Radiation polymerization of phosphonitrile chloride

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 507-510

TEXT: Investigations were carried out on samples of phosphonitrile chloride deposited on aluminum subjected to various doses of 1 - 1.2 Mev electrons from an electron accelerator, at a temperature of about 130°C. Almost complete polymerization occurred with a dose of 1.7×10^{24} ev/g, in the presence of oxygen. Since partial volatilization of the $(PNCl_2)_3$ occurred, owing to heating by absorption of energy, similar experiments were carried out with $(PNCl_2)_4$ in the absence of oxygen, but only at very high dosages was any significant polymerization observed. Experiments were car-

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ried out in addition on the action of radiation on the reaction of n-butyl alcohol with $(PNCl_2)_4$, which does not take place under normal conditions. A typical experiment was carried out using 60 ml of a 5% solution of $(PNCl_2)_4$ in absolute n-butanol and irradiating in a glass cell for 6 hours with 0.6 Mev electrons and a dose of 1.5×10^{22} ev/ml. The temperature did not exceed 30°C. After analysis the product was found to correspond to phosphonitrile ether n-butanol. Atomic hydrogen liberated during the process was assumed to be responsible for the formation of monomer and dimer radicals and also HCl. Data obtained indicated that the chlorine content of the solution was reduced with increase of dosage. Further work was undertaken using a mixture of phosphonitrile chloride and calcium fluoride in tetrachlorethane. Analysis confirmed that mixed phosphonitrile halides were obtained, corresponding to the formula $P_4N_4FCl_7$. There are 2 tables.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR, Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, khi-

Card 2/3

Radiation polymerization of ... S/844/62/000/000/086/129
D423/D307

micheskoy fakul'tet (Institute of Physical Chemistry, AS USSR; Moscow State University im. M. V. Lomonosov, Faculty of Chemistry)

Card 3/3

S/020/62/144/003/028/031
B124/B101

AUTHORS: Spitsyn, Vikt. I., Academician, Balandin, A. A., Academician, Barsova, L. I., and Pikayev, A. K.

TITLE: Radiochemistry of aqueous solutions of bivalent palladium salts

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 3, 1962, 606-609

TEXT: The radiolytic reduction of aqueous solutions of 0.1-0.001 M palladous chloride (I), 0.01-0.001 M potassium tetrachloropalladate (II), 0.03 M palladous sulfate (III), and 0.01-0.001 M palladous nitrate (IV) by 0.7-0.9 Mev electrons from a direct-acceleration electron tube has been studied. Irradiation of I, II, III, gives palladium black and irradiation of IV gives palladous hydroxide. The radiochemical yields of palladium were determined by measuring the optical density of the solutions (Fig. 1, at 415 mμ as a function of the time of radiation, with parallel weighing of the precipitated metal. The respective curves were used to determine the radiochemical yield, $G(-Pd^{2+})$, of reduced Pd^{2+}. The yield of palladium black, G(Pd), obtained with various radiation doses is determined

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