USSR UDC: 518.5:681.3.06

KOLEROV, T. Ya., NEZHINSKAYA, M. M.

"Calculation of Current Distribution in an Isolated Pipeline Buried in the Homogeneous Unbounded Earth"

V sb. Mat. obespecheniye avtomatizir. sistem proyektir. elektro- i radiotekhn. ustroystv. Vyp. 3 (Mathematical Provisioning for Automated Systems for the Design of Electrical and Radio Equipment. No 3--collection of works), Kiev, 1970, pp 3-25 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V613)

Translation: The paper describes an algorithm and standard program for calculating the electromagnetic field created by the current of a cathode station in an isolated pipeline buried in homogeneous unbounded soil. The problem is formulated as a system of second-order linear integral equations which contain Volterra and Fredholm operators with respect to the unknown quantity -- the voltage drop across the insulation. In this regard, it is assumed that the field is one-dimensional in the pipe, two-dimensional in the insulation, and three-dimensional in the soil.

USSR UDC: 621.319.4(088.8)

PEL'TSMAN, I. D., NEZHINSKIY, A. I.

"A Device for Applying Current-Conducting Bands to Cylindrical Stock for Radio Components"

USSR Author's Certificate No 253246, filed 8 Apr 68, published 26 Feb 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V382 P)

Translation: This Author's Certificate introduces a device for applying current-conducting strips to the cylindrical blanks of radio components such as capacitors. The device contains a mechanism for loading and holding blanks, a transport mechanism, a unit for applying the strips which is made in the form of a wiper connected to a distributor shaft. The installation also incorporates a paste bath, a mechanism for rotating and removing the blanks, a drying unit and a drive mechanism. As a distinguishing feature of the patent, the operational reliability of the device and the quality of applying the strips are improved by making the above-mentioned mechanism for holding the blanks in the form of spring-loaded thrust blocks located on both sides of the transport disc. Fastened on the ends of these

PEL'TSMAN, I. D., NEZHINSKIY, A. I., USSR Author's Certificate No 253246

blocks are gears which engage with gears on the housing of the mechanism for rotation of the blanks. These gears are carried by a roller which reciprocates in the vertical plane, and on one end of this roller is a friction disc which interacts with a friction disc on the carriage shaft.

USSR UDC 621.391:519.27

NEZHMETDINOV, T. K., PANKOVETS, V. V., ROMANOV, I. M.

"Effectiveness of Introducing Adaptation in Complex Radio Systems with Information and Structural Adaptation"

Priyem i obrabotka inform. v slozhn. inform. sistemakh -- V sb (Information Reception and Processing in Complex Information Systems -- collection of works), Vyp. 2, Kazan', Kazan' University, 1970, pp 14-19 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A37)

Translation: The savings from introduction of adaptation in individual system links -- the receiver and the device for subsequent information processing -- are estimated. The estimate is made by comparing the "income" from increasing the properly received information and the "expenses" determined by the necessary complication of the system. There is 1 illustration and a 1-entry bibliography.

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USSR

UDC 539.3:534.1

NEZVANOV, D. N.

"Stability of Cylindrical Shells of the Waffle Type Under Axial Compression"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1971, No. 48, pp 119-132 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V402)

Translation: The nonlinear problem of the stability of a circular cylindrical shell is considered. The equations of flat shells are used. Their solution was obtained by the Rayleigh method in the first approximation. The Seidel method was used to solve the nonlinear algebraic equations. A numerical study was made on the M-20 computer and is represented by graphs of the low critical loads for shells with symmetric and one-sided distribution of ribs relative to the middle surface. The effectiveness of one-sided location of the ribs and the nonessential effect of the location of the ribs (outside or inside the shell) on the value of the lower critical force are noted. V. V. Kabanov.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CALCULATING THE THERMODYNAMIC PROPERTIES OF FREONS -U-

AUTHOR-(02)-NGUYEN, A.H., SLYNKO, A.G.

COUNTRY OF INFO--USSR

SOURCE--KHOLOD. TEKH. 1970, 46(12), 24-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

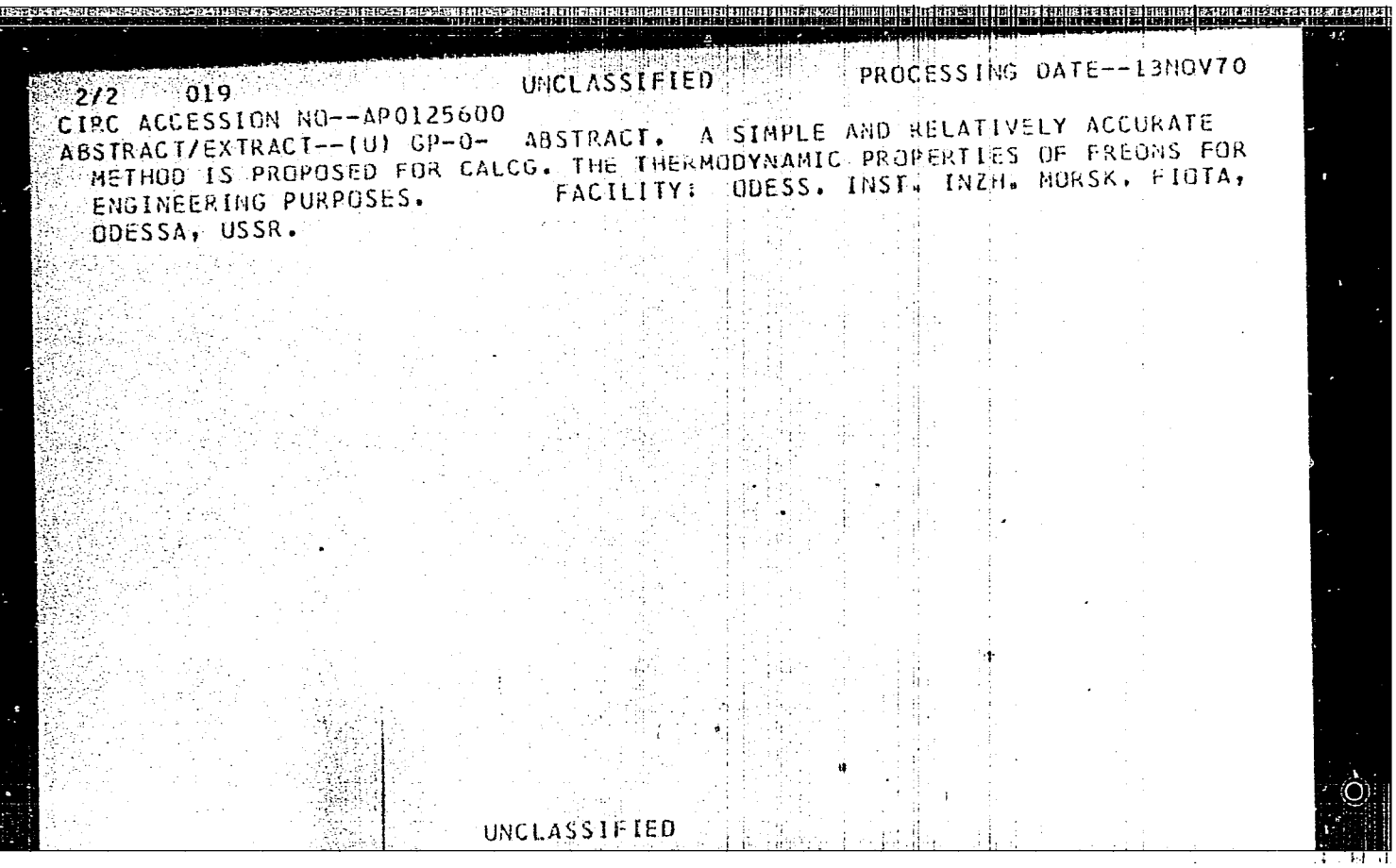
TOPIC TAGS--THERMODYNAMIC CHARACTERISTIC, FREON, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2012 STEP NO--UR/0066/70/046/012/0024/0028

CIRC ACCESSION NO--AP0125600

UNCLASSIFIED



2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0125600
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SIMPLE AND RELATIVELY ACCURATE METHOD IS PROPOSED FOR CALCG. THE THERMODYNAMIC PROPERTIES OF FREONS FOR ENGINEERING PURPOSES. FACILITY: ODESS. INST. INZH. MORSK. FIOTA, ODESSA, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--KIRKENDALL EFFECT IN A ONE COMPONENT SYSTEM -U-

AUTHOR-(03)-GEGUZIN, YA.YE., NGUYEN, C.B., PARITSKAYA, L.N.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(3), 569-71

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--KIRKENDALL EFFECT, COPPER ALLOY, SINTERED METAL, METAL ROLLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1132 STEP NO--UR/0020/70/190/003/0569/0571

CIRC ACCESSION NO--AT0116597

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116597

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFUSION INDUCED POROSITY OCCURS AT THE CONTACT SURFACE OF DENSE CU (SINTERED CU) AFTER FIRING. THIS IS ATTRIBUTED TO A FRENKEL EFFECT, CONSEQUENTLY A SIMULTANEOUS COUNTER EFFECT, THE KIRKENDALL EFFECT IS SUGGESTED ALSO. IN ORDER TO PROVE IT, 3 LAYER SAMPLES WERE PREPD. WITH POROUS OUTER LAYERS (CU SHEETS ELECTROPLATED FROM AN ACID BATH AT 5 A-DM PRIME2) AND A DENSE INNER LAYER (CAST ROLLED CU IN SOME EXPTS. AND CU, ELECTROPLATED AT 0.25 A-DM PRIME2 IN OTHERS). INERT MARKERS (MO WIRES) WERE PLACED TO FIX THE POSITION OF THE CONTACT. THE THREE LAYER SAMPLES WERE FIRED AT 950DEGREES FOR 2-36 HR AND EXAMD. UNDER A MICROSCOPE AFTER POLISHING. EXPTS. PROVED THAT A KIRKENDALL EFFECT TAKES PLACE DUE TO THE ORIENTED SELF DIFFUSION OF VACANCIES. NO KIRKENDALL EFFECT WAS DETECTED IN SAMPLES WITH DENSE OUTER AND POROUS INNER LAYERS. FACILITY: KHARKOV. GOS. UNIV. IM. GOR'KOGO, KHARKOV, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SPARK COUNTER FOR FISSION FRAGMENTS -U-

AUTHOR-(05)-GANGRSKIY, YU.P., DALKHSUREN, B., LAZAREV, YU.A., MARKOV, S.N., NGUYEN, C.H.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, (2), 63-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR FISSION, SPARK CHAMBER, NUCLEAR PHYSICS APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/2016 STEP NO--UR/0120/70/000/002/0063/0065

CIRC ACCESSION NO--AP0138870

UNCLASSIFIED

2/2 014 UNCLASSIFIED

IRC ACCESSION NO--AP0138870 PROCESSING DATE--04DEC70

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF MEASUREMENTS OF THE EFFICIENCY OF REGISTRATION FOR FISSION FRAGMENTS AND OF THE RESOLVING TIME FOR SEVERAL GAS MIXTS. BASED ON HE, NE, AR, KR, XE, AND N SUB2. FOR A SERIES OF GAS MIXTS., AN EFFICIENCY OF LESS THAN OR EQUAL TO 50PERCENT WAS OBTAINED FOR THE FRAGMENTS, AND FOR ALPHA PARTICLES, IT WAS LESS THAN 10 PRIME NEGATIVE 10PERCENT. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EXTRACTION AND PHOTOMETRIC DETERMINATION OF 5,7 DIBROMO,8,HYDROXYQUINOLINE USING VANADIUM V -U-

AUTHOR-(02)-ZHAROVSKIY, F.G., NGUYEN, C.S.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(4), 390-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BROMINATED ORGANIC COMPOUND, HYDROXYL RADICAL, QUINOLINE, PHOTOMETRIC ANALYSIS, VANADIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0888 STEP NO--UR/0073/70/036/004/0390/0393

CIRC ACCESSION NO--AP0137916

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137916

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXT. A SOLN. CONTG. IN 10 ML 7-150 MU G 5,7-DIBROMO-8-HYDROXYQUINOLINE, 1 ML 0.5PERCENT NH SUB4 VO SUB3, AND ENOUGH NH SUB4 OH TO MAKE THE PH EQUAL TO 2 WITH 10 ML BUOH. FILTER THE EXT. AND MEASURE THE ABSORBANCE AT 410 NM. THE MOLAR ABSORPTIVITY IS 6.9 TIMES 10 PRIME3. ALKALI AND ALK. EARTH METALS, AL, GA, IN, TL, CR(III), FE, H SUB2 SO SUB4, H SUB3 PO SUB4, AND CITRIC ACID DO NOT INTERFERE. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CADMIUM NIOBATES -U-

AUTHOR-(03)-GOLUB, A.M., NGUYEN, C.Y., GRIGORENKO, F.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(1), 23-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TERNARY FLUID SYSTEM, AQUEOUS SOLUTION, NIOBATE, SOLUBILITY, CADMIUM COMPOUND, ELECTRIC CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0778 STEP NO--UR/0078/70/015/001/0023/0025

CIRC ACCESSION NO--AP0104224

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104224

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING SOLY METHOD, CD(NBO SUB3) SUB2. 1.5H SUB2 O AND CD SUB3 (NBO SUB4) SUB2. 5H SUB2O WERE PREPD. IN KNBO SUB3 MINUS CD(NO SUB3) SUB2 MINUS H SUB2 O AND K SUB3 NBO SUB4 MINUS CD(NO SUB3) SUB2 MINUS H SUB2 O SYSTEMS. AT 25DEGREES, SATD. KNBO SUB 3 SOLN. HAD AN ELEC. COND. OF 1.65 TIMES 10 PRIME NEGATIVE4 OHM PRIME NEGATIVE1 CM PRIME NEGATIVE1. THE SOLY. PRODUCT OF CD(NBO SUB3) SUB2 IS 4.5 TIMES 10 PRIME NEGATIVE18.

UNCLASSIFIED

Nuclear Physics

USSR

(1)

BELOV, A. G., GANGRSKIY, Yu. P., DALKHSUREN, B., KUCHER, A. M., NGUYEN, Kong Kkhan', Joint Institute of Nuclear Research

"Search for α-Emission in Decay of Spontaneously Fissioning Isomers"

Moscow, Yadernaya Fizika, Vol 17, No 5, May 73, pp 942-946

Abstract: The paper gives the results of experiments to detect α-emission in decay of spontaneously fissioning isomers of Am^{242} ($T_{\frac{1}{2}}$ = 14 ms), Am^{240} (0.9 ms) and Pu^{241} (27 μs) formed in reactions (n,2n) with a cross section of 100-200 μb at a neutron energy of 14.7 MeV, which is considerably greater than the cross sections of reactions with charged particles. The α-particles were registered by a multifilament proportional ccunter 120 mm in diameter with a resolving time of about 0.1 μs. No alpha-emitters were observed with energy greater than 7 Mev and half-life in the region of 10^{-5}-10^{-2}sec. This would seem to indicate that α-transitions from isomer levels are forbidden. The authors thank G. N. Flerov for continued interest in the work.

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1/2 006 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EFFECT OF ORGANIC SOLVENTS ON THE KINETICS OF THE AQUATION OF COBALT(III) TRANS BROMO AND IODOSULFITODIOXIMINES -U-

AUTHOR--SYRTSOVA, G.P., KORLETYANU, L.N., NGUYEN, S.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 475-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SOLVENT, COBALT COMPLEX, IMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0306 STEP NO--UR/0078/70/015/002/0475/0479

CIRC ACCESSION NO--AP0103961

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103961

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RATE OF AQUATION OF TRANS (COX(SO SUB3)(DH) SUB2) PRIME2 NEGATIVE, X EQUALS CL, BR OR I AND DH EQUALS MEC(:NOH)C(:NO PRIME NEGATIVE)ME, DECREASED WITH INCREASING CONCN. OF ORG. SOLVENT (MEOH, ETOH, ETHYLENE GLYCOL, DIOXANE) IN THE REACTION MEDIUM. THE VALUES OF DELTA S NOT EQUAL TO, LOG A, AND ARRHENIUS EQUATIONS FOR THE REACTIONS AT DIFFERENT CONCNS. OF ORG. SOLVENTS ARE TABULATED.

UNCLASSIFIED

142- 015 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--AQUATION OF SODIUM CHLOROHYDROSULFITOBIS(DIMETHYLGLYOXIMATO)COBALTATE(III) IN WATER AND

AUTHOR-(02)-SYRTSOVA, G.P., NGUYEN, S.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 470-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, COBALT COMPLEX, ORGANIC SOLVENT, POTENTIOMETRIC TITRATION, CHLORINE, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0327 STEP NO--UR/0078/70/015/002/0470/0474

CIRC ACCESSION NO--AP0103982

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103982

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF AQUATION OF (COCL(SO SUB3 H)(DH) SUB2) PRIME NEGATIVE (DH EQUALS MEC(IS TO NOH)C(IS TO NO PRIME NEGATIVE) MINUS ME) WAS STUDIED IN AQ. ORG. SOLVENT (ETHYLENE GLYCOL, MEOH, ETOH, DIOXANE) SOLNS. BY POTENTIOMETRIC TITRN. OF CL PRIME NEGATIVE. THE AQUATION IS A 1ST ORDER REACTION, HAVING AN ACTIVATION ENERGY OF SIMILAR TO 13 TO 15 KCAL-MOLE, DELTA S IS NOT EQUAL TO MINUS 29.9 TO MINUS 33.6, AND A PREEXPONENTIAL COEFF., A, OF 7 TIMES 10 PRIME5 MINUS 1.4 TIMES 10 PRIME6. THE RATE OF AQUATION OF (COCLX(SH) SUB2) PRIME NEGATIVE (X EQUALS SO.SUB3 H, NO SUB2, OR CL) IS INVERSELY PROPORTIONAL TO THE STRENGTH OF THE TRANS EFFECTS OF X.

UNCLASSIFIED

USSR

UDC 541.183

YERMOLENKO, N. F., (DECEASED), YATSEVSKAYA, M. I., and NGUYEN, T. H.,
Institute of General and Inorganic Chemistry, Academy of Sciences BSSR

"Sorption of Uranium From Aqueous Solutions bu Mineral Sorbents and by Carbon Modified with Titanium Dioxide"

Minsk, Vestsi Akademii BSSR, Seriya Khimicheskikh Navuk, No 3, 1973, pp 65-68

Abstract: A series of adsorbents modified by deposition of a thin layer of titanium dioxide on their surface was studied with the goal of improving their effectiveness in extracting U^{6+} from aqueous solutions. Experimental data showed that the effectiveness of carbon, aluminum oxide and silica gel was improved considerably after TiO_2 was deposited on their porous surface. Adding a complexing agent to the solution -- a carboxylic acid for example -- improved the extracting ability even more. This was especially noted in case of aluminum oxide modified with TiO_2 in combination with benzoic acid added to the solution; a four-fold increase in the effectivenss of extraction was achieved.

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UDC 546.562 - 386:543.253

USSR

VASSERSHTEYN, SH. YE., and NGUYEN VAN NAM

"Copper (II) Complexes with Hydroxyethylidenediphosphonic Acid"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 18, No 4, Apr 73, pp 1028-1032

Abstract: Complex formation of Cu (II) with hydroxyethylidenephosphonic acid in pH 2-12 (μ= 1) solutions has been studied by means of the polarographic method. In the pH range 2 to 8 formation of the complexes $[Cu(H_2A)]$ and $[Cu(H_2A)_2]$ has been established with $K_H = (3.5 \pm 2.8)\cdot10^{-9}$ and $(9.5 \pm 1.2)\cdot10^{-13}$ respectively. In the pH range 8-10 monoprotonated complexes of the composition $[Cu_2(HA)]$ and $[Cu(HA)]$ are formed. In the alkaline medium -- pH 10.5-12 -- the predominant complex is $[Cu(A)_2]$ with $K_H = (3.2 \pm 0.6)\cdot10^{-16}$.

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SPECTROPHOTOMETRIC DETERMINATION OF COPPER AND IRON WITHOUT THEIR SEPARATION IN BRASS, BRONZE, AND SILUMIN -U-

AUTHOR-(02)-PERKOV, I.G., NGUYEN, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(1), 59-63

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--COPPER, IRON, BRASS, BRONZE, SPECTROPHOTOMETRIC ANALYSIS, ALLOY DESIGNATION, ALUMINUM ALLOY/(U)SILUMIN SILICON ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1747 STEP NO--UR/0075/70/025/001/0059/0063

CIRC ACCESSION NO--AP0108114

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DECOMP. 0.5 G OF THE ALLOY AS SHAVINGS IN 3 ML HNO SUB3, 1-2 ML HCL, AND 30 ML H SUB2 O; AFTER DECOMPN. BOIL FOR 5 MIN, COOL AND DIL. TO 100 ML WITH H SUB2 O. DIL. A 5 ML ALIQUOT TO 100 ML WITH ACETATE BUFFER, ADD 50 ML 1PERCENT N,BENZOYLPHENYLHYDROXYLAMINE IN CHCL SUB3, AND EXT. BY SHAKING FOR 10 MIN. MEASURE THE ABSORBANCE OF THE ORG. PHASE AT 400-70 M MU AND DET. THE CONCN. OF THE METAL IN PERCENT FROM C EQUALS M A SUBVORG. 10-AV, WHERE M IS THE CONCN. OF CU AND FE IN THE ORG. PHASE, SUBVORG. IS THE VOL. OF THE ORG. PHASE, A THE WT. OF SAMPLE, A THE AT. WT. OF THE METAL, AND V THE VOL. OF ALIQUOT.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SUBSTRATE SPECIFICITY OF SERINE SULFHYDRASE FROM CHICK LIVER AND ITS RELATION TO SOME INHIBITORS -U-
AUTHOR-(03)-NGUYENDINH, L., GORYACHENKOVA, YE.V., BRAUNSHTEYN, A.YE.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(2), 270-7

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SERINE, SULFUR COMPOUND, HYDROGEN SULFIDE, CYSTINE, CYSTAMINE, METABOLIC INHIBITOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0335 STEP NO--UR/0218/70/035/002/0270/0277

CIRC ACCESSION NO--AP0135828

UNCLASSIFIED

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0135828 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMATION OF H SUB2 S BY A MIXT. OF SERINE SULFHYDRASE (I) AND L CYSTEINE INCREASED UPON THE ADDN. OF BETA MERCAPTOETHANOL, CYSTAMINE, OR HOMOCYSTEINE, WITH THE CONCURRENT FORMATION OF S HYDROXYETHYLCYSTEINE, S,(2,AMINOETHYL)CYSTEINE, AND CYSTATHIONINE. AS WITH CYSTEINE, I ALSO CATALYZED GENERAL TRANSFER TO THE BETA C OF SERINE. I SYNTHESIZED CYSTATHIONINE FROM SERINE AND HOMOCYSTEINE MORE RAPIDLY THAN CYSTEINE FROM SERINE AND S PRIME2. THE REACTION OF L CYSTEINE AND I WAS INHIBITED BY AMINOOXYACETIC ACID, L SERINE, L THREONINE, OR L CHLOROALANINE. PREINCUBATION OF THE LAST COMPD. WITH I INHIBITED I IN PROPORTION TO THE TIME OF PREINCUBATION. DL CYCLOSERINE DID NOT INHIBIT I. FACILITY: INST. MOL. BIOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

ZHUK, N. S., NI, A. S., MIROSHNICHENKO, N. I., KIM, V. YU., OVCHINNIKOV, N. A., and YUGAY, YU. M., Kazakh Institute of Epidemiology and Microbiology, Karatal'sk Rayon Sanitary Epidemiological Station, and Taldy-Kurgansk Oblast' Sanitary Epidemiological Station

"Control of Blood-Sucking Insects in the Paddies of the Karatal'sk Rayon Rice-Growing System"

Alma-Ata, Zdravookhraneniye Kazakhstana, Vol 30, No 5, May 71, pp 14-15

Abstract: Favorable conditions for the propagation of mosquitoes exist in the rice paddies of Karatal'sk Rayon. Large amounts of larvae of Anopheles maculipennis, An. hyrcanus, and Culex modestus are present in the paddies. Application of chlorophos in 0.5-0.8% solutions was effective in the control of mosquito larvae. Extermination of the larvae to the extent of 100% was obtained when these solutions were applied in amounts $\geq$ 100 l./ha. The solutions were either sprayed from an aircraft or released into the paddies on the ground level. The first method sometimes resulted in inadequate spraying because of misses due to improper signaling while the second method had the drawback that the solution did not spread in a sufficient concentration to areas distant from the point of release. Organophosphorus compounds can be

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USSR

ZHUK, N. S., et al., Zdravookhraneniye Kazakhstana, Vol 30, No 5, May 71, pp 14-15

used on rice crops only before flowering of the plants. Sound agricultural methods including lack of inclines in the system of paddies, dense planting of rice, and drainage of water from the paddies, dense planting of rice, and drainage of water from the paddies also proved effective in the control of mosquitoes.

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USSR

NI, L. P., Resp. Editor.

Shchelochnyye gidrokhimicheskiye eposoby v tsvetnoy metallurgii (Alkaline Hydrochemical Methods in Nonferrous Metallurgy), Alma-Ata, Akademiya Nauk Kazakhskoy SSR, 1973, 79 pp

Translation of Annotation: An examination is made of the structure of amphoteric metal hydroxides as well as the formation of alkaline solutions and their disintegration. Hydroxide aging is studied along with their solubility in caustic soda solutions. The application of physicochemical research methods makes it possible to determine the composition of the solid and liquid phases. The results of studies of alumosilicate solutions and their interaction with iron hydroxide are also presented. The question of cementation of metals from alkaline solutions is considered in detail, and the mechanism of the process is proposed. The book is intended for personnel in educational and scientific research institutes, graduate students and engineers at metallurgy enterprises.

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USSR

NI, L. P., Alkaline Hydrochemical Methods in Nonferrous Metallurgy, Alma-Ata, Akademiya Nauk Kazakhskoy, 1973, 79 pp

SOLOV'YEVA, V. D., SVIRCHEVSKAYA, YE. G., BOBROVA, V. V., and YEL' TSOV, N. M., "Solubility of Copper, Cadmium and Indium Oxides in Caustic Soda Solution" 37

SOLOV'YEVA, V. D., BOBROVA, V. V., ORLOVA, L. F., and ADEISHVILI, E. U., "Solubility of Copper, Cadmium and Indium Hydroxides in Alkaline Solution " 45

PONOMAREVA, YE. I., OGORODNIKOV, YU. I., YEL'TSOV, N. M., and BIKINEYEV, A. M., "Interaction of Copper Hydroxide with Caustic Soda Solution" 49

PONOMAREVA, YE. I., SOLOV'YEVA, V. D., SVIRCHEVSKAYA, YE. G., ORLOVA, L. F., and YUSIPOVA, E. N., "Age Hardening of Hydroxides of Some Metals and Their Caustic Soda Solutions" 59

PONOMAREVA, YE. I., OGORODONIKOV, YU. I., SVIRCHEVSKAYA, YE. G., BIKINEYEV, A. M., and YEL'TSOV, N. M., "The Mechanism of Metal Cementation from Alkaline Solutions" 66

3/3

USSR

UDC 669.71.053.4

NI, L. P., GOL'DMAN, M. M., SOLENKO, T. B., BUNCHUK, L. V., KHALYAPINA, O. B.

"Oxides of Iron in the Production of Alumina"

Okisly Zheleza v Proizvodstve Glinozema [English Version Above], Alma-Ata, Nauka Press, 1971, 136 pages. (Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract No 3G123K from the resume).

Translation: Literature and experimental data are presented on the investigation of systems including the oxides of Fe, Na, Al, Si and Ca, under hydrothermal conditions. The behavior of the oxides of Fe in hydrochemical processes of alumina production is described in detail. The production methods, composition, and structure of compounds containing Fe are presented. Particular attention is given to the chemical compounds synthesized. 43 figs; 29 tables; 392 biblio refs.

1/1

USSR UDC 621.385.632

BURNEYKA, K. P., KANAVETS, V.I., NI, N.P., SANDALOV, A.N.

"Investigation Of A Two-Sectioned Frequency Multiplier Based On A TWT"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 6, pp 31-39 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A161)

Translation: A two-sectioned frequency multiplier based on a TWT is investigated. Multifrequency nonlinear one-dimensional TWT theory is used for theoretical analysis. The effect is considered of the Coulomb forces and the difference of potentials between sections, on the processes in the device. The choice is considered of an optimum regime corresponding to the maximum value of the conversion factor of the frequency. A comparison of the theoretical and experimental results shows that to a large degree optimization depends on the space charge parameter. Long lived clusters are generated in an optimum regime. In that case an effective strengthening of the high-frequency field of the harmonics occurs in the output section. The parameters of the multiplier are improved by the introduction of a change of potentials. Summary.

1/1

USSR

UDC: 621.378.325

BYKOVSKIY, N. Ye., KAN, V., KRYUKOV, P. G., MATVEYETS, Yu. A., NI, N. L., SENATSKIY, Yu. V., and CHEKALIN, S. V.

"Increasing the Energy Ratio of Ultrashort Laser Pulses to Noise"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 68-70

Abstract: The purpose of this paper is to investigate the contrast, i.e., the ratio of the basic pulse energy to the background noise radiation energy, of a laser generating ultrashort pulses. The laser considered uses neodymium glass. In real lasers, the limiting contrast is reached not because of the nonlinear losses in the interaction of the radiation with the optical material of the laser equipment, as some researchers insist, but for other reasons. These losses weaken the most intense of the pulses, and consequently reduce the contrast. This brief communication demonstrates how these losses can be reduced in exchange for a reduction in the energy density of the resonator. The theory behind this procedure is presented, and the schematic of an amplifier for the laser in a stable two-component medium is reproduced. Estimates, made from oscillograms, indicated that the contrast was at least doubled by this device.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--STEEL -U-

AUTHOR-(04)-SHAVKUNOV, N.D., NI, V.N., STOLETNIY, M.F., VOVSINA, A.D.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,893

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STEEL, CHEMICAL COMPOSITION, MECHANICAL PROPERTY, CARBON STEEL, MANGANESE STEEL, SILICON STEEL, PHOSPHORUS STEEL, CHROMIUM STEEL, SULFUR, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1086 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130120

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0130120
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STEEL WITH IMPROVED MECH. PROPERTIES HAS THE FOLLOWING COMPN.: C 1.6-1.9, MN 1.6-1.9, SI 1.2-1.5, V 0.2-0.4, CR SMALLER THAN 0.3, S SMALLER THAN 0.04, P SMALLER THAN 0.08PERCENT, AND FE THE REMAINDER.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--COMPOSITION OF SYNTHETIC FATTY ALCOHOLS STUDIED BY GAS LIQUID CHROMATOGRAPHY -U-

AUTHOR-(02)-KOTELNIKOV, B.P., NICHIKOVA, P.R.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(2) 32-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS CHROMATOGRAPHY, ALCOHOL, FATTY ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1517 STEP NO--UR/0065/70/015/002/0032/0034

CIRC ACCESSION NO--AP0112511

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112511

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING A MIXT. OF 10PERCENT SILICONE RUBBER E-301 WITH 4PERCENT POLYETHYLENE GLYCOL 20,000 ON CELITE 545 (100-120 MESH) AND A COLUMN TEMP. OF 160DEGREES, SYM. PEAKS WERE RECORDED FOR QUANT. SEPN. OF THE C SUB7-SUB17 PRIMARY ALCS. CHROMATOGRAMS RECORDED BY USING 10PERCENT POLYETHYLENE GLYCOL ADIPATE ON CELITE 545 (100-120 MESH) AT COLUMN TEMPS. OF 180DEGREES AND 160DEGREES, RESP., SHOWED THAT NARROW FRACTION SECONDARY FATTY ALCS. HAVE A MORE COMPLEX COMPN. THAN ALCS. FROM SECONDARY UNSAPONIFIABLES. FROM A CHROMATOGRAM RECORDED BY USING 10PERCENT APIEZON L ON CELITE 545 (80-100 MESH) AT 190DEGREES, THE CONTENT OF SECONDARY ALCS. WAS CALCD. AS 73PERCENT WHILE POLYETHYLENE GLYCOL ADIPATE WAS SUED TO DET. THE PRIMARY ALC. CONTENT OF THE SECONDARY UNSAPONIFIABLES AS 74PERCENT (COMPARED TO 70-5PERCENT AS OBTAINED BY SPECTROSCOPIC ANAL.).

UNCLASSIFIED

Nuclear Science and Technology

USSR

UDC 541.15+621.039.05

DZANTIYEV, B. G., KRASIN, A. K., NICHIPOR, G. V., KAZAZYAN, V. T., and SAVUSHKIN, I. A.

"Calculation of Efficiency and the Optimization of Parameters of Chemonuclear Plants"

Moscow, Atomnaya Energiya, Vol 33, No 4, Oct 72, pp 803-808

Abstract: The calculation of the efficiency and the optimization of channel parameters on a loop-like chemonuclear plant are carried out on the basis of a generalized model. The approximate solution of the function characterizing in general the efficiency of any chemoradiative apparatus is reduced to a numerical summation of the efficiencies of individual chemonuclear channels. This method, in combination with physico-neutron calculations makes possible the efficiency determination of various types of chemonuclear plants taking into account the dosage rate, temperature, reagent density, and other factors characterizing the actual conditions of experimental and industrial chemonuclear plants. The use of this method for the indicated calculations of the KhYaU-5 chemonuclear plant resulted in optimization of its parameters. The possibility of the organization of an industrial synthesis of hydrazine on the basis of a chemonuclear reactor is analyzed on the example of a

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USSR

DZANTIYEV, B. G., et al., Atomnaya Energiya, Vol 33, No 4, Oct 72, pp 803-808

reactor using chemonuclear fuel in the form of a 4μ thick UO_2 layer built up on an aluminum base. The plotted caloric power dependence of the channel efficiency shows a linear character. The efficiency of other active zones of chemonuclear reactors can be calculated on the basis of this dependence. Four figures, two tables, nine formulas, twelve bibliographic references.

2/2

USSR

UDC 621.221.2

YEVMENOV, V. F., KOZHUKHOV, I. V., NICHIPORENKO, N. T., and KHULAP, G. D., Leningrad Higher Engineering Nautical School imeni Amiral S. O. Makarov, Ventspils Commercial Seaport Administration

"Experience in Determination of Sea Wave Elements by the Radar Method"

Kiev, Gidromekhanika, No 18, 1971, pp 22—26

Abstract : Observational opportunities of the radar method of measuring horizontal parameters of a developed swell in the coastal zone are discussed and the experience in determining some swell parameters in the Ventspils port zone with the help of a radar station of single-wire transmission line in the mm-band is described. The radar pictures of steady sea swell observed by wind velocities of 16—23 m/sec show a sufficiently clear plane swell pattern from which some parameters of wave motion could be determined. Calculated average values of phase

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USSR

YEVMENOV, V. F., et al., Gidromekhanika, No 18, 1971, pp 22-26

velocity, wave length, and angle of approach of wave crests are tabulated. The radar method is considered to be sufficiently exact, simple, and reliable by working under unfavorable meteorological conditions. Two illustr., one table, five formulas, three biblio. refs.

2/2

Powder Metallurgy

USSR

UDC 621.762.224

NICHIPORENKO, O. S., NAYDA, Yu. I., and KOCHERGIN, A. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Production of Nickel Powder by Spraying"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 1-4

Abstract: A study was made of the possibilities for producing nickel powder with predetermined form and particle size by spraying. Powders with both spherical and nonspherical particles were produced experimentally. The technological and physical properties of powders of both types were analyzed. The required powder form was produced by adjusting the relationship between spheroidization time and cooling time, with spherical particles resulting when the spheroidization time was less than the cooling time. In the experimental portion of the study, the metal was sprayed through a circular slit 0.8 mm in width at a pressure of 2.5 atm. The resulting nickel powder had a spherical particle form when sprayed without additives, and a nonspherical form when 0.05 wt % aluminum was added. Particle diameters for both types of particles averaged 250-350 microns.

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1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EFFICIENCY OF THE PROCESS OF OBTAINING METAL POWDERS BY SPRAYING -U-

AUTHOR--NICHIPORENKO, O.S.

COUNTRY OF INFO--USSR

SOURCE--POROSHKOVAYA MET., FEB. 1970, (2), 1-5

DATE PUBLISHED----FEB70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--METAL POWDER, POWDER METAL PRODUCTION, METAL SPRAYING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0129 STEP NO--UR/0226/70/000/002/0001/0005

CIRC ACCESSION NO--AP0123901

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123901

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFICIENCY OF THE SPRAYING METHOD OF PRODUCING METAL POWDERS IS EXPRESSED AS A FUNCTION OF THE PRINCIPAL TECHNOLOGICAL PARAMETERS (PARTICLE SIZE, SP. GR. OF THE METAL, GEOMETRY OF THE SPRAYING SYSTEM, ETC.). THE AMOUNT OF ENERGY LOST IN DISPERSING THE POWDER IS COMPARATIVELY SMALL (A FEW PER CENT OF THE TOTAL ENERGY CONSUMPTION). ALTHOUGH SOME SLIGHT INCREASE IN EFFICIENCY MAY BE ACHIEVED BY CAREFUL OPTIMIZATION OF ALL THE PARAMETERS, THE INCREASE IS SO SMALL AS TO BE UNJUSTIFIED IN MOST PRACTICAL CASES.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SHAPE SEPARATION OF METAL POWDERS -U-

AUTHOR-(02)-NICHIPORENKO, O.S., MEDVEDOVSKY, A.B.

COUNTRY OF INFO--USSR

SOURCE--POROSHKOVAYA MET., JAN. 1970, (1), 1-5

DATE PUBLISHED----JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL POWDER, SCREENING MACHINERY, ELECTROSTATICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1288 STEP NO--UR/0226/70/000/001/0001/0005

CIRC ACCESSION NO--AP0109372

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109372

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERAL PRINCIPLES UNDERLYING THE SEPARATION OF METAL POWDERS INTO PARTICLES OF DIFFERENT SHAPES AND SIZES BY A METHOD BASED ON ELECTROSTATIC DISCRIMINATION ARE EXPLAINED. ELECTRIC SEPARATORS ARE PARTICULARLY SENSITIVE TO THE SHAPES OF THE PARTICLES AND IT IS ACCORDINGLY A SIMPLE MATTER TO DISTINGUISH SPHERICAL PARTICLES FROM THOSE OF OTHER FORMS. BY REPEATED CYCLING THE DEGREE OF SEPARATION MAY BE INCREASED. LIMITING PURITIES OF 95PERCENT MAY BE ACHIEVED IN THIS WAY.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202210020-0"

USSR

UDC 581.132.1

OSIPOVA, O. P., KHEYN, KH. YA., and NICHIPOROVICH, A. A., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, Moscow

"Activity of the Photosynthetic Apparatus of Plants Grown at Different Light Intensities"

Moscow, Fiziologiya Rasteniy, Vol 18, No 2, Mar/Apr 71, pp 257-263

Abstract: The activity of the photosynthetic apparatus of leaves of Vicia fava plants grown at two light intensities, 10^5 and 4×10^3 erg/cm^{2}sec, was studied. Determination of light photo-synthesis curves by the radiometric method (as described by Kheyn and Nichiporovich in Fiziologiya Rasteniy 17, 1284, 1970) showed the difference in the photosynthetic capacity of "shadow" and "light" leaves at both low and saturating light intensities. The rate of the Hill reaction determined on the basis of the reduction of $K_3Fe(CN)_6$ in chloroplasts isolated from "shadow" leaves was somewhat higher than for chloroplasts from "light" leaves.

1/1

1/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THEORETICAL PRINCIPLES OF OPTIMIZATION OF PHOTOSYNTHETIC PRODUCTIVITY -U-

AUTHOR--NICHIPOROVICH, A.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK AKADEMII NAUK SSSR, RUSSIAN, VOL 40, NO 1, JANUARY 1970, PP 69-74

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--PHOTOSYNTHESIS, INTERNATIONAL CONFERENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0974 STEP NO--UR/0030/70/040/001/0069/0074

CIRC ACCESSION NO--AP0130024

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130024

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ONE OF THE PRINCIPAL TASKS OF THE INTERNATIONAL BIOLOGICAL PROGRAM (IBP) IS RECORDING THE SCALES AND RATE OF FORMATION OF BIOLOGICAL PRIMARY PRODUCTION OF THE GLOBE AND DEVELOPMENT OF METHODS OF ITS BEST CONSERVATION, MULTIPLICATION AND USE. IN ACCORDANCE WITH THAT TASK, IN PARTICULAR, A SPECIAL SUBCOMMITTEE OF PHOTOSYNTHESIS AND WAYS OF BEST USE OF THE ENERGY OF SOLAR RADIATION FOR THE FORMATION OF PHOTOSYNTHETIC PRODUCTION WAS FORMED IN THE IBP. A SYMPOSIUM ON THE THEME THEORETICAL PRINCIPLES OF OPTIMIZATION OF PHOTOSYNTHETIC ACTIVITY AND THE PRODUCTIVITY OF PHOTOSYNTHESIZING SYSTEMS WAS HELD IN MOSCOW ON 23-29 SEPTEMBER 1969. THE DIRECT ORGANIZERS OF THE SYMPOSIUM WERE THE SCIENTIFIC COUNCIL FOR PROBLEMS OF PHOTOSYNTHESIS OF THE AS USSR, THE SUBCOMMITTEE OF PHOTOSYNTHESIS OF THE SOVIET NATIONAL COMMITTEE OF THE IBP AND THE INSTITUTE OF PLANT PHYSIOLOGY IMENI K. A. TIMIRYAZEV OF THE AS USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--INHIBITION OF PHOTOSYNTHESIS BY OXYGEN IN PLANTS CULTIVATED UNDER VARIOUS CONDITIONS OF NITROGEN SUPPLY -U-

AUTHOR-(03)-SLOBODSKAYA, G.A., GRISHINA, G.S., NICHIPOROVICH, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 2, PP 244-252

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHOTOSYNTHESIS, NITROGEN, OXYGEN, CARBON DIOXIDE, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/1598 STEP NO--UR/0326/70/017/002/0244/0252

CIRC ACCESSION NO--AP0052794

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052794

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIGHT CURVES OF PHOTOSYNTHESIS AT OXYGEN TENSIONS OF 21 AND 3PERCENT WERE MEASURED IN PISUM SATIVUM, VICIA FABA, HELIANTHUS ANNUS AND NICOTIANA RUSTICA PLANTS CULTIVATED UNDER VARIOUS CONDITIONS OF NITROGEN SUPPLY. THE DEGREE OF INHIBITION DUE TO OXYGEN WAS APPROXIMATELY THE SAME AT VARIOUS LIGHT INTENSITIES BUT GREATLY DIFFERED BETWEEN THE SPECIES (18PERCENT IN H. ANNUS L. AND UP TO 44.5PERCENT IN N. RUSTICA L.). THE DEGREE OF INHIBITION WAS APPRECIABLY SMALLER IF THE PLANTS WERE ADEQUATELY SUPPLIED WITH NITROGEN OR IF THE CO SUB2 CONCENTRATION INCREASED, PROVIDING THESE FACTORS ENHANCED THE ACTIVITY OF THE PHOTOSYNTHETIC APPARATUS AND THE RATE OF PHOTOSYNTHESIS. AN O SUB2 CONCENTRATION OF 21PERCENT NOT ONLY SUPPRESSES PRIMARY FIXATION OF CO SUB2 BUT ALSO REDUCTION OF NITRATES.

FACILITY: K. A. TIMIRIAZEV INSTITUTE OF PLANT PHYSIOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

UNCLASSIFIED

USSR

UDC 621.382.2

MAMONTOV, A.P., NICHIPIRENKO, B.A., OKUNEV, V.D., PRESNOV, V.A.

"Isolation Of p-n Junctions In Gallium Arsenide Under Conditions Of Proton Irradiation"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 717-720

Abstract: Gallium arsenide crystals were irradiated in a cyclotron by protons with various energies. A scheme for obtaining isolated p-n junctions is shown and discussed. The energies of the bombarding protons were measured with the aid of aluminum foil placed before the crystals being irradiated. The results of the studies show that isolation of p-n junctions during proton irradiation is an effective method of improving the characteristics of gallium arsenide p-n junctions. 3 figs. 5 ref. Received by editors, 12 May 1971.

1/1

USSR

Beryllium

USSR

UDC 669.725'794-541.134

BUTOROV, V. P., NICHKOV, I. F., NOVIKOV, YE. A., RASPOPIN, S. P., and SHTOL'TS, A. K., Ural Polytechnic Institute, Department of the Metallurgy of Rare Metals

"Thermodynamics of Beryllium-Yttrium Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 86-89

Abstract: Tests on determining the thermodynamic magnitudes of Y-Be alloys was reduced to a study of the electromotive force of the galvanic element which was determined as the difference

$$\mathcal{E} = \varphi_{alloy} - \varphi_{Y},$$

where φ_{alloy} and φ_{Y} are the equilibrium potentials of the alloy and metallic equilibrium, respectively, relative to the chlorine electrode of comparison. From measurements of the emf of Y-Be alloys containing from 4.1 to 40.8 wt% Y, it was found that there is a direct relationship of alloy emf to Kelvin temperature. Tables were compiled from experimental data which showed the activity and coefficients of activity of yttrium and Be-Y alloys and thermodynamic

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USSR

BUTOROV, V. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 86-89

properties of alloy YBe_{13}. From x-ray phase analysis of the studied alloys it was established that they consist of two phases: the intermetallic compound YBe_{12} and pure beryllium. 1 figure, 3 tables, 4 bibliographic references.

2/2

USSR

UDC 669.24.411(088.8)

NICHKOV, I. F., RASPOPIN, S. P.

"Synthetic Slag"

USSR Author's Certificate No 309060, filed 3 Mar 70, published 20 Sep 71 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G316P)

Translation: Synthetic slag based on Ca and Na fluorides for refining of liquid metals (for example, Ni) is introduced. This slag is distinguished by the fact that in order to purify the Ni of metallic impurities such as Al, Mg, Zn, Cd, the rare earth elements, Be, Zr, Th, U and Pu, Ni fluoride is introduced. The slag ingredients occur in the following proportions (% by weight): 89-93% CaF_2, 5-7% NaF, 2-4% NiF_2. The utilization of the slag is most efficient at 1,550-1,600°.

1/1

USSR UDC 669.713.72

SEREBRYAKOV, G. A., NICHKOV, I. F., RASPOPIN, S. P., NOVIKOV, Ye. A.

"Cathode Processes in Electrolytic Separation of Aluminum From Halide Salt Melts"

Tsvetnye Metally, No 1, 1971, pp 34-37.

Abstract: The polarization of liquid zinc and solid tantalum cathodes was studied during electrolytic separation of aluminum from chloride-fluoride melts. It is demonstrated that at low current densities, the separation of aluminum on zinc involves some depolarization due to the formation of liquid metal solutions. It is impossible to establish the magnitude of depolarization, since the sector corresponding to melt formation on the curves cannot be separated. The cathode yield per current during separation of aluminum on zinc may reach 81-100%, depending on electrolysis conditions.

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PHASE DIAGRAM OF THORIUM TETRACHLORIDE URANIUM TRICHLORIDE AND PLUTONIUM TRICHLORIDE URANIUM TRICHLORIDE SYSTEMS -U-
AUTHOR-(05)-DESYATNIK, V.N., NICHKOV, I.F., PORODNOV, P.T., RASPOPIN, S.P., SKIBA, O.V.
COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., TSVET. MET. 1970, 13(1), 101-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PHASE DIAGRAM, EUTECTIC MIXTURE, THORIUM COMPOUND, URANIUM COMPOUND, PLUTONIUM COMPOUND, CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0628 STEP NO--UR/0149/70/013/001/0101/0103

CIRC ACCESSION NO--AT0137713

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0137713

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE DIAGRAMS OF THE BINARY SYSTEMS THCL SUB4 UCL SUB3 AND PUCL SUB3-UCL SUB3 WERE INVESTIGATED. THCL SUB4-UCL SUB3 FORMS THE COMPD. 3UCL SUB3. THCL SUB4 UNSTABLE AT GREATER THAN 750DEGREES WHICH FORMS A CUTECTIC MIXT. WITH THCL SUB4. THE ONLY EUTECTIC IN THE THCL SUB4-UCL SUB3 SYSTEM IS AT 30 MOLE PERCENT UCL SUB3 AND 632DEGREES. IN THE PUCL SUB3-UCL SUB3 SYSTEM A COMPD. UNSTABLE AT GREATER THAN 700DEGREES (3UCL SUB3. PUCL SUB3, FORMS A EUTECTIC MIXT. WITH PUCL SUB3. THE EUTECTIC IN THE PUCL SUB3-UCL SUB3 SYSTEM IS AT 44 MOLE PERCENT UCL SUB3 AND 496DEGREES. FACILITY: URAL POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT7

TITLE--FUSIBILITY OF SALT SYSTEMS CONTAINING URANIUM TRICHLORIDE -U-

AUTHOR-(05)-DESYATNIK, V.N., MELNIKOV, YU.T., NICHKOV, I.E., RASPOPIN, S.P., MAKOSOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(3), 247-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--URANIUM COMPOUND, CHLORIDE, MOLTEN CHLORIDE, FUSED SALT, LEAD COMPOUND, EUTELTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1577 STEP NO--UR/0089/70/028/003/0247/0249

CIRC ACCESSION NO--AP0120356 UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT7

2/2 012

CIRC ACCESSION NO--AP0120356

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE DIAGRAM OF THE UCL SUB3-PBCL SUB2-UCL SUB4 SYSTEM, WITH POLYTHERMAL SECTIONS FOR 100-800DEGREES IS PRESENTED. THE UCL SUB3-PBCL SUB2 SYSTEM ALWAYS CONTAINS UCL SUB4 AS A RESULT OF ITS FORMATION (TOGETHER WITH PB) IN TH INTERACTION OF UCL SUB3 AND PBCL SUB2; HENCE, IT SHOULD BE REGARDED AS TERNARY SYSTEM, WITH 2 EUTECTICS CONTG. 11 AND 25PERCENT UCL SUB3 AND AT 473 AND 478DEGREES, RESP., AND WITH A COMPD. 4PBCL SUB2. UCL SUB3, I AT 512DEGREES.

UNCLASSIFIED

USSR

UDC 621.762.224

NAYDA, YU. I., NICHIPORENKO, O. S., and MEDVEDOVSKIY, A. B., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Aerodynamic Characteristics of Nozzles for Spraying Molten Metal"

Kiev, Poroshkovaya Metallurgiya, No 5, May 73, pp 94-100

Abstract: A study is made of existing nozzles for spraying molten metal, and the design of a new nozzle is proposed which eliminates the sticking of metal during operation in any modes as well as providing effective use of gas flow energy. A diagram of the new nozzle design is given. This design is based on mathematical formulas of aerodynamics for determining critical parameters of optimum shape, flow channel length, metal flow rates, etc. The new nozzle sprays metal with 64% of the particles less than 0.05 mm in size, as compared with three other nozzles in which the percentages of particles less than 0.05 mm are 5, 40, and 35%. 4 figures, 3 tables, 15 bibliographic references.

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USSR

UDC 669.755'822

SEREGIN, V. M., POYARKOV, A. M., LEBEDEV, V. A., NICHKOV, I. F., and PASPOPIN, S. P.

"Thermodynamic Properties of Uranium-Antimony Alloys"

Moscow, Atomnaya Energiya, Vol 32, No 5, May 72, pp 419-421

Abstract: The method of electromotive forces was applied in a study of the thermodynamic properties of liquid solutions and the USb_2 compound and for a more exact definition of the dissolution limit of U in liquid Sb. The results are discussed of experiments in which the emf between U and its two-phase ($L+USb_2$) alloys was measured. The thermodynamic characteristics of U in the USb_2 compound were calculated for 1000°K from the equation $E = 0.820 - 0.26 \cdot 10^{-3}T \pm 0.003$ v, which was found to characterize the linear nature of the emf temperature dependence. Tabulated data show the activity coefficients of U and its solubility in liquid Sb which were calculated from given formulas. Calculated values of U solubility limits in Sb are compared with data in other publications. Three tables, five formulas, five bibliographic references.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--COULOMETRIC DETERMINATION OF TRACE AMOUNTS OF WATER IN GASES USING A FISCHER REAGENT -U-

AUTHOR--NICHUGOVSKIY, G.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 258-62

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POTENTIOMETRIC TITRATION, PLATINUM ELECTRODE, ELECTRODE POLARIZATION, TRACE ANALYSIS, WATER, NITROGEN, CHLOROFLUOROCARBON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0464 STEP NO--UR/0080/70/043/002/0258/0262

CIRC ACCESSION NO--AP0104077

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104077

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SENSITIVITY OF THE DETN. OF TRACE AMTS. OF H SUB2 O IN GASES BY USING FISCHER REAGENT WAS INCREASED BY AN ELECTROMETRIC INDICATION METHOD WITH 2 POLARIZED PT ELECTRODES. IF ELECTRODE VOLTAGE WAS HIGHER THAN SATN. VOLTAGE FOR AN ELECTROLYTE (100 TO 50 MV) THEN THE CURRENT WAS PROPORTIONAL TO THE I CONCN. AND DID NOT DEPEND ON THE ELECTROLYTE COND. THE DECREASE OF I CONTENT CAUSED BY BUBBLING THE GAS WITH A CERTAIN MOISTURE CONTENT WAS DETD. BY COULOMETRIC PRODUCTION OF I AT THE ANODE (C.D. 2 MA-CM PRIME2) UNTIL THE INDICATOR CURRENT THROUGH THE POLARIZED PT ELECTRODES REACHED THE SAME VALUE AGAIN. THE SAMPLE GAS WAS BUBBLED AT 50 TO 150 ML-MIN THROUGH SIMILAR TO 15 ML OF THE FISCHER REAGENT SOLN., CONTG. A SMALL EXCESS OF I. H SUB2 O CONTENTS OF 3 TIMES 10 PRIME NEGATIVE4 MINUS 1 TIMES 10 PRIME NEGATIVE3PERCENT IN GASES WHICH DO NOT REACT WITH FISCHER REAGENT COULD BE DETD. WITH AN ERROR OF PLUS OR MINUS 10PERCENT. THE METHOD WAS USED FOR DETN. OF H SUB2 O IN N AND FREON 12 AND 22.

UNCLASSIFIED

USSR UDC 621.791.4:539.378.3.015:669.27

ABRAMTSEV, A. V. (Engineer), KEDRIN, I. D., and NICHUSHKIN, V. V. (Candidates of Techn. Sciences)

"Effect of Surface Preparation on the Formation of Permanent Joints From VNZ Alloy by Diffusion Welding Under Vacuum"

Moscow, Svarochnoye proizvodstvo, No 5, May 72, pp 23-24

Abstract: Diffusion welding in vacuum seems to hold great promise for producing permanent welds from refractory metals and alloys. This study concerns the effect of a vacuum spray-coated interlayer (on the surface to be welded) on the strength of joints from VNZ alloys produced by diffusion welding in vacuum. The chemical composition of VNZ alloy was (in %): 4.0-5.2 Mo; 0.8-2.0 Zr; 0.08-0.16 C; 0.03 O_2; $\leq$ 0.04 H_2; $\geq$ 0.005 N_2; the balance--Nb. Nickel was used for the spray-coated interlayer. It is shown that the upper temperature limit for the joint is confined to the recrystallization temperature of niobium and its alloys. The presence of recrystallized grains does not reduce the weld strength but appears to depend on the number of gripping centers which increase with surface purity. The positive effect of the spray-coated film lies primarily in cleaning the surface rather than promoting diffusion processes. (6 illustrations, 7 bibliographic references)

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1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ELECTRON MICROSCOPIC STUDY OF THE INFLUENCE OF CATALYSTS ON THE INITIAL STAGES OF GLASS CRYSTALLIZATION -U-

AUTHOR-(02)-ALEINIKOV, F.K., NICKIENE, M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 785-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRON MICROSCOPY, METAL CATALYST, GLASS CRYSTALLIZATION, GLASS COMPOSITION, SILICATE, GOLD COMPOUND, PLATINUM COMPOUND, MELTING POINT, MICROTIME, DIAMOND/(U)LKB4800 ULTRAMICROTOME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0065 STEP NO--UR/0363/70/006/004/0785/0789

CIRC ACCESSION NO--AP0132360

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132360

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF METALLIC CATALYSTS ON THE EARLY STAGES OF THE CRYSTN. OF GLASS OF THE COMPN. (IN WT. PERCENT) OF 34.2NA SUB2 O.65.8SIO SUB2 AND 14.2LI SUB2 O.19AL SUB2 O SUB3.67SIO SUB2 WAS STUDIED BY DIRECT ELECTRON MICROSCOPIC INVESTIGATION. AT A DEFINITE CRIT. MAGNITUDE AND CORRESPONDING TO THE FACES CHARACTERISTIC FOR THE CRYSTAL, THE METAL PARTICLES SERVE AS SEEDS FOR THE SILICATE PHASE. METALLIC CATALYSTS INTRODUCED INTO THE GLASS IN THE FORM OF SALTS IN THE AMT. OF 0.01 WT. PERCENT DO NOT FORM PARTICLES WITH SUCH DIMENSIONS ON WHICH THE FUNDAMENTAL CRYST. PHASE COULD GROW; THEY ONLY ENHANCE THE DECOMPN., I.E., THE LIQUATION OF THE ORIGINAL GLASS AND THE FORMATION OF UNSTABLE COMPDS. AND SOLID SOLNS., DURING THE DECOMPN. OF WHICH THERE PROCEEDS ALSO GENERAL CRYSTN. THE GLASSES STUDIED WERE MELTED AT 1400-1500DEGREESC, WHEREUPON THEY WERE QUENCHED AND POURED ONTO A METALLIC PLATE. GOLD WAS INTRODUCED INTO THE GLASSES IN THE FORM OF HAUCL SUB4 AND PT IN THE FORM OF H SUB2 PTCL SUB6. ULTRATHIN SECTIONS 300-500 ANGSTROM IN THICKNESS, PREPD. WITH THE AID OF A LKB4800 ULTRAMICROTOME WITH THE USE OF A DIAMOND KNIFE, WERE USED FOR THE DIRECT ELECTRON MICROSCOPIC INVESTIGATION. FACILITY: INST. KHIM. KHIM. TEKHNOL., VILNIUS, USSR.

UNCLASSIFIED

USSR

UDC 547.26'118

URVANTSEVA, G. A., PREDVODITELEV, D. A., and NIFANT'YEV, E. Ye., Moscow Pedagogical Institute imeni V. I. Lenin

"Ethyleneamidophosphites of the Derivatives of Glycerine. V. Synthesis of N-Methylaminoethylglycerophosphates and Phosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2187-2189

Abstract: Hydrolysis of N-methylethyleneamidophosphate and N-methylethyleneamidophosphite of 1,2-isopropylideneglycerine has been investigated. It has been shown that glycerine N-methylcolaminophosphates can be isolated in form of complexes with cadmium chloride. Chloral adds energetically to N-methylaminoethylphosphate of 1,2-isopropylideneglycerine forming a derivative of phosphonic acid.

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USSR

UDC 547.26'118

NIFANT'YEV, E. Ye., and SHILOV, I. V., Moscow State University imeni M. V. Lomonosov

"Magnesium Salts of the Tetraalkyldiamidophosphorous Acids. Synthesis and Reactions With Electrophilic Reagents"

Moscow, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2654-2657

Abstract: Diamides of the phosphorous acid react easily with Grignard reagents forming respective magnesium salts which add energetically to multiple bonds. In this fashion various amides have been obtained starting from functionally substituted phosphonic acids: tetramethyldiamide of p-chlorophenylcarbamoylphosphonous acid, m.p. 112-114°; cyclohexylamide of cyclohexyliminotetraethyldiamidophosphoneformic acid, m.p. 151-152°.

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USSR UDC 547.26'118

NIFANT'YEV, E. Ye., and SHILOV, I. V., Moscow State University imeni M. V. Lomonosov

"Addition of Sulfur to the Diamides of Phosphorous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2658-2660

Abstract: Phosphorous acid diamides add sulfur much more sluggishly than other hydrophosphoryl compounds, the reaction taking place only in presence of amines. The more basic the amine is used, the faster is the reaction. The ammonium salts of diamidothiophosphoric acids can be easily alkylated with alkyl halides forming diamidothiolphosphates.

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USSR

UDC 546.183

NIFANT'YEV, E. Ye., ANDRIANOVA, I. P., KOSTROMIN, N. P., and CHAN DIN' DAT, Moscow State University imeni M. V. Lomonosov and Moscow Pedagogical Institute imeni V. I. Lenin

"Acid Phosphites of Methylglucoside and 1,2-Cyclohexylideneglucose"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1619-1624

Abstract: Phosphorylation of 1,2-cyclohexylideneglucofuranose and α-methylglucoside by the mono-, dimethyl phosphite and by phosphorous acid occurs principally at the primary alcohol group of the sugar. During the esterification of α-methylglucoside with the phosphonous acid a phosphonite is formed which can be oxidized to the respective phosphonate.

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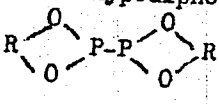
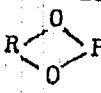
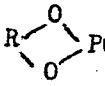
USSR

UDC 547.26'118

NIFANT'YEV, E. Ye., KOMLEV, I. V., KONYAYEVA, I. P., ZAVALISHINA, A. I., and TUL'CHINSKIY, V. M.

"Reactions of Hypodiphosphites with Acid Chlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2368-2373

Abstract: The reaction of neutral hypodiphosphites with halides of carboxylic acids proceeded according to  + R'COX →  +  PX /R = C_6H_4 , $CH_2CH(CH_3)CH_2$; R' = Me, Ph; X = Cl, Br/. Upon the reaction of hypodiphosphites with benzylsulfenyl chloride $PhCH_2SCl$, benzyl thiol esters  $PSCH_2Ph$ of alkylenephosphorous acids /e.g., R = $CH_2CH(CH_3)CH_2$/ and chlorophosphites  PCl were obtained. By reacting the hypodiphosphites with chlorophosphites or chlorophosphines, unsymmetric structures connected over a P-P group were synthesized.

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USSR

NIFANT'YEV, E. YE., AND SHILOV, I. V.

"Synthetic Method for Diamidothiolophosphates"

USSR Author's certificate no 355181, filed 22 Apr 70, published 20 Nov 72 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N536 P)

Translation: Diamidodithiolophosphates are obtained by reacting the salt of diamidothiophosphoric acid with alkyl halides. To 24 g of the salt of triethylamine and tetraethyldiamidothiophosphoric acid, 8 g of EtBr is added, stirred for 20 min at 50°, filtered, and distilled yielding 11 g of tetraethyldiamidoethylthiolophosphate, b. p. 102-4/1, n_D^{20} 1.4900, d_4^{20} 1.0219. Analogously the following were obtained (the product, b.p. in °C/mm, n_D^{20}, d_4^{20} being reported): tetramethyldiamidoethylthiolophosphate, 72-3/1, 1.5064, 1.0810; tetramethyldiamidobutylthiolophosphate, 93-4/1, 1.4973, 1.0423; tetraethyldiamidobutylthiolophosphate. 140-5/1, 1.5080, 1.0648.

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USSR

UDC 547.26'118

PREDVODITELEV, D. A., URVANTSEVA, G. A., FILIPPOVICH, Yu. B., and NIFANT'YEV, E. Ye., Moscow Pedagogical Institute Imeni V. I. Lenin

"Ethyleneamidophosphites of Glycerine Derivatives. III. Sulfohydrolysis of Ethylenemethylamidophosphites of 1,2-Isopropylideneglycerine"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1799-1801

Abstract: Sulfohydrolysis of the cyclic ethylenemethylamidophosphite of 1,2-isopropylideneglycerine gave methylcolaminoglycerophosphothionophosphite. Based on this product a novel analog of natural glycerophospholipids was obtained containing a thiophosphoryl group and a phosphorus-carbon bond in its structure. A new synthetic route for 3-N-methylethyleneamidothionophosphate was developed started from 1,2-isopropylideneglycerine thionophosphite. It was shown that the sulfohydrolysis of ethylenemethylamidophosphites is different from the hydrolysis process.

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USSR

UDC 547.118

NIFANT'YEV, E. Ye., KOROTEYEV, M. P., and RABOVSKAYA, N. S.

"Arbuzov Reaction With Carbohydrate Phosphites and Amidophosphites as a Method of Synthesizing Halodesoxysugars"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1806-1811

Abstract: Arbuzov reaction with carbohydrate phosphites and amidophosphites was applied to the synthesis of halodesoxysugars. Sugar phenylenephosphites are not suitable for the synthesis of halodesoxysugars because of the low electron density at the phosphorus atom. Replacement of an oxygen atom in the starting phosphite by nitrogen changes drastically the reactivity of the molecule; the temperature required for the alkylation drops by about 15°, the duration of the reaction being cut in half. The best model compounds for this reaction are sugar tetraalkyldiamidophosphites. In spite of the fact that stable quasiphosphonium salts can be obtained when, under normal conditions, the reaction is stopped at the first stage of Arbuzov rearrangement, when heated, the process goes to completion, giving satisfactory yields of the final products.

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USSR

UDC 547.26'118

PREDVODITELEV, D. A., URVANTSEVA, G. A., and NIFANT'YEV, E. Ye., Moscow Pedagogical Institute Imeni V. I. Lenin

"Ethyleneamidophosphites of Glycerine Derivatives. IV. Synthesis of Methylcolaminoglycerophosphonates, Enolphosphates and Phosphites"

Leningrad, Zhuranl Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1801-1806

Abstract: The reaction of 1,2-isopropylideneglycerylethylene methyl phosphite (I) with chloral and methyl iodide was investigated, the reactions yielding respectively β,β-dichlorovinyl-N-methyl-N-β-chloroethylamidophosphate and N-methyl-N-β-iodoethylmethylphosphonate of 1,2-isopropylideneglycerine. Alcoholysis of (I) yields unsymmetric phosphites which undergo ring-chain tautomerism. The phosphites obtained were used in Perkov and Arbuzov reactions. New phosphorus-organic compounds -- analogues of glycerophospholipids -- were synthesized.

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USSR

UDC 547.26'118

YELEPINA, L. T., BALAKHONTSEVA, V. N., and NIFANT'YEV, E. Ye., Moscow State University Imeni M. V. Lomonosov, and All Union Scientific Research Institute of the Biosynthesis of Protein Substances

"Phosphorylation of Xylitol With Phosphonous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1811-1816

Abstract: Reaction of xylitol with phosphonous acids and their esters yielded only 1,4-anhydroxylitol phosphonites, while the hexitols produced noncyclic hexitol phosphonites and phosphonites of their anhydrides. On storage the noncyclic phosphonites of pentitols and hexitols are cyclized forming monoanhydrides and phosphonous acid. Hexitol phosphonites are more stable than xylitol phosphonites. Phosphorylation of polyols occurs in three stages: phosphorylation of the starting polyol, cyclization of the phosphorylated polyol to 1,4-anhydride and phosphorylation of the anhydride.

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USSR UDC 547.341.26'118.07

NIFANT'YEV, E. YE., NASONOVSKIY, I. S., LAKKORIN, B. N., SKOROVAROV, D. I., SHATALOV, V. V., Moscow State University imeni M. V. Lomonosov

"A Method of Making Phosphinates"

Moscow, Otkrytiya, Izobreteniya, Primyshlennyye Obraztsy, Tovarnyye Znaki, No 22, Aug 72, Author's Certificate No 345165 , Div C, filed 23 Nov 70, published 14 Jul 72, p 97

Translation: This Author's Certificate introduces: 1. A method of making phosphinates with the distinguishing feature that the process is simplified by reacting the sodium salt of phosphinic acid with an alkyl halides in an inert organic solvent such as methanol in the presence of heating with subsequent isolation of the goal product by conventional methods. 2, A modification of this procedure distinguished by the fact that heating is done to 130-135° C. 3. A modification of the method covered in points 1 and 2 distinguished by the fact that the process is carried out in the presence of a peroxide such as tert-butyl peroxide.

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USSR

UDC 547.26'118

NIFANT'YEV, E. YE., NASONOVSKIY, I. S., KRYUCHKOV, A. A.

"Stereochemistry of the Dialkylamides of 1,3-Butylene Phosphorous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 71-73

Abstract: The dialkylamides of 1,3-butylene phosphorous acid exist in the form of two isomers -- stable and labile [E. Ya. Nifant'yev, et al., ZhOKh, No 40, 1420, 1970]. The latter are easily converted to the former on storage (more rapidly with heating). On the basis of the stereochemical data for other similar derivatives [B. A. Arbuzov, etal., DAN SSSR, No 195, 835, 1970] it can be proposed that the difference between forms is determined by the spatial arrangement in them of the amido group with respect to the 6-member ring having chair configuration. The method of dipole moments is used to solve this problem in the example of the dimethyl and eithyl amides of 1,3-butylene phosphorous acid. The axial configuration of the amino group corresponds to the labile isomers of these compounds, and equatorial configuration, to the stabile isomers. The dipole moment of the P-N-bond was determined.

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USSR

UDC 541.67:547.879

PREDVODITELEV, D. A., AFANAS'YEVA, D. N., FILIPPOVICH, YU. B., NIFANT'YEV, E. YE.

"New Method of Synthesis and Stereochemistry of 1,3-alkylene thiophosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 73-77

Abstract: A new procedure is proposed for synthesizing 1,3-alkylene thiophosphites by the sulfohydrolysis of amides of alkylene phosphorous acids. The nuclear magnetic resonance method and thin-layer chromatography were used to detect the phenomenon of stereoisomerism in the series of cyclic thiophosphites. The stereochemical result of synthesizing the thiophosphites depends on the type of initial compound and the chosen reaction. By comparing the calculated and determined dipole moments it was found that the preferred configuration of the 1,3-alkylene phiophosphites is the chair configuration with equatorial orientation of the thiophosphoryl group.

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UDC 547.26'118

USSR

NIFANT'YEV, E. YE., and SHILOV, I. V., Moscow State University Imeni M. V. Lomonosov

"Acid Amides of Phosphorous Acid as Phosphorylating Agents"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1936-1939

Abstract: Acid amides of phosphorous acid phosphorylate nucleophilic reagents with a labile hydrogen atom, analogously to the neutral amides of phosphorous acids. With mercaptans and hydrogen chloride acid amides of phosphorous acids react by changing the coordination number of the phosphorus compound; from tetracoordinated form, phosphorus is converted to tricoordinated form. Reaction temperature of acid amides depends on the structural factors. For example, tetramethylamide of phosphorous acid reacts with phenol at 70-80°, while the tetraethylamide -- at 110-130°C.

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USSR

NIFANT'YEV, E. Ye., FILIMONOVA, R. D., KLYACHKO, Yu. A.

"Method of Production of Acid Phosphites of Amylopectin"

Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355180.

Translation: 1. Method of production of acid phosphites of amylopectin, differing in that the amylopectin is interacted with lower dialkyl phosphite upon heating with subsequent separation of the end product by known methods.

2. Method according to Claim 1, differing in that the process is performed at 100-120°C.

3. Method according to Claim 1, differing in that the process is performed in the presence of catalytic quantities of sodium.

4. Method according to Claim 1, differing in that the process is performed in a medium of an organic solvent such as tetrahydrofuran.

UDC 547.26'118

USSR

NIFANT'YEV, E. Ye., YELEPINA, L. T., and BALAKHONTSEVA, V. N., Moscow State University Imeni M. V. Lomonosov and All Union Scientific Research Institute of the Biosynthesis of Protein Substances

"Oxidative Intramolecular Phosphorylation of Xylitane Phosphonites"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 946-947

Abstract: On storage the xylitane phosphonite undergoes oxidative-reductive intramolecular phosphorylation forming xylitane cyclophosphonate. The isolated 3,5-cyclononylphosphonate of xylitane, m.p. 114° was also synthesized by an independent synthesis.

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USSR

UDC 547.26'118

SHILOV, I. V., and NIFANT'YEV, E. Ye., Moscow State University Imeni M. V. Lomonosov

"Proton Lability in Tetraalkyldiamides of Phosphorous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 581-584

Abstract: It has been determined that the rate constant for the deutero exchange in treatment of phosphorous acid tetraethyldiamide with heavy water is 8 times smaller than the respective constant for dibutylphosphite. Due to the lower lability of the proton at the hydrophosphoryl fragment of phosphorous acid diamides as compared to dialkylphosphites, the reactions of incomplete phosphamides along the P-H bond occur as a rule under more drastic conditions. Addition of incomplete amides of phosphorous acid to unsaturated compounds has been carried out by means of activated electron accepting groups. In contrast to dialkylphosphites this addition occurs in presence of equimolar quantities of sodium alkoxide.

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USSR

NIFANT'YEV, E. Ye., SHILOV, I. V.

"Method of Production of Diamidothiolophosphates"

Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355181.

Translation: Method of production of diamidothiolophosphates based on amides of phosphorus acids, differing in that in order to improve the process, the salts of diamidothiophosphoric acids are interacted with alkyl halides.

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UDC 547.26'118

USSR

SOROKINA, S. F., ZAVALISHINA, A. I., and NIFANT'YEV, E. Ye., Moscow State University Imeni M. V. Lomonosov

"Dialkyldithiolophosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 750-753

Abstract: The novel dialkyldithiolophosphites (I) were synthesized by controlled hydrolysis of dialkyldithiochlorophosphites in presence of hydrogen chloride acceptors. Upon distillation in high vacuum at 95-100°, (I) disproportionated into trialkyltrithiophosphites. These new compounds were found to be quite reactive: diisopropyldithiolophosphite undergoes alcoholysis at 80-90° yielding marcaptan and dialkylphosphites. Acid dithiolophosphites add to the double bond of butyl acrylate in presence of sodium mercaptide yielding dithiolophosphonates. Reaction of acid esters of dithiolophosphorous acid with sulfuryl chloride gave dialkyldithiolochlorophosphates.

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UDC 547.26'118

USSR

PREDVODITELEV, D. A., URVANTSEVA, G. A., and NIFANT'YEV, E. Ye., Moscow Pedagogical Institute Imeni V. I. Lenin

"Ethyleneamidophosphites of the Derivatives of Glycerine. Synthesis of N-Methylcephaline Analogues Modified in the Phosphorus Moiety"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 948-949

Abstract: Novel analogues of natural N-methylcephaline have been synthesized. A mixture of 2 g distearoylglycerine and 0.79 g hexaethyltriamide of phosphorous acid was heated in 20 ml benzene for 5 hrs at 90°, the solvent removed, and the residue recrystallized to yield tetraethyldiamidophosphite of 1,2-distearoylglycerine (I), m.p. 61-62°. (I) heated in benzene with N-methylcolamine yields 3-N-methylethyleneamidophosphite of 1,2-distearoylglycerine (II), m.p. 67-68°. Adding sulfur to a benzene solution of (II) at 20° converts it to 3-N-methylethyleneamidothionephosphate of 1,2-distearoylglycerine, m.p. 62.5-63°. Adding 0.075 g of chloral to 0.32 g (II) in 5 ml benzene and keeping the mixture for 3 hrs at 20° yield 3-β,β-dichlorovinyl-β-chloroethyleneamidophosphate of 1,2-distearoylglycerine, m.p. 38-39°.

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UDC 632.95

USSR

NIFANT'YEV, E. YE., GALKINA, L. YE., and RABOVSKAYA, N. S., Moscow University

"A Means of Obtaining Trichlorvinylhexaalkyltriamidophosphonium Chlorides"

USSR Author's Certificate no 309934, filed 4 Mar 70, published 29 Sept 71 (from Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract No 10N517P by T. A. Belyayeva)

Translation: Physiologically active compounds of the formula $[Cl_2C{=}CClP(NR_2)_3]^+Cl^-$ (R=alkyl) are obtained by the reaction of neutral amides of phosphorous acid with $Cl_2C{=}CCl_2$ in ether in an atmosphere of inert gas. To a solution of 47 g of freshly distilled PCl_3 in ether (1:5) at -10° and in an atmosphere of inert gas is added a solution of 150 g Et_2NH (distilled over KOH) in ether (1:2). This is kept for 1 hour at ~ 20° and for 1 hour at the boiling point, filtered, evaporated, distilled under vacuum, washed with a 30% solution of NaOH and water, mixed with C_6H_6 (1:1), evaporated, distilled; and 18.4 g $(Et_2N)_3P$ (boiling point 96-98°/6, $n^{25}D$ 1.4710) is obtained. While mixing in a stream of inert gas, 15 g $(Et_2N)_3P$ in 25 ml ether is added to 10.1 g

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$Cl_2C=CCl_2$ in 25 ml of ether. This mixed for 10 hours at ~ 20°, the precipitate is separated and washed with dioxane to give I(R=Et); yield: 80%.

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"Phosphorylation of Xylitol with Phosphonous Acids and Their Monoesters"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 7, Jul 72, pp 1480-1485

Abstract: The paper presents the first results of a systematic study of phosphites and phosphonites of pentitols. Xylitol was phosphorylated with phosphonous acids and their acid esters. It was found that heating xylitol with alkyl phosphonous acids and their monoesters yields 5-alkyl phosphonites of the polyhydric alcohol. These phosphonites are readily hydrolyzed by bases, and undergo disproportionation. A method was developed for isolating the individual alkylphosphonous acids.

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IVANOVA, N. L., ZAVALISHINA, A. I., FURSENKO, I. V., NASONOVSKIY, I. S., KONYAYEVA, I. P., KOMLEV, I. V., NIFANT'YEV, E. YE.

"Chromatography of Organic Compounds of Trivalent Phosphorus in a Thin Sorbent Layer. II"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 91-93

Abstract: Some acids of phosphorus and their esters can be identified by the method of thin layer chromatography, but the chromatograms of such substances are not always sufficiently clear and the method of thin layer chromatography was not successful heretofore for analysis of the amides and other important types of derivatives of the acids of trivalent phosphorus [E. Ye. Nifant'yev, ZhOKh, No 35, 1980, 1965]. Here, a more detailed study has been made of the conditions of thin-layer chromatography of some of the most useful types of substances of this class. As a rule, aluminum oxide of second degree Brockman activity was used as the sorbent, but silica gel, polyvinyl alcohol and chlorated polyethylenes were also investigated. They gave worse results. The presented method of thin layer chromatography proved to be useful for analysis of medium and acid phosphites, thiophosphites, amides of phosphoric acid and amidophosphites and esters of hypodiphosphoric acid.

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NIFANT'YEV, E. YE. and SHILOV, I. V., Moscow State University imeni M. V. Lomonosov

"Reaction of the Tertiary Amides and Amidoesters of Phosphorous Acid, with Benzaldehyde"

Leningrad, Zhurnal Obshchey Khimii, Vol XLI, No 11, Nov 1971, pp 2372-2375

Abstract: Reactions of amides of trivalent phosphorus with nucleophilic compounds of type RH have already been well studied, but further development of our knowledge of the reactivity of this class of amides requires a comparison of the results of catalytic and noncatalytic variants of the reaction of these substances with nucleophilic compounds not containing a mobile hydrogen atom. For tests with benzaldehyde carbon dioxide was chosen as a nucleophile. The reaction of hexamethyltriamide of phosphorous acid with benzaldehyde, was studied both in the absence and in the presence of the amine hydrochloride. It was concluded that in reactions of the tertiary amides of phosphorous acid with benzaldehyde, a catalytic role is playing by the amine hydrochlorides. The product of this reaction is the tertiary α-aminobenzylphosphonic acid; without the amine hydrochloride, the reaction does not take place. Second, in the reaction of the mixed ester of phosphorous with benzaldehyde, the hydrochloride

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NIFTANT'YEV, E.YE and SHILOV, I. V., Zhurnal Obshchey Khimii, Vol XLI, No 11, Nov 1971, pp 2372-2375

also plays a catalytic role. If a proton donor is present in the reaction mixture, then the corresponding α-aminophosphonate is formed; if not, the aminophosphate is formed.

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NIFANT'YEV, E. YE., ZAVALISHINA, A. I., SOROKINA, S. T. and CHERNYAK, S. M.
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"The 1,3-Alkylenedithiolophosphites"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 593-595

Abstract: Double-substituted phosphorus acid esters comprise an important and widely studied class of organophosphorus compounds. Their dithiole analogs -- not to mention being the source of information on the electron effects in the —S—P(/)=O triad--are valuable raw materials for synthesis of many useful organophosphorus-sulfur compounds. But unfortunately the acid dithiolophosphites are virtually unstudied, either as regards synthesis or properties. To a benzene solution of 1,3-alkylenedithiolochlorophosphite were added equimolecular amounts of water and triethylamine, in tetrahydrofuran solution. This yielded six different 1-3-alkylenedithiophosphites, these being crystalline substances with unexpectedly high melting points which were weakly soluble in organic solvents. Yields, melting points, compositions, formulas, and, in the case of 1,3-propylenedithiolophosphite, some additional information, were determined.

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"Reaction of Neutral Phosphites and Amidophosphites of Carbohydrates with the Diethyl Mesoxalate."

Leningrad, Zhurnal Obshchey Khimii, Vol XLI, No 11, Nov 1971, pp 2364-2367

Abstract: These reactions were studied in connection with dephosphorylation of sugars. The reactions of 11 different compounds were studied, with the following conclusions. 1) In the reaction of the 1,2;3,4-diisopropylidenegalactoses with the ethyl mesoxalate, there are formed amidophosphates of galactose, this result distinguishing the amidophosphites of galactose from the alkylamidophosphites; 2) a phosphorane is formed in the reaction of catecholphosphite of 1,2;3,4-diisopropylidenegalactose with mesoxalic ester; and 3) the phosphites and amidophosphites of 1,2;3,4-diisopropylidenegalactose can be made. In addition, the authors suggest a new, convenient method synthesizing the dialkylamides of O-aminophenylphosphorus acid.

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KOLESOVA, L. M., NIFANT'YEV, E. Ye., and ZUBOV, V. P., Moscow State University imeni M. V. Lomonosov

"Phosphorylation of Poly(Allyl Alcohol) With Dimethyl Phosphite"

Moscow, Vysokomolekularnyye Soyedineniya, Vol 14, No 2, Feb 72, pp 304-308

Abstract: Phosphorylation of poly(allyl alcohol) [PAA] with dimethyl phosphite was carried out in an inert medium. The reaction progress was checked by the amount of the alcohol isolated and by the phosphorus content in the reaction product. The reaction begins to go appreciably faster at about 165°, and at 175° it yields in about 30 min a polymer with up to 20% phosphorus content. Further rise in the temperature or reaction time does not lead to a higher degree of phosphorylation. Using metallic sodium as a catalyst has also no effect on the reaction rate or its temperature. Two reactions are possible during phosphorylation of PAA: formation of a nonsymmetric phosphite fragment and substitution of both methoxy groups with formation of cross-linked structures. Regarding the reaction mechanism, the first step involves addition of an alcohol proton to the phosphorus atom forming a phosphonium cation which gives an unstable intermediate product with the alkoxy group; the second step involves breaking up this addition product with formation of a new phosphite and an alcohol.

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NIFANTIYEV, E. Ye., NASONOVSKIY, I. S., and BORISENKO, A. A., Moscow State University imeni M. V. Lomonosov

"Synthesis of Hydrogen 1,3-Alkylene Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,368-2,371

Abstract: Study of the stereochemistry and reactivity of the acid 1,3-alkylene phosphites revealed a general lack of published data and a number of contradictions in data published. The authors synthesized and studied the following: 1) diethylamide of 2-methylamylene-2,4-phosphorous acid; 2) diethylamide of 2,4-dimethylamylene-2,4-phosphorous acid; 3) methylamylene-2,4 phosphite; 4) 2,4-dimethylamylene-2,4 phosphite; and 5) 1,3-propylene phosphite and 2,2-dimethyl-1,3-propylene phosphite. The possibility of synthesizing the stereoisomeric acid phosphites from acid 1,3-alkylene phosphites was demonstrated. Tables of physical constants found, paramagnetic resonance curves, and structural formulas are included.

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NIFANT'YEV, E. Ye., and SHILOV, I. V., Moscow, State University imeni M. V. Lomonosov

"Investigation of Tetraalkyldiamides of Phosphorous Acid. Aminoalkylation"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 503-506

Abstract: Amides of α-aminophosphonic acids are synthesized by aminoalkylation of acid amides of phosphorous acid with aminals and Schiff bases. It is found that the acid phosphamides in these reactions are less reactive than dialkyl phosphites and amidoesters of phosphorous acid. A study is made of the synthesis of acid amides of phosphorous acid by partial hydrolysis and acidolysis of complete phosphamides. It is shown that the technical products of these reactions have a high degree of purity and can be used in organophosphorus synthesis without preliminary purification.

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