USSR

UDC: 621.327.4

Andreyev, S. I., Candidate of Technical Sciences, Baykov, O. G., Dashyk, P. N., Candidate of Technical Sciences, Zobov, Ye. A., and Sinitsyn, N. V.

"A Gigawatt Xenon Flash Lamp"

Optiko-Mekhanicheskaya Promyshlennost', No 5, 1972; pp 19-21.

Abstract: This work presents the results of testing of a flash lamp with an internal quartz tube diameter of 60 mm, wall thickness 3 mm, distance between electrodes 900 mm, filled with xenon to the pressure of 20 mm/Hg. The energy of the lamp is 10^5 j, current transmission time is 10^{-4} sec. A temperature of 2000°K is reached; the radiation spectrum is continuous. Data are presented on the distribution of radiation energy through the spectrum. The discharge is performed under conditions such that the magnetic pressure on the plasma column at the current maximum is near the gas kinetic pressure.

USSR

UDC 621.376.4

PETROPAVLOVSKIY, V. P., SINITSYN, N. V.

"Highly Stable Transistorized Phase Detectors"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy--Radioelektronika, Vol XIV, No 8, 1971, pp 924-927

Abstract: A study was made of the principles of constructing highly stable transformerless phase detectors by replacing the transformer by a transistorized inverter. This replacement gives a significant gain in thermal stability and the pass band of the entire device (up to several tens of megahertz), and it also solves the problems of microminiaturization. Circuit diagrams are presented for a balanced phase detector, a varicap phase detector and a high-sensitivity phase detector. The characteristics of each of these schemes are discussed.

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USSR UDC 621.385.032.26:621.385.6:621.317.3 (088.8)

MURAV'YEV, A.A., MALAKHOV, I.K., ZAMOROZKOV, B.M., RADYUK, O.M., SINITSYN, P.R., YUDZON, O.I.

"Method Of Investigation Of The Structure Of An Electron Beam"

USSR Author's Certificate No 265176, filed 18 Sept 67, published 17 June 70 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A124P)

Translation: A method is proposed for investigation of the structure of an electron beam without the introduction into it of perturbations which are employed in the evaluation of the quality of electron beams under the dynamic operating conditions of electrovacuum microwave devices. The method is based on use of the glow of the beam and makes it possible to observe simultaneously on the screen of a monitoring television device the form of the beam and the distribution of the intensity of its glow at any cross section of the beam being inspected, and also operationally to change the parameters of the beam, visually selecting the form of the beam and the distribution of its density. G.B.

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UNCLASSIFIED

1/2 020 PROCESSING DATE--11SEP70

TITLE--ELECTRON MICROSCOPIC INVESTIGATION OF NORMAL ENAMEL AND DENTIN -U-

AUTHOR--SINITSYN, R.G.

COUNTRY OF INFO--USSR

SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 2, PP 25-30

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTRON MICROSCOPE, DENTAL ENAMEL, DENTIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1687 STEP NO--UR/0511/70/049/002/0025/0030

CIRC ACCESSION NO--AP0101742

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101742

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH THE AID OF REPLICA THE AUTHOR STUDIED THE ULTRASTRUCTURE OF INTACT ENAMEL AND DENTIN OF DECIDUOUS (20) AND PERMANENT (16) TEETH IN CHILDREN AND ADOLESCENTS. IT WAS FOUND THAT ENAMEL PRISMS HAVE AN ARCH LIKE AND MORE RARELY A HEXAGONAL FORM. THE PRISMS CONSIST OF CRYSTALS OF HYDROXYAPATITE, THE LONGITUDINAL AXES OF WHICH ARE UNDER AN ANGLE TO THE LONGITUDINAL AXES OF PRISMS. IN WELL MINERALIZED ENAMEL THE INTERPRISMATIC SPACES, AS A RULE, ARE NOT REVEALED. IN DENTIN CANALICULI THERE WERE FOUND FIBRILLAR NETWORKS WITH COLLAGEN CHARACTERISTIC STRIATION. THE GROUND SUBSTANCE AROUND DENTIN CANALICULI DIFFERS FROM THE REMAINING MASS BY A FINE FIBROUS STRUCTURE AND AUGMENTED MINERALIZATION.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--DOSIMETRIC REQUIREMENTS TO THE ACCURACY OF ROENTGENOMETRIC INVESTIGATIONS IN RADIUM THERAPY -U-

AUTHOR-(04)-KUZETSOV, E.A., SINITSYN, R.V., MALEVICH, M.A., KONNOV, B.A.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 4, PP 67-70

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIUM, RADIOTHERAPY, DOSIMETRY, CHARGED PARTICLE, ELECTROMAGNETIC RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0959 STEP NO--UR/0241/70/015/004/0067/0070

CIRC ACCESSION NO--AP0109116

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109116

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AS A CRITERION OF ACCURACY OF ROENTGENOMETRIC MEASUREMENTS THE AUTHORS PUT AN ERROR IN DETERMINING THE DOSE IN THE FOCUS IN DISPLACEMENT OF THE TARGET TO A DEFINITE VALUE. THE CALCULATION WAS MADE FOR ELECTROMAGNETIC RADIATION AND HEAVY CHARGED PARTICLES IN THE INSTANCE OF SHIFT OF THE TARGET IN THE DIRECTION OF THE BEAM AXIS AND IN PERPENDICULAR DIRECTION. FACILITY: TSENTRAL'NYY N-I RENTGENO-RADIOLOGICHESKIY INSTITUT MINISTERSTVA ZDRAVOOKHRANENIYA SSSR.

UNCLASSIFIED

1/3 035 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PROBLEM OF ORGANIZATION OF WORK AND IMPROVEMENT OF THE COMPETENCE OF SHIFT MEDICAL PERSONNEL -U-

AUTHOR-(03)-KONONENKO, L.N., PAVLOV, N.V., SINITSYN, S.A.

COUNTRY OF INFO--USSR

SOURCE--ODESSA; MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 3, 1970, PP 46-49

DATE PUBLISHED-------70

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

TOPIC TAGS--MEDICAL PERSONNEL, SANITATION, PUBLIC HEALTH, EPIDEMIOLOGY, NAVAL MEDICINE, MEDICAL TRAINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0054

STEP NO--UR/0753/70/000/003/0046/0049

CIRC ACCESSION NO--AP0132789

UNCLASSIFIED

2/3 035 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132789

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BLACK SEA AND SEA OF AZOV MARINE HEALTH DIVISION, ORGANIZED IN 1923, HAS GROWN TO BECOME THE LARGEST AGENCY IN THE ADMINISTRATION OF THE MEDICAL SANITATION SERVICE OF WATER TRANSPORT IN THE BLACK SEA AND SEA OF AZOV BASIN. ITS SANITATION AND EPIDEMIC CONTROL ESTABLISHMENTS AND THERAPEUTIC AND PREVENTIVE MEDICAL ESTABLISHMENTS ARE LOCATED IN THE FIVE SOUTHERN OBLASTS OF THE UKRAINE. THEY SERVE SEAMEN, SHIPS AND FACILITIES OF THE BLACK SEA, SEA OF AZOV AND DANUBE MARITIME SHIPPING COMPANIES, THE ODESSA ADMINISTRATION OF THE ANTARCTIC AND OCEANIC FISHING FLEET, THE SEVASTOPOL' AND DERCH' OCEAN FISHING ADMINISTRATIONS, THE WORKERS AND EMPLOYEES OF THE SHORE ADMINISTRATIONS OF SHIPPING COMPANIES AND FLEETS, OF SHIP REPAIR PLANTS PORTS, AND CONSTRUCTION ORGANIZATIONS, AND THE STUDENTS OF HIGHER AND SECONDARY EDUCATIONAL INSTITUTIONS OF THE MINISTRY OF MARITIME FLEET AND MINISTRY OF FISH ECONOMY USSR. THE BLACK SEA AZOV MARINE HEALTH DIVISION, WHICH HAS ACHIEVED IMPROVEMENT IN SERVICE TO SHIPBOARD PERSONNEL, IS PAYING MUCH ATTENTION TO IMPROVING THE QUALIFICATIONS AND SPECIALIZATION OF SHIP DOCTORS. IN THE PAST SHIPBOARD MEDICAL WORKERS HAVE BEEN TRAINED IN THE PERMANENT COURSES OF THE ODESSA INSTITUTE FOR ADVANCED TRAINING OF PHYSICIANS, BUT IN THE FIFTIES IT WAS TRANSFERRED TO ZAPOROZH'YE AND THE COURSES STOPPED. ADVANCED TRAINING AND SPECIALIZATION (IN SURGERY, TRAUMATOLOGY, AND THERAPY) HAVE BEEN CARRIED OUT IN THE CLINICS OF THE MEDICAL INSTITUTE, IN INSTITUTES FOR ADVANCED TRAINING OF PHYSICIANS, AND ON THE JOB IN THERAPEUTIC AND PREVENTIVE MEDICAL ESTABLISHMENTS OF THE MARINE HEALTH DIVISION.

UNCLASSIFIED

3/3 035 UNCLASSIFIED

CIRC ACCESSION NO--AP0132789 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--THE SPECIFIC FEATURES OF MARINE MEDICINE ARE LOST FROM VIEW IN THIS TRAINING, ITS MOST IMPORTANT FIELDS ARE NOT GIVEN ATTENTION, AND THE COURSE WORK IS ONE SIDED. IN ORDER TO SUPPLEMENT THE PRESENT PRACTICE, THE MARINE HEALTH DIVISION, WITH THE CONSENT OF THE MINISTRY OF HEALTH UKRAINIAN SSR, THEREFORE ORGANIZED AT THE BEGINNING OF 1968 COURSES FOR SPECIALIZATION OF SHIPBOARD MEDICAL WORKERS; THE COURSES ARE GIVEN IN THE FACILITIES OF THE BASIN HOSPITAL AND SANITATION EPIDEMIOLOGY STATION AND LAST 4.5 MONTHS. THE PRINCIPAL FIELDS IN THE SYLLABUS OF THE COURSES ARE EMERGENCY SURGERY, THERAPY, STOMATOLOGY, SHIPBOARD SANITATION AND HYGIENE, SANITARY PROTECTION OF MARITIME BOARDERS, ETC. FACILITY: BLACK SEA AND SEA OF AZOV MARINE HEALTH DIVISION AND THE BASIN SANITATION EPIDEMIOLOGY STATION.

UNCLASSIFIED

USSR

SINITSYN, S. B.

UDC 539.3:534.1

"On the Parametrically Perturbed Vibrations of a Cylindrical Shell Made of Nonlinearly Elastic Materials"

V sb. Raschet prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 110-114 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V208)

Translation: Parametric vibrations of a cylindrical shell under an end load having constant and harmonic components are discussed. The stress intensity and the deformation relationships are applied in the form of a cubic parabola. An amplitude-frequency equation is obtained in the first approximation by the small parameter method. 5 ref. B. V. Gulin.

1/1

SINITSYN, V. A., POPOV, I. A., BORODULIN, G. I., MAL'TSEV, B. N., KOTKOV, A. V.

"Experimental Industrial Tests of the MSD-1 Phototachymeter"

Moscow, Geodeziya i Kartografiya, No 11, 1971, pp 30-31

Abstract: The paper gives basic technical data and the results of experimental industrial tests of the MSD-1 phototachymeter developed by the All-Union Scientific Research Institute of Mining Geomechanics and Surveying for measuring distances in underground surveying jobs. The instrument has a range of action of 1-300 meters with an accuracy of $\pm(2\ mm + 5 \cdot 10^{-6} D)$. Measurements take 3-8 minutes. The test results show that the instrument is highly accurate and can be used in special geodetic engineering jobs as well as in surveying work. One figure, two tables.

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USSR

UDC 677.521:532.64

SINITSYN, V. A., RODIONOV, R. A., TELESHOV, V. A., All-Union Scientific Research Institute for Glass Plates and Glass Fibers

"Effective Value of the Advancing Angle in Impregnation of Porous Glass Fibers with Polymer Dispersions"

Moscow, Kolloidnyi Zhurnal, vol 35, No 6, November-December 73, pp 1191-1193

Abstract: Impregnation of glass fibers with ethanol. toluene, and n-heptane at 20°C, water at 20 and 80°C, and 4.85-27.33% aqueous dispersions of latex at 20-80°C was studied. From data on the ratios of the experimentally determined specific surface area to calculated values, the cosine of the advancing angle for the organic substances was found to be 3 to 4 times that for water. For the latex, the data indicate that the experimental value of the specific surface area increased with increasing temperature, showing that a larger part of the glass fiber surface participates in the impregnation at 80 than at 20°C. Heating of the high-concentration aqueous dispersion provided impregnation conditions similar to those of low-concentration latex, with an increased impregnation rate. The dependence of the capillary rise on time was determined experimentally, and the specific surface area of the glass fibers, whose radii were known, was calculated from the experimental data.

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1/2 020 UNCLASSIFIED

TITLE--ADSORBED LAYERS OF BENZENE AND N HEXANE ON GRAPHITIZED CARBON BLACK STUDIED FROM HEAT CAPACITY DATA -U-

PROCESSING DATE--20NOV70

AUTHOR-(03)-BEREZIN, G.I., KISELEV, A.V., SINITSYN, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 734-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE, HEXANE, CARBON BLACK, HEAT CAPACITY, ADSORPTION, ISOTHERM, VAN DER WAALS EQUATION, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1196

STEP NO--UR/0076/70/044/003/0734/0740

CIRC ACCESSION NO--AP0128614

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV7C

CIRC ACCESSION NO--AP0128614

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION BETWEEN HEAT CAPACITY OF N HEXANE AND C SUB6 H SUB6 ADSORBED ON C BLACK AND THE AMT. ADSORBED ON THE SURFACE WAS DETD. THIS RELATION AS WELL AS ADSORPTION ISOTHERMS AND THE DEPENDENCE OF THE DIFFERENTIAL HEAT OF ADSORPTION ON THE AMT. ADSORBED CAN BE DESCRIBED SATISFACTORILY BY MODELS TAKING INTO ACCOUNT ADSORBATE ADSORBATE INTERACTIONS IN THE 1ST ADSORBED LAYER. THUS, THE STATE OF ADSORBED C SUB6 H SUB6 CAN BE DESCRIBED BY VAN DER WAALS TYPE 2,DIMENSIONAL EQUAITON OF STATE WHEREAS THAT OF N HEXANE IS DESCRIBED BY A MODEL ASSUMING THE FORMATION OF 2 DIMENSIONAL COMPLEXES OF ADSORBED MOLS.

FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

1/2 013

TITLE--SYNTHESIS OF ANALOGS OF ACTINOMYCINS. V. THE SIMPLEST CHLORO ANALOGS CONTAINING GLYCINE GROUPS -U-

AUTHOR-(03)-GLIBIN, YE.N., SINITSYN, V.G., GINZBURG, O.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1020-2

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ANTIBIOTIC, CHLORINATED ORGANIC COMPOUND, GLYCINE, CHEMICAL SYNTHESIS, CATALYTIC HYDROGENATION, METAL CATALYST/(U)ACTINOMYCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1101 STEP NO--UR/0366/70/006/005/1020/1022

CIRC ACCESSION NO--AP0130134

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 013

IRC ACCESSION NO--AP0130134

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATMENT OF N,(3,BENZYLOXY,4,CHLORO,2,NITROBENZOYL)GLYCINE (I) WITH F SUB3 CCO SUB2 H GAVE THE 3,HYDROXY ANALOG (II) WHICH WAS ESTERIFIED TO THE ET ESTER (III). ESTERIFICATION OF I WITH ABS. ETOH SATD. WITH DRY HCL GAVE I ET ESTER AND SOME III. HYDROGENATION OF II OR III OVER RANEY NI GAVE THEIR 2 AMINO ANALOGS, WHICH WERE CONVERTED INTO 1,8,BIS(RCOCH SUB2 NHCO),2,AMINO,4,5,DICHLORO,3H,PHENOXAZIN,3, ONE (R IS OH OR OET) BY TREATMENT WITH BUFFERED AQ. SOLNS. OF K SUB3 FE(CN) SUB6.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

1/2 009

TITLE--SYNTHESIS OF ANALOGS OF ACTINOMYCINS. III. THE SIMPLEST CHLORO ANALOGS CONTAINING OMEGA AMINO ACIDS -U-

AUTHOR-(03)-SINITSYN, V.G., GLIBIN, YE.N., GINZBURG, O.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3), 500-4

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACTINOMYCES, AMINO ACID, CONDENSATION REACTION, ESTERIFICATION, ALIPHATIC ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0366/70/006/003/0500/0504

PROXY REEL/FRAME--1993/0373

CIRC ACCESSION NO--AP0113291

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 009

CIRC ACCESSION NO--AP0113291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION OF H SUB2 H(CH SUB2) SUBN CO SUB2 H WITH 2,NITRO,3,BENZOYLOXY,4,CHLOROBENZOYL CHLORIDE IN PHME SOLN. CONTG. NAOH GAVE I (R IS NH(CH SUB2) SUB2 CO SUB2 H, NH(CH SUB2) SUB3 CO SUB2 H, OR NH(CH SUB2) SUB5 CO SUB2 H). THE ESTERIFICATION OF I GAVE THE CORRESPONDING ET ESTERS. THE CATALYTIC HYDROGENATION OF I ACIDS OF I (R EQUALS NH-(CH SUB2) SUB3 CO SUB2 ET) GAVE II. THE OXIDN. OF II WITH K SUB3 FE(CN) SUB6 IN A PHOSPHATE BUFFER GAVE THE FOLLOWING ACTINOMYCIN ANALOGS: 2,AMINO,4,6, DICHLORO,3H,PHENOXAZIN,3,ONE,1,9,BIS(GAMMA,CARBONYLAMINOBUTYRIC ACID) (III), 2,AMINO,4,6,DICHLORO,3H,PHENOXAZIN,3, ONE,1,9,BIS(GAMMA,CARBONYLALANINE), 2,AMINO,4,6,DICHLORO,3H,PHENOXAZIN, 3,ONE,1,9,BIS(EPSILON,CARBONYLAMINOCAPROIC ACID), AND THE DI,ET ESTER OF III. THE CATALYTIC HYDROGENATION OF I (R EQUALS NH(CH SUB2) SUB2-CO SUB2 ET) CAUSED THE REMOVAL OF CL AND GAVE THE CORRESPONDING DECHLORINATED II WHICH WAS OXIDIZED TO 2,AMINO,3H,PHENOXAZIN,3, ONE,1,9,BIS(BETA,CARBONYLALANINE) DI,ET ESTER. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--BROACHES FOR MACHINING OPENINGS IN HIGH STRENGTH STEEL PARTS -U-

AUTHOR--ZAKHAROV, G.K., MIKHAYLOYUK, E.A., SINITSYN, V.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, STANKI I INSTRUMENT, NO 3, 1970, PP 36-37

DATE PUBLISHED--------70

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

TOPIC TAGS--HIGH STRENGTH STEEL, METAL MACHINING, ALLOY DESIGNATION, LOW ALLOY STEEL, METAL BROACHING, HARD STEEL, TECHNICAL STANDARD/(U)30KHGSA LOW ALLOY STEEL, (U)30KHGSNA LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/1565 STEP NO--UR/0121/70/000/003/0036/0037

CIRC ACCESSION NO--AP0114153

UNCLASSIFIED

2/2 \ 026 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0114153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MACHINING OF HARDENED STEELS OF THE TYPES 30KHGSA AND 30KHGSNA BY BROACHING INVOLVES CONSIDERABLE TECHNICAL DIFFICULTY. AS A RULE, IT IS NOT POSSIBLE REGULARLY TO OBTAIN A SURFACE CLEANNESS HIGHER THAN CLASS 6, WHEREAS IT IS NECESSARY TO PROVIDE FOR CLEANNESS OF THE MACHINED SURFACES TO MEET THE STANDARD OF CLASS 7-8. AS A RESULT OF EXPERIMENTAL WORK, BROACH DESIGNS HAVE BEEN DEVELOPED WHICH PERMIT THIS PROBLEM TO SOLVED. THE NEW BROACH DESIGNS ARE DESCRIBED, AND THEIR APPLICATION IS INDICATED.

ZZZZZZZZZZZ UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--FOSSILIZATION OF GASES IN SEDIMENTARY LAYERS AND ITS CONTRIBUTION TO THE EVOLUTION OF TERRESTRIAL ATOMSPHERE -U-
AUTHOR--SINITSIN, V.M.

S

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 6, GEOLOGIYA, GEOGRAFIYA, 1970, NR 1, PP 46-55
DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ATMOSPHERE, SEDIMENTARY ROCK LAYER, VOLCANO, WATER, HYDROGEN, OXYGEN, PHOTOLYSIS, PHOTOSYNTHESIS, OXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0868 STEP NO--UR/0307/70/000/001/0046/0055

CIRC ACCESSION NO--AP0110589
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0110589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HISTORICAL VARIATIONS OF TERRESTRIAL ATMOSPHERE WERE GREATLY INFLUENCED BY THE DISSOCIATION OF WATER INTO HYDROGEN AND OXYGEN DURING PHOTOLYSIS, PHOTOSYNTHESIS AND OXIDATION OF VARIABLY VALENCY ELEMENT PROCESSES. OF GREAT SEGNIFICANCE IS ALSO THE CAPACITY OF CO SUB2 AND O SUB2 FOR JOINING THE MINERAL COMBINATIONS, FOSSILIZING DURING SEDIMENTARY PROCESSES AND THUS DROPPING OUT FOR LONG THE EXOGENOUS ROTATION. FOUR EVOLUTIONAL TYPES OF TERRESTRIAL ATMOSPHERE ARE OBSERVED: PROTOATMOSPHERE OF ASTRONOMICAL STATE (A-1), OXIDATING VOLCANIC ATMOSPHERE OF PROTOGEICUM (A-2), CARBON DIOXIDE ATMOSPHERE OF DEUTEROGEICUM (A-3) AND OXYGEN CONTAINING ATMOSPHERE OF NEOGEICUM (A-4).

UNCLASSIFIED

USSR

SINITSYN, V. V., Chief of the Division of Control of the Application of Pesticides, Main Administration of Plant Protection, Ministry of Agriculture USSR

"The Correct Application of Pesticides"

Moscow, Zashchita Rasteniy, No 5, May 73, pp 2-3

Abstract: Special storage buildings (15400) for pesticides have been erected and more buildings of this type are in the course of construction. Measures have been taken to prevent the poisoning of fish as a result of pollution with pesticides of bodies of water. Information on safety precautions in connection with the application of toxic pesticides and weed killers in being distributed on a large scale. Highly toxic pesticides such as calcium arsonite, sodium aresenite, Paris green, thiophos, methylethylthiophos, and carbolineum have been withdrawn from use. The application of zinc phosphide for the control of rodents, of methylmercaptophos for the protection of cotton, and of granozan for the treatment of seeds has been restricted. The use of granozan and other mercury-containing chemical for the treatment of many seeds has been forbidden. Whenever granozan is still used, it must be combined with special 1/

USSR

SINITSYN, V. V., Zashchita Rasteniy, No 5, May 73, pp 2-3

dyestuffs. More chemicals with a lower Hg content or without Hg to be used for the treatment of seeds will be distributed, e. g., mercurhexane, mercurbenzene, and heptathiuram. Instead of DDT, chlorophos, metaphos, fozalon, phthalophos, sevin, methylnitrophos, bromophos, and other compounds are being used. Pesticides with selective activity that have a low toxicity for humans and warm-blooded animals (sayphos, keltane, tedion, etc.) have been introduced. The introduction of compounds which have a fungicidal and acaricidal activity (karaton and acrex) is being planned. Testing to safeguard against the accumulation of residual amounts of pesticides in foodstuffs, animal and poultry feeds, and the soil is carried out by the sanitary-epidemiological service, veterinary laboratories, and agrochemical laboratories, respectively. During 1966-70, the content of pesticides in food products in the USSR decreased by a factor of 2.5. The amount of DDT used in plant cultivation decreased by a factor of 3 in the Ukraine and by a factor of 5 in Latvia and Estonia. Serious errors are still being committed in connection with the use of toxic chemicals in agriculture. Administrative and disciplinary action and in some cases court proceedings were instituted against the persons responsible for these errors.

2/2

Pesticides

USSR

UDC 632.95.028

SINITSYN, V. V., Chief, Division for the Supervision of Pesticide Use, Main Administration of Plant Protection, Ministry of Agriculture USSR

"Disposal of Unsuitable Toxic Chemicals and Their Containers"

Moscow, Zashchita Rasteniy, No 7, 1972, pp 31-32

Abstract: Certain sovkhozes, kolkhozes, and other agricultural enterprises, as well as centers and warehouses of Sel'khoztekhnika [Agricultural Equipment Association] (AEA), still possess banned or outdated toxic chemicals and their containers. These chemicals are potential sources of environmental pollution and threaten man and domestic animals with intoxication. The Ministry of Agriculture USSR and Soyuzsel'khoztekhnika [All-Union Agricultural Equipment Association have jointly devised a plan for the disposal of these chemicals, which appeared on 19 August 1971 as Order No 288/186, "Disposal of Toxic Chemicals and Their Containers Which Are Unsuitable for Agricultural Use." According to this plan the sovkhozes, kolkhozes, and other agricultural enterprises are charged with collating and preparing the chemicals in question for collection by Sel'khoztekhnika, and the latter have the responsibility of conveying them in a safe manner to disposal centers. Substances which do not require preliminary chemical analysis

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USSR

SINITSYN, V. V., Zashchita Rasteniy, No 7, 1972, pp 31-32

prior to disposal are arsenous oxide, sodium arsenite, calcium arsenite, Paris green, sodium fluoride, barium chloride, aldrin, mercaptophos, methylethylthiophos, thiophos, concentrated anthracene oil emulsion, mercuric chloride, preparations AP and PD, 2,4-5-T butyl ester, and powders used in pollination that have deteriorated. Pesticides of unknown nature are subject to qualitative analysis prior to evaluation of their suitability for agricultural purposes, or lack of it. The work must be organized in a manner that will ensure efficient accounting and disposal of the banned and outdated toxic chemicals, as well as of their nonreusable containers. In the Tadzhik SSR and the Kirgiz SSR the stores of toxic chemicals have already been catalogued and prepared for disposal. Timely disposal of the remaining supplies of toxic chemicals will free storage space and eliminate a potential source of environmental polution.

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Acc. Nr: AP0036535 S Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1, pp 98-103

EFFECT OF HYDROPHOBIZATION ON THE THICKENING ABILITY OF SILICA (AEROSIL AND SILICA GEL)

Sinitsyn, V. V.; Bakaleynikov, M. B.; Akshinskaya, N. V.; Nikitin, Yu. S.

Summary

The aerosil and silica gel surfaces have been subjected to waterproving treatment with n-butanol under different conditions. The thickening ability of untreated aerosil of different types: «175», «300» and «380» is approximately the same, regardless of its surface area determined with water and methanol. With increasing waterproving degree, the thickening ability of aerosil diminishes. With the same waterproving degree the thickening ability of aerosil subjected to the vapor-phase modification is higher than after treatment in an autoclave. The thickening ability of large-pored high-disjersed silica gel, both initial and modified, is much higher than for aerosil.

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1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF THE DEGREE OF DISPERSION OF ANTIFRICTION ADDITIVES ON THE RHEOLOGICAL PROPERTIES AND COLLOIDAL STABILITY OF PLASTIC GREASES -U-

AUTHOR-(02)-SINITSYN, V.V., VIKTOROVA, YU.S.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 17-19

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GRAPHITE, GREASE, PLASTIC, MOLYBDENUM DESULFIDE, CHEMICAL BONDING, MOLECULAR STRUCTURE, RHEOLOGIC PROPERTY, ANTIWEAR ADDITIVE/(U)S1 GRAPHITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1526 STEP NO--UR/0318/70/000/002/0017/0019

CIRC ACCESSION NO--AP0118513

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0118513
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDN. OF GRAPHITE AND MOS SUB2 OF 1-150 MU HAD A VERY SMALL EFFECT ON PLASTIC LUBRICANTS. SYNTHETIC GRAPHITE S-1 HAD SOME THICKENING EFFECT DUE TO ITS SOMEWHAT LOW TENDENCY TOWARD STRUCTURE FORMATION. MOS SUB2 AND GRAPHITE HAD NO THICKENING EFFECTS, AS THE BOND BETWEEN THE PARTICLES WAS RATHER WEAK AND NO STRUCTURAL SKELETON WAS FORMED. CHARACTERISTICS OF THE GREASES ARE TABULATED. 9 REFERENCES.

UNCLASSIFIED

Composite Materials

USSR

UDC: 678.5.06:624.074.4

NOVICHKOV, YU. N. and SINITSYN, YE. N., Central Aerodynamics Institute imeni Prof. N. Ye. Zhukovskiy, Moscow Oblast'; Moscow Power Engineering Institute

"Surface Buckling of a Laminated Medium"

Riga, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 648-654

Abstract: The authors study the surface buckling of a medium reinforced by layers with an orthogonal positioning of the layers with respect to the surface. The study is based on Bolotin's theory of layered media. The critical load is determined and the nature of the stability losses studied. Using a simplified approach, simple engineering formulas are obtained for the critical loads which correspond to the surface buckling.

ELECTRICAL ENGINEERING

Circuit Elements

UDC 621.314.2:621.317

USSR

LAKERNIK, R. M., SINITSYN, YE. P., TSOPIK, V. G.

"Automation of Testing of High-Frequency Balanced Long-Range Communications Cables"

Kabeln. tekhnika. Nauchno-tekhn. sb. (Cable Technology. Scientific-Technical Collection), 1970, No 61, pp 6-7 (from RZh--Elektrosvyaz', No 9, Sep 70, Abstract No 9.64.258)

Translation: The paper describes a cable assembly test line -- the experimental conveyer organized at the Moscow Cable Plant. Drums with cable are mounted on a step-by-step conveyer. First, the drum proceeds to a room for tests of the insulation with high voltage, and then the drum is transported to connecting lines of automatic measuring units situated over the cable (on the second floor). The units measure and record the parameters of the circuits, including the resistance and asymmetry of a loop, operating capacitance, coefficients of capacitance coupling and asymmetry, and cross talk attenuation. Later, the transporter moves the drum to a section where a test is made of the airtightness of the casing and the seal of the cable ends. Use of the conveyer in conjunction with the automatic measuring units makes it possible to decrease the cable testing labor input and floor space

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USSR

LAKERNIK, R. M., et al., Kabeln. tekhnika. Nauchno-tekhn. sb. (Cable Technology. Scientific-Technical Collection), 1970, No 61, pp 6-7 (from RZh--Elektrosvyaz', No 9, September 1970, Abstract No 9.64.258)

to 14-25 percent (in comparison with tests at special test fields). The results of cable tests which are recorded on punched tape in the automatic measuring units are fed into electronic computers for statistical processing, which makes it possible operationally to analyze and to adjust the manufacturing process for cables. One illustration, four references. N.S.

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Devices

UDC: 621.376.4(088.8)

USSR

SINITSYN, Yu. S., PESTOVA, L. P.

"A Phase Detector"

USSR Author's Certificate No 263690, filed 18 Nov 67, published 25 Jun 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D80 P)

Translation: This Author's Certificate introduces a phase detector made in a bridge circuit and containing transistor switches in two adjacent arms with collectors and bases respectively interconnected and reference voltage applied between the bases and collectors of the transistors from the secondary winding of a transformer. To reduce the systematic component of imbalance in the voltage across the output of the detector when there is a high level of interference at the input, the emitters of the switch transistors are connected in the bridge circuit through commutators which continuously reverse the mutual location of the transistors in the limits of each arm at a frequency lower than that of the input signal.

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1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MEASUREMENT OF ABSORBED ENERGY OF BREMSSTRAHLUNG AND BEAMS OF FAST ELECTRONES WITH THE AID OF GRAPHITE CALORIMETER -U-

AUTHOR-(02)-YERMAKOV, I.A., SINITSYNA, A.P.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLEGIYA, 1970, VOL 15, NR 3, PP 65-71

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CALORIMETER, BREMSSTRAHLUNG, ELECTRON CAPTURE, ELECTORN BEAM, IONIZATION CHAMBER, BETATRON, GRAPHITE /(U)B4ETATRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1473 STEP NO--UR/0241/70/015/003/0065/0071

CIRC ACCESSION NO--AP0101559

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 030

CIRC ACCESSION NO--AP0101559

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHROS DESCRIBE THE DESIGN OF A CALORIMETER AND THE RESULTS OF MEASUREMENTS OF THE ABSORBED ENERGY FROM BEAMS OF FAST ELECTORNES AND BREMSSTRAHLUNG FROM BETATRON B-4E. THE PAPER PRESENTS THE RESULTS OF CALIBRATION OF THE IONIZAITON CHAMBER IN UNITES OF ABSORBED DOSE.

UNCLASSIFIED

Acc. Nr: AP0036533 Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1, pp 83 - 86

SMALL ANGLE X-RAY SCATTERING BY WATER-CONTAINING CONDENSATION STRUCTURES OF POLYVINYLFORMAL

G. M. Plavnik, G. M. Sinitsyna, I. N. Vlodavets

Summary

The porosity of the condensation structures of polyvinylformal subjected to treatment with an acetalizing mixture during 6 and 120 hours has been studied by the small angle x-ray scattering method. At maximum water content the scattering intensities of both samples coincide, in this case the porous structure being independent of the acetalation time. After drying the sample subjected to 6 hour acetalation shows practically no porosity. On the contrary, the porosity of the second sample remains unchanged. This indicates that upon prolonged acetalation (120 hours) the structure becomes stable to the capillary contraction forces arising during drying.

D. sc.

1/1 REEL/FRAME 19721361 7

1/2 064 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INVESTIGATION OF THE OPTICAL INHOMOGENEITIES OF THE ACTIVE SUBSTANCE IN A CF SUB3 J -U-

AUTHOR-(04)-BELOUSOVA, I.M., DANILOV, O.B., SINITSYNA, I.A., SPIRIDONOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1481-1486

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--REFRACTIVE INDEX, INTERFEROMETER, SHOCK WAVE, LASER PUMPING, LASER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0017 STEP NO--UR/0056/70/058/005/1481/1486

CIRC ACCESSION NO--AP0127667

UNCLASSIFIED

2/2 064 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TIME DEPENDENCE OF THE REFRACTIVE INDEX DURING PHOTODISSOCIATION IS DEMONSTRATED BY THE INTERFEROMETER TECHNIQUE. IT IS SHOWN THAT A SHOCK WAVE APPEARS IN THE SUBSTANCE CONTAMINATED WITH THE PHOTODISSOCIATION PRODUCTS. THE WAVE IS DUE TO EVAPORATION (RESULTING FROM ABSORPTION OF THE PUMPING LIGHT) OF MOLECULAR IODINE DEPOSITED ON THE CUVETTE WALLS. IT IS SHOWN THAT THE TIME DELAY BETWEEN GENERATION AND THE PUMPING PULSE WEAKLY DEPENDS ON THE PRESSURE (AT HIGH VALUES OF THE LATTER). THIS EFFECT IS ASCRIBED TO INCREASE OF THE SPONTANEOUS EMISSION LINE WIDTH AND NATURALLY LEADS TO AN INCREASE OF THE GENERATION THRESHOLD.

UNCLASSIFIED

Organophosphorous Compounds

USSR

UDC: 547.241'26'118

RAZUMOV, A. I., KRASIL'NIKOV, Ye. A., ZYKOVA, T. V., SINITSYNA, N. I., SALAKHUTDINOV, R. A., BANKOVSKAYA, N. N.

"Research in the Series of Phosphinic and Phosphinous Acid Derivatives. LXXXV. Electron Effects in Molecules of Certain Derivatives of Trivalent Phosphorus in the Ground State"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1250-1253

Abstract: It is shown that gradual introduction of the thioalkyl electron-acceptor radical in compounds of the R_2PSR', $RP(SR')_2$ and $P(SR)_3$ type leads to displacement of the resonance signal of the nucleus of the atom of tricoordinated phosphorus toward a weaker field, which is probably due to delocalization of an unshared electron pair in the phosphorus atom to the vacant d-orbitals of sulfur. It is found that nmr spectroscopy of the compounds studied can be used in discussing electron interactions between P^{III} and the aromatic nucleus in the ground state of the molecule.

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USSR

UDC 547.26'118+547.279.1

TEVELEV, G. Kh., GRINSHTEYN, Ye. I., KOFMAN, L. P., SOKAL'SKIY, M. A., AGUREYEV, V. G., and SINITSYNA, N. T.

"Addition of S-β-Mercaptoethyl O,O'-Dialkyl Dithiophosphates to Substituted Olefins"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 308-314

Abstract: It is shown that S-β-mercaptoethyl O,O'-dialkyl dithiophosphates add to esters of maleic, acrylic and methacrylic acids as well as to substituted amides of acrylic acid in the presence of catalysts -- salts of transition metals -- with formation of the corresponding substituted S-β-alkylmercaptoethyl O,O'-dialkyl dithiophosphates. Analysis shows that the addition reaction takes place contrary to Markovnikov's rule, with the formation of products which are unbranched in the S-β-alkyl radical.

1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CHEMISTRY OF LONG LIFE FISSION PRODUCT ELEMENTS -U-

AUTHOR-(05)-SINITSYN, N.M., KORPUSOV, G.V., ZAYTSEV, L.M., LEVIN, V.I., SINITSYNA, S.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ATOMIZDAT, 1970, 324 PP

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NUCLEAR FUEL CYCLE, NUCLEAR FUEL REPROCESSING, FISSION PRODUCT, RADIOCHEMISTRY, MONOGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1422 STEP NO--UR/0000/70/000/000/0001/0324

CIRC ACCESSION NO--AM0121888

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203020013-8"

2/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AM0121888

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREFACE 3. INTRODUCTION 4. CHAPTER I TECHNOLOGY IN PROCESSING OF NUCLEAR FUEL 12. II CESIUM 49. III STRONTIUM 80. IV RARE EARTH ELEMENTS 111. V ZIRCONIUM AND NIOBIUM 180. VI RUTHENIUM 243. VII TECHNETIUM 282. VIII REPROCESSING OF WASTE WHICH CONTAINS FISSION PRODUCTS 296. THE BOOK DEALS WITH THE PRESENT STATE OF CHEMISTRY OF BASIC RADIOACTIVE LONG LIFE ELEMENTS FORMING DURING FISSION OF NUCLEAR FUEL. THE BOOK HAS WRITTEN FOR SCIENTISTS AND ENGINEERS WORKING IN THE FIELD OF RADIOCHEMICAL TECHNOLOGY. IT CAN BE RECOMMENDED ALSO AS A TEXTBOOK TO COLLEGE AND POST GRADUATE STUDENTS OF RADIOCHEMISTRY.

UNCLASSIFIED

Acc. Nr. AT0048600

Abstracting Service: CHEMICAL ABST. 4/76

Ref. Code UR0425

81384q Correlation of thallium with arsenic in the Dzhizhikrut mercury-antimony deposit (Central Tadzhikistan). Sinitsyna, Yu. A. (Inst. Geol., Dushanbe, USSR). *Dokl. Akad. Nauk Tadzh. SSR* 1970, 13(1), 51–3 (Russ). High Tl contents in supergene and hypogene minerals and the correlation of Tl with As ($r_{Tl,As}$ = +0.90 at t = 4.73), proved that Sb ores of the Levoberezhnoe section are typical of the Dzhizhikrut Hg–Sb deposit. The correlation statistical anal. was made to det. the relations for Tl–Sb pairs. It showed that correlation coeff. $r_{Tl,Sb}$ is 0.19 at t = 0.63 which indicated the absence of a linear correlation between Ta and Sb. The strong correlation between Tl and As can be used for evaluation of the av. Tl content in ore of the area from As content. The regression equation correlating Tl with As is: Tl = 2.35 As + 8.41. BLJR

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REEL/FRAME 19800327

18

1/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--HYGIENIC ASSESSMENT OF ACROLEIN AS AN ATMOSPHERIC POLLUTANT -U-

AUTHOR--SINKEVENE, O.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, NR 3, PP 6-10

DATE PUBLISHED--------70

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

TOPIC TAGS--AIR POLLUTION, EXHAUST ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0455 STEP NO--UR/0240/70/000/003/0006/0010

CIRC ACCESSION NO--AP0100933

UNCLASSIFIED

2/2 007 UNCLASSIFIED

CIRC ACCESSION NO--AP0100933 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REFLEX AND RESORPTIVE ACTION OF SMALL CONCENTRATIONS OF ACROLEIN WERE STUDIED. THE MAXIMUM ONE TIME AND DAILY AVERAGE PERMISSIBLE CONCENTRATION OF ACROLEIN IN THE ATMOSPHERE ARE RECOMMENDED TO BE SET AT A LEVEL OF 0.03 MG-MPRIME3. THE AUTHOR EXAMINED THE CONTENT OF ACROLEIN IN EXHAUSTS OF MOTORCARS TESTED ON A STAND AND IN THE ATMOSPHERE IN THE VICINITY OF A HIGHWAY AND THAT OF RESIDENTIAL DISTRICT. ACROLEIN WAS DETECTED ON THE EXHAUSTS OF BENZINE AND DIESEL ENGINES. THE ACROLEIN CONTENT OF THE ATMOSPHERE NEAR A HIGHWAY DID NOT EXCEED THE MAXIMUM PERMISSIBLE LEVEL.

UNCLASSIFIED

USSR

UDC 533.951

SINKEVICH, O. A., Institute of High Temperatures of the Academy of Sciences USSR

"On the Character of Sonic Dispersion in Plasma"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 2, Mar-Apr 72, pp 243—247

Abstract: The propagation of acoustic oscillations in plasma by low magnetic Re and not too high oscillation frequencies was investigated, disregarding the heat flow transferable by the electric current. An anisotropy of the sonic speed takes place which depends on the density of the electric current flowing through the plasma. From a derived function results that the phase velocity of acoustic oscillations varies from the adiabatic to the isothermal sonic speed by change of the quasi-heat conductivity from zero to infinity. The dependence of the phase velocity on the current density flowing through the plasma (He, $T=5 \cdot 10^3$ ^0K) is analyzed by reference to a diagram. Together with the usual

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USSR

SINKEVICH, O. A., Teplofizika Vysokikh Temperatur, Vol 10, No 2, Mar-Apr 72, pp 243-247

phase velocity dispersion caused by effects of viscosity and heat conductivity depending on frequency oscillations, an addition to the phase velocity in plasma exists which is irrespective of the frequency. This addition depends on the electric current density, it reflects the joulean heat effect. In presence of a magnetic field, an additional dispersion appears which is most substantial by low frequencies. The analysis of the function characterizing the phase velocity of acoustic oscillations shows that the effect of the magnetic field is analogous to effects of the dilatational viscosity. Two illustr., fifteen formulas, six biblio. refs.

2/2

USSR

UDC 669.716:621.787.2

ZAKHAROV, M. F., ALEKSANDROV, Yu. N., ALEKSANDROV, A. S., and SIN'KO, P. P.

"Experience in the Implementation of Conveyer System Production of Shapes of the AD31 Alloy"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 149-155, resume

Translation: Some construction characteristics of the equipment of the first conveyer production line in the USSR for pressing and working shapes of easily deformable alloys and also the experience of its technological implementation are discussed. Three figures, five bibliographic references.

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USSR

UDC: 681.335

SIN'KOV, M. V., Institute of Automation

"A Device for Mathematical Function Modeling"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 2, Jan 73, Author's Certificate No 362312, Division G, filed 30 Mar 71, published 13 Dec 72, p 108

Abstract: This Author's Certificate introduces: 1. A device for mathematical modeling of functions. The unit contains a converter which changes positional signals to a set of residual representations and a converter which changes a set of residual representations to positional signals. As a distinguishing feature of the patent, the operational accuracy of the device is improved by incorporating computer modules which simulate mathematical operations. The inputs of these modules are connected to the outputs of the converters for changing positional signals to a set of residual representations, while the computer module outputs are connected to the inputs of the converter for changing a set of residual representations to positional signals. 2. A modification of this device distinguished by provision for addition operations by making each computer module in the form

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USSR

SIN'KOV, M. V., USSR Author's Certificate No 362312

of two series-connected operational amplifiers with the output of one connected redundantly to the input of the other through a comparison element. 3. A modification of the first device distinguished by provision for functional conversions by making each computer module in the form of two groups of diode switches. The inputs of the switches in the first group are connected to the corresponding output of the master control unit, and their outputs are connected to the inputs of the corresponding switches of the second group, each of which is connected through a selector to the corresponding result unit and to the input of an OR gate.

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USSR

UDC: 681.3.001:51

SIN'KOV, M.V.

"Certain Problems in Conversion from Residual Class Systems to Positional Notation"

Nauchn. Tr. In-ta Avtomatiki M-vo Priborostr., Sredstv Avtomatiz. I Sistem Upr. SSSR [Scientific Work of the Institute of Automation. Ministry of Instrument Building, Automation Equipment and Control Systems USSR], No. 3, 1970, pp 144-150 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 3, 1971, Abstract No. 3B35 by Yu. M.).

Translation: The existing method of conversion of numbers from a system of residual classes to positional systems results in the situation that during calculations individual members exceed the product of the residual class moduli, which condition is not allowed. A method of conversion using Diophantine equations free of this defect is studied. A general expression is presented for the conversion, and an example is analyzed. A diagram of the conversion from a system of residual classes to a decimal system of notation with modular subtraction and multiplication is described.

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USSR

UDC: 681.3.001:51

SIN'KOV, M. V.

"Problems of the Construction of a High-Speed Computer in a System of Residual Classes"

Nauchn. Tr. In-ta Avtomatiki M-vo Priborostr., Sredtv Avtomatiz. I Sistem Upr. SSSR [Scientific Work of the Institute of Automation. Ministry of Instrument Building, Automation Equipment and Control Systems USSR], No. 3, 1970, pp 136-143 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 3, 1971, Abstract No. 3B34 by Yu. M.).

Translation: The author studies the problem of selecting a set of modules providing the most economical machine realization in a system of residual classes. The concept of the logarithmic defect of numbers is introduced: the moduli for residual representation of numbers, equal to the difference between the logarithm of the modulus minus 1 for the base used for coding of the residual representations and the next higher number to the modulus, equal to the integer power of this base minus 1. Results from calculation of logarithmic defects by computer are presented. A criterion is obtained for selection of a modulus expressed as $\sum_{i=1}^{n} \frac{\gamma_i}{2k_i} < 1$, where $2k_i$ is the next higher number γ -- the difference between $2k_i$ and the modulus.

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USSR

UDC 669.205'28':621.78

FEDOTOV, S. G.; KONSTANTINOV, K. M., SINODOVA, Ye. P., and KVASOVA, N. F., Moscow

"Decomposition of Molybdenum-Titanate Martensite"

Moscow, Izvestiya Akademii Nauk SSSR, No 5, 1973, pp 225-230

Abstract: A study made of the decomposition processes of supersaturated α'-solid solutions of the Ti-Mo system in the whole range of their development is based on different methods of physico-chemical analysis supplemented by structural investigations. The effect of martensite decomposition processes on the mechanical properties was investigated on alloys with 8.0 and 8.6 wt% Mo; their change in Young's modulus and in mechanical properties after heating to different temperatures is shown. The decomposition of supersaturated α'-solid solutions

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USSR

FEDOTOV, S. G., et al., Izvestiya Akademii Nauk SSSR, No 5, 1973, pp 225-230

of Ti-Mo martensite (up to 6 wt% Mo) takes place in the temperature interval at continuous decrease of the temperatures of beginning and ending decomposition with increasing Mo-content. In higher alloyed alloys (6-11 wt% Mo) possessing $(\alpha'+\beta+\omega)$-phases, the temperature of beginning decomposition of the α'-component does not decrease with changing composition of the alloy; it remains on the temperature level of the decomposition of the supersaturated martensite with 6 wt% Mo. The possibility of a controllable change of the mechanical properties of the alloys in a wide range at decomposition of the martensitic structure is indicated. Five figures, 14 bibliographic references.

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USSR

UDC: 536.425

FEDOTOV, S. G., KONSTANTINOV, K. M., SINODOVA, Ye. P., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences of the USSR, Moscow

"Concerning Suppression of the ω-Phase When Tempering Titanium Alloys in the Presence of Aluminum and Tin"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 6, 21 Jun 72, pp 1415-1418

Abstract: Present concepts of β → ω transformations in titanium alloys suggest that the part played by aluminum in suppressing formation of an ω-phase during tempering consists in the retardation of processes of redistribution of the elements in the initial β-solid solution which terminate in the formation of titanium-rich regions. The authors attempt to verify this hypothesis by diffusion experiments in the titanium-vanadium system with aluminum and tin dopants (and also molybdenum, as a control). The study specimens were titanium-base and vanadium-base alloys doped with 1, 2 and 3 wt.% aluminum, with 2 wt.% tin, and with 2 wt.% molybdenum. The specimens were diffusion-annealed in titanium-vanadium pairs in the β-region at 950, 1000, 1050, 1100 and 1200°C for 600, 402, 165, 72 and 23 hours respectively. When the annealing time had elapsed, the specimens were water-quenched. The

USSR

FEDOTOV, S. G. et al., Doklady Akademii Nauk SSSR, Vol 204, No 6, 21 Jun 72, pp 1415-1418

distribution of elements in diffusion layers was studied by x-ray spectral analysis. The results showed a sharp reduction in the concentration of aluminum and tin in the zone of the steepest gradient of vanadium and titanium concentration. This abrupt drop was observed regardless of dopant concentration or annealing temperature, and coincided with the time displacement of the diffusion front. No singularities were observed in the distribution of molybdenum in the diffusion layer. It is concluded that α-stabilizing elements do not have time to migrate from the points of direct redistribution of titanium atoms and the β-stabilizing atoms during annealing of alloys in the critical region. This is what delays the process leading to formation of titanium-rich regions where $\beta \rightarrow \omega$ transformation then takes place because of the loss of elastic stability. For this reason, the temperature of martensite transformation is reduced and the metastable β-solid solution is supercooled in the presence of aluminum and tin with a lower concentration of β-stabilizing elements.

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USSR

UDC 621.762.002.5(088.8)

VYDREVICH, L. A., and SINOLITSIN, V. V.

"Apparatus for Monitoring the Shrinkage of Objects During Sintering"

USSR Authors' Certificate No 276464, Cl. 42 i, 12/03; 40 b, 1/08, (G 01 k 12/03; C22c 1/08), filed 3 Sep 66, published 22 Oct 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G481P)

Translation: The apparatus includes an inductance measuring coil, a measuring core, and a stand. In order to increase measurement accuracy, the apparatus contains a compensating inductance coil which is mechanically connected with a measuring rod. The measuring and compensating coils are connected differentially. One illustration.

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SINOTIN, V.I.

Hydraulic Engineering

Hydraulic Engineering

Source: JPRS # 59580

23 Jul '73

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UDC 556.535.5(282.247.31)

ICE JAMS ON THE DNESTR AND SOME PROPOSALS TO PREVENT FLOODING CAUSED BY THEM

[Article by V. I. Sinotin, Candidate of Technical Sciences, V. I. Sinotin, All Union Scientific Research Institute of Hydraulic Engineering; Moscow, Meteorologiya i Gidrologiya, Russian, No 5, 1973, submitted 18 May, 1972, pp 76-85]

Some information about ice jams and the characteristic
features of the ice jam process in the Dnestr and the
Dubossary Reservoir are discussed. Procedures are recom-
mended for improving the efficiency of applying explosives
and regulating the water level of the headrace of the
Dubossary Hydroelectric Power Plant to control the jams.
A study was made of the possible effect of the planned
Mogliev-Podol'skiy Hydroelectric Power Plant on changing
the ice conditions of the Dnestr. It is proposed that a
number of permanent engineering structures be erected in
defined sections of the Dnestr to hold back the ice and
discharge the water into bypasses around the jams in order
to prevent disastrous floods.

The results of studying ice jams on the Dnestr were published in references [1-10, 12], and they are discussed in the corresponding scientific and engineering reports of a number of institutes, including the All-Union Scientific Research Institute of Hydraulic Engineering, the State Hydrologic Institute, the Gidroproyekt [All-Union Planning, Surveying and Scientific Research Institute], the Hydrometeorological Service Research Center of the USSR, the Moldavian Administration of the Hydrometeorological Service, and so on. Let us present only some information about jams and the peculiarities of jam formation.

On the Dnestr and the channel section of the Dubossary Reservoir the jams are usually formed in the spring and winter during the winter openings of the river occurring as a result of warm spells and the falling of rain in the winter in the Carpathian part of the basin. On the Dnestr there are two types of jams: jams in the river channel and jams in the tapering out of the backwater of the reservoir of the Dubossary Hydroelectric Power Plant which differ qualititatively from each other [5].

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SOLUBILITY OF HYDROPEROXIDES OF M AND P, DIISOPROPYL BENZENES -U-

AUTHOR-(02)-LEZHNEVA, I.M., SINOVICH, I.D.

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(1), 73-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROPEROXIDE, ISOPROPYL BENZENE, SOLUBILITY, MOLECULAR WEIGHT, HYDROGEN BONDING, ELECTRON DONOR, ISOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0576 STEP NO--UR/0204/70/010/001/0073/0075

CIRC ACCESSION NO--AP0119494

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF M AND P, DIISOPROPYL MONOHYDROPEROXIDES IN DIFFERENT TYPES OF SOLVENTS DECREASES WITH INCREASE IN THE MOL. WT. OF THE SOLVENT AND WITH INCREASE OF THE HYDROPEROXIDES M.P. THE SOLY. OF THE HYDROPEROXIDES DEPENDS ON THE H BOND FORMING TENDENCY OF THE SOLVENT AND INCREASES WITH THE ELECTRON DONOR PROPERTIES OF THE SOLVENT. THE META ISOMER HAS A HIGHER SOLY. THAN THE PARA ISOMER AND IT DISSOLVES IN SOLVENTS NOT EXHIBITING EITHER ELECTRON DONOR OR PROTON DONOR PROPERTIES. THE SOLY. DATA ARE TABULATED FOR 26 SOLVENTS. FACILITY: NAUCH.-ISSLED. INST. SIN. SPIRT. ORG. PROD., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.: AN0045461

Ref. Code: UR9003

JPRS 50162

Sensitive Earth Tide Station Established in Ice Cave

(Complete translation: "Cave -- Laboratory," by Vasiliy Sintsov; Moscow, Izvestiya, 19 February 1970, p 4)

The famous Kungur ice cave in the Ural Mountains is a unique phenomenon of nature. It is of great scientific and practical interest. Here scientists and speliologists are studying karst phenomena, the microclimate of the cave, the regime of underground lakes and life in the darkness of the cave.

The Institute of Geophysics of the Ural Affiliate of the Academy of Sciences USSR has established the "Kungur" earth tide station in this icy kingdom. A supersensitive apparatus has been placed at a depth of 50 meters in the Cavern of Geologists; this apparatus can detect millimeter-scale movements of the earth's crust from a distance of 2,200 kilometers. [4]

Reel/Frame
19780407

12 d

Optical

USSR UDC 535.317:535.8:621.384

SINTSOV, V. N., Candidate of Technical Sciences, PONOMARENKO, T. M.

"An Investigation of the Quality of the Image Formed by Some Optical Objectives in the Infrared Region of the Spectrum"

Leningrad, Optiko-mekhanicheskaya Promyshlennost', No 9, Sep 70, pp 16-20

Abstract: A procedure is developed for determining the resolution, frequency-contrast characteristics, circle of confusion and integral transmission coefficient of optical objectives which operate in the 1-20 μ wavelength band, and comparative data are given on the quality of the image formed by four such objectives: a reflector and lens system (working range 1-8.5 μ), a reflector (1-19 μ) and two refractors (5-12 and 2-14 μ). It is shown that existing methods for calculating and making optical objectives can be used even at the present time to develop objectives which are close to aberration-free in their parameters. The transparency of infrared refractors may be appreciably increased by effective selection of the optical media and by increasing the 1/1 effective illumination.

USSR

SINTSOV, V. N.

UDC 621.375.82

"Analogy Between the Optical Properties of Three-Dimensional Holograms and Cholesteric Liquid-Crystalline Textures"

Uch. zap. Ivanov. gos. ped. in-t (Scientific Notes of Ivanov State Pedagogical Institute), 1972, Vol. 99, PP 286-290 (from RZh-Fizika, No 11, Nov 72, Abstract No 11D993)

Translation: The generality of a geometrical microstructure of a hologram obtained in colliding beams and of liquid-crystalline textures and, as a result of this, the generality of optical properties are shown. The possibility of holographic recording of information on liquid crystals is discussed. This possibility arises due to the sensitivity of the crystals to thermal and electromagnetic effects. 47 ref. M. M. Yermolayev.

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USSR

UDC: 621.793.6

SINTSOVA, I. T., and KOZLOVSKIY, L. V., Leningrad Technological Institute imeni Lensovet

"Mechanical Properties and Corrosion Resistance of Titanium and Zirconium Carbonitride Coatings on Steel"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 616-621

Abstract: Data from earlier research indicate that coatings produced by diffusion saturation of 30KhGSA and 30KhGSNA steels with titanium and zirconium followed by carbidizing treatment and nitriding of the surface layer increase the resistance of the surface layer of the metal against wear and corrosion and decrease the tendency of parts to sticking and weldability during service. Simultaneous saturation of titanium- and zirconium-metallized steels with carbon and nitrogen was accomplished in an NPV-3 furnace in a pure nitrogen atmosphere at 880°C (optimum temperature). The results of this study are summarized in figures illustrating the dependence of tensile strength on temperature (holding for 8 hrs.) and the type of thermochemical treatment, the dependence of

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USSR

SINTSOVA, I. T., et al, Zashchita Metallov, vol 6, no 5, Sep-Oct 70, pp 616-621

Tensile strength on holding time (t=380°C) and the type of thermochemical treatment, tensile strength, and Rockwell hardness obtained after various types of surface treatment, changes in microhardness with thickness of diffusion layers, and weight losses of specimens in wear resistant tests. It is shown that the wear resistance of steel test specimens subjected to the above thermochemical treatment increases. 30KhGSA steel is less resistant to abrasion than 30KhGSNA. Titanium-coated specimens have better resistance to wear than zirconium-coated specimens. Carbonitriding reduces scale formation and minimizes wear during initial testing. The corrosion resistance of the steels is increased and the high mechanical strength typical of these steels is maintained.

USSR

UDC 621.793.6

SINTSOVA, I. T., and KOZLOVSKIY, L. V.

"Diffusion Coatings on Steel Formed by Titanium Carbonitride and Zirconium Carbonitride"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 367-371

Abstract: A discussion is presented of an experiment in diffusion saturation of 20 KhGSA and 3AKhGSNA steel performed in metallic powders of technical titanium and zirconium mixed with alumina in a 2:1 ratio. The MPV-3 furnace was used at a temperature of 900-1150° and an argon pressure of 2.4 atmospheres. Within the indicated limits the increase in weight of the samples was proportional to the temperature and holding time. The best results were obtained at 1150° with 9 hours' holding. The increase in weight during zirconium saturation was on the average approximately twice as much as during titanium saturation. This is explained by the fact that zirconium is heavier. Also, titanium increases the diffusion rate of iron. Therefore, during titanium saturation of steel samples, iron losses can increase as a result of diffusion of it from the steel into the packing material. Samples of 30KhGSA and 30KhGSNA metal-plated in advance with titanium and zirconium were saturated with carbon in the same furnace and under the same argon pressure in molybdenum containers filled with acetylene black. The temperature was in the 700-

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SINTSOVA, I. T., and KOZLOVSKIY, L. V., Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 367-371

950° range, and holding lasted from 4 to 12 hours. Microphotographs of the diffusion coatings are presented, and the results of the x-ray micrographic study of titanium carbonitride coating on 30KhGSA steel are tabulated. The x-ray micrographic results indicate that in surface layers of titanium-plated and subsequently carbonitrided samples the intermetallic compounds Fe_3Ti and α-Fe are formed, and there are also a large number of lines obviously belonging to solid solutions of carbon and nitrogen in titanium and iron. From the distribution curves of Zr and Fe in surface layers of 30KhGSA steel obtained using an electron microprobe, the maximum amount of diffusing element is in the outer layers of the coating, and on going away from the surface its concentration decreases monotonically. The iron concentration in the coating increases on going away from the surface. The zirconium concentration in the surface layer can vary from 5 to 45%, and that of titanium, from 14 to 54%. This scattering depends on the differences in structure of the samples and at what point of the surface (grain, grain boundary, and so on) the given measurement was taken. The mechanical properties and corrosion resistance of the described coatings will be discussed in a subsequent article.

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009 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SITE FOR NEW AKADEMOGORODOK NEAR NOVOSIBIRSK -U-

AUTHOR--SINYAGIN, I.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW PRAVDA 15 FEB 70 P 1 1

DATE PUBLISHED--15FEB70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--SCIENCE CENTER, R AND D FACILITY FORMATION, AGRICULTURE INSTITUTE, AGRICULTURE R AND D, AGRICULTURE CHEMICAL, AGRICULTURE MACHINERY, AGRICULTURE ECONOMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0030 STEP NO--UR/9012/70/000/000/0001/0001

CIRC ACCESSION NO--AN0100609

UNCLASSIFIED

2/4 009 UNCLASSIFIED

CIRC ACCESSION NO--AN0100609 PROCESSING DATE--18SEP73

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (REPORT BY I. I. SINYAGIN: YET ANOTHER AKADEMOGORODOK; FIRST TWO PARAGRAPHS ARE PRAVDA INTRODUCTION) (TEXT) NOVOSIBIRSK AN AREA HAS BEEN CHOSEN A FEW KILOMETERS FROM NOVOSIBIRSK FOR CONSTRUCTION OF A NEW ACADEMIC TOWN. USING THE ASSETS FROM THE 12 APRIL 1969 ALL UNION LENINIST SUBBOTNIK A SIBERIAN AGRICULTURAL SCIENCE CENTER WILL BE BUILT AND A TOWN OF 10,000-15,000 INHABITANTS WILL SPRING UP. THIS REPORT IS COMMENTED UPON BY THE V. I. LENIN ALL UNION ACADEMY OF AGRICULTURAL SCIENCES SIBERIAN DIVISION ORGANIZATION BUREAU CHAIRMAN VASKHNIL ACADEMICIAN I. I. SINYAGIN. CHOICE OF A SPOT FOR CONSTRUCTION FO THE AGRICULTURAL AKADEMOGORODOK IS UNDOUBTEDLY AN IMPORTANT EVENT IN THE HISTORY OF OUR SCIENTIFIC CENTER. THE AREA IS VERY SUITABLE: THE BANK OF A BIG RIVER, GENTLE RELIEF, SPLENDID CONDITIONS FOR CREATING AN EXPERIMENTAL BASE. ALSO IMPORTANT IS THE FACT THAT A FEW KILOMETERS AWAY, ON THE OTHER BANK OF THE OB, IS THE USSR ACADEMY OF SCIENCES DIVISION AKADEMGORODOK. IF YOU RECALL THE OLD SAYING: DON'T LOOK FOR A HOUSE; LOOK FOR A NEIGHBOR. THEN ONE COULD HARDLY WISH FOR A BETTER PLACE. WE ARE COUNTING ON CLOSE COOPERATION WITH COLLECTIVES OF ACADEMIC INSTITUTES, ESPECIALLY WITH BIOLOGICAL AND CHEMICAL SPECIALIZATION. IN THE VASKHNIL AKADEMOGORODOK THERE ARE FIVE RESEARCH INSTITUTIONS. THE INSTITUTE OF AGRICULTURAL ECONOMICS AND THE INSTITUTE OF THE MECHANIZATION AND ELECTRIFICATION OF AGRICULTURE ARE ORGANIZED ON THE BASIS OF LOCAL BRANCHES OF ALL UNION INSTITUTES.

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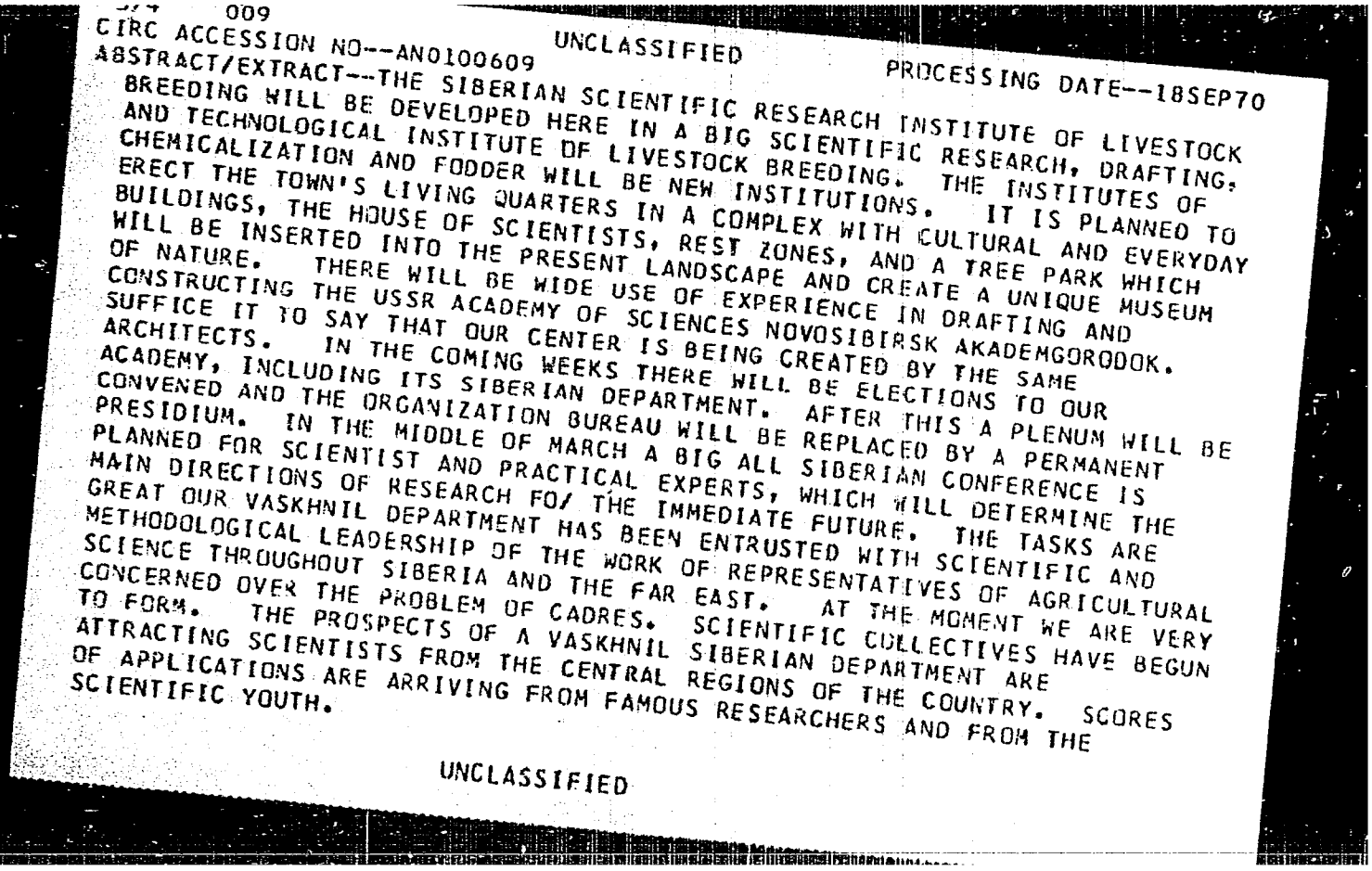

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UNCLASSIFIED

CIRC ACCESSION NO--AN0100609 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--THE SIBERIAN SCIENTIFIC RESEARCH INSTITUTE OF LIVESTOCK BREEDING WILL BE DEVELOPED HERE IN A BIG SCIENTIFIC RESEARCH, DRAFTING, AND TECHNOLOGICAL INSTITUTE OF LIVESTOCK BREEDING. THE INSTITUTES OF CHEMICALIZATION AND FODDER WILL BE NEW INSTITUTIONS. IT IS PLANNED TO ERECT THE TOWN'S LIVING QUARTERS IN A COMPLEX WITH CULTURAL AND EVERYDAY BUILDINGS, THE HOUSE OF SCIENTISTS, REST ZONES, AND A TREE PARK WHICH WILL BE INSERTED INTO THE PRESENT LANDSCAPE AND CREATE A UNIQUE MUSEUM OF NATURE. THERE WILL BE WIDE USE OF EXPERIENCE IN DRAFTING AND CONSTRUCTING THE USSR ACADEMY OF SCIENCES NOVOSIBIRSK AKADEMGORODOK. SUFFICE IT TO SAY THAT OUR CENTER IS BEING CREATED BY THE SAME ARCHITECTS. IN THE COMING WEEKS THERE WILL BE ELECTIONS TO OUR ACADEMY, INCLUDING ITS SIBERIAN DEPARTMENT. AFTER THIS A PLENUM WILL BE CONVENED AND THE ORGANIZATION BUREAU WILL BE REPLACED BY A PERMANENT PRESIDIUM. IN THE MIDDLE OF MARCH A BIG ALL SIBERIAN CONFERENCE IS PLANNED FOR SCIENTIST AND PRACTICAL EXPERTS, WHICH WILL DETERMINE THE MAIN DIRECTIONS OF RESEARCH FO/ THE IMMEDIATE FUTURE. THE TASKS ARE GREAT OUR VASKHNIL DEPARTMENT HAS BEEN ENTRUSTED WITH SCIENTIFIC AND METHODOLOGICAL LEADERSHIP OF THE WORK OF REPRESENTATIVES OF AGRICULTURAL SCIENCE THROUGHOUT SIBERIA AND THE FAR EAST. AT THE MOMENT WE ARE VERY CONCERNED OVER THE PROBLEM OF CADRES. SCIENTIFIC COLLECTIVES HAVE BEGUN TO FORM. THE PROSPECTS OF A VASKHNIL SIBERIAN DEPARTMENT ARE ATTRACTING SCIENTISTS FROM THE CENTRAL REGIONS OF THE COUNTRY. SCORES OF APPLICATIONS ARE ARRIVING FROM FAMOUS RESEARCHERS AND FROM THE SCIENTIFIC YOUTH.

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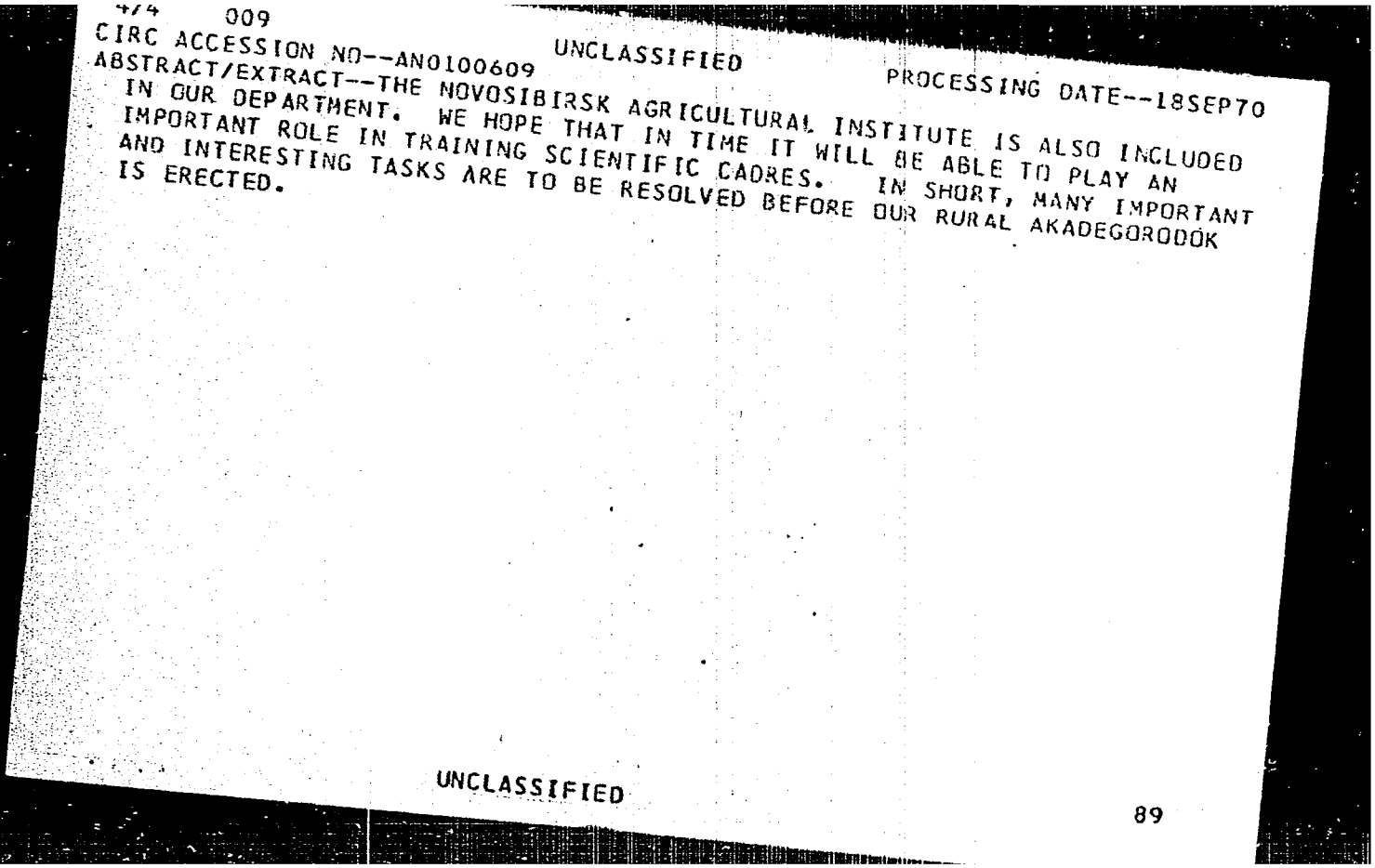


4/4 009 UNCLASSIFIED
CIRC ACCESSION NO--AN0100609 PROCESSING DATE--18SEP70
ABSTRACT/EXTRACT--THE NOVOSIBIRSK AGRICULTURAL INSTITUTE IS ALSO INCLUDED IN OUR DEPARTMENT. WE HOPE THAT IN TIME IT WILL BE ABLE TO PLAY AN IMPORTANT ROLE IN TRAINING SCIENTIFIC CADRES. IN SHORT, MANY IMPORTANT AND INTERESTING TASKS ARE TO BE RESOLVED BEFORE OUR RURAL AKADEGORODOK IS ERECTED.

UNCLASSIFIED 89

SINYAK, G.S.

EXPERIMENTAL STUDY OF A METHOD FOR THE PARTIAL OXIDATION OF THE PRODUCTS OF MAN'S VITAL FUNCTIONS

/Article by G. S. Sinyak, T. S. Gur'yeva, M. V. Kuz'menko, V. V. Poppv and G. I. Chizhikova; Moscow, Aktual'nyye Voprosy Kosmicheskoy Biologii i Meditsiny (Current Problems in Space Biology and Medicine), Russian, 1971, pp 254-255/

1. At the present time the literature contains information on different technological methods for processing the products of man's vital functions (vacuum drying, thermal drying, biological mineralization, etc.). Each of these methods has its advantages and disadvantages and the method for processing wastes is selected taking into account the specific model of a life support system and the power supply for the system.

2. In some cases it is desirable to carry out a partial oxidation of the products of man's vital functions. This is characterized by:

-- a total decontamination of the initial product,
-- a maximum return of moisture, including pyrogenetic,
-- collection of solid residue suitable for storage, consisting of 70-80% carbon,
-- formation of a gas phase which after catalytic oxidation is safe for plants to breathe;
-- small expenditures of oxygen, 10% of the maximum quantity necessary according to stoichiometric expressions.

3. We carried out an experiment consisting of 70 tests. The products of vital functions were taken from subjects kept on a definite diet. A total of 1.5-2 hours was expended in processing 150-200 g of product.

4. The use of catalysts made possible a considerable decrease in the oxidation temperature for the vapor phase,

JPRS 56,499
14 JULY 72

Yu. Ye.

JPRS 56030
18 May 72

UDC 612.351.11.014.21.015.2.014.46:661.725

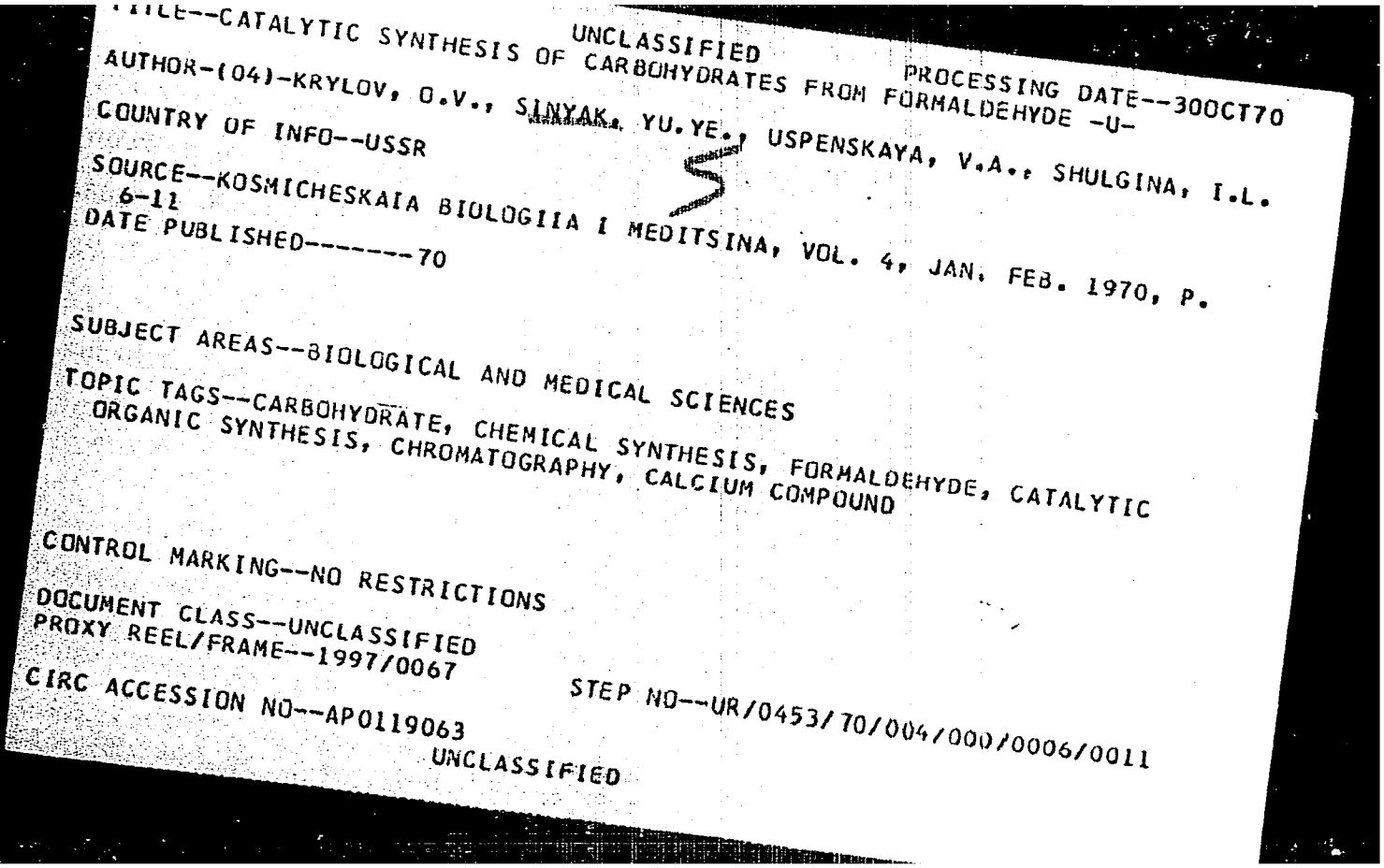
EFFECT OF SYNTHETIC CARBOHYDRATES ON RAT LIVER LYSOSOMES

[Article by G. F. Shemyakin, Yu. Ye. Sinyak and Ye. I. Gorshkova; Moscow, Kosmicheskaya Biologiya i Meditsina, Vol 6, No 2, March-April 1972, pp 29-33, submitted for publication 17 July 1969]

Abstract: The effect of synthetic carbohydrates on rat liver lysosomes was examined. Since the carbohydrates were purified from contaminants they lost their toxicity for lysosomes.

One of the most important problems in medicine is the regeneration of food substances from the products of man's vital functions during prolonged space flights. In the laboratory carbon dioxide can be utilized through the stage of formaldehyde condensation, leading to the formation of 10-13 optically inactive monosaccharides, primarily pentoses and hexoses (Butlerov; Akerlof; Freil and Ruckert; A. M. Kuzin; Yu. Ye. Sinyak and V. A. Vapenskaya). It is not impossible that the racemates of carbon dioxide obtained as a result of this synthesis can serve as one of the sources of a diet for cosmonauts. Accordingly, it was necessary to conduct a toxicological investigation of these carbohydrates.

The toxicity of synthetic carbohydrates was studied in rat liver lysosomes, ultrafine structures of the cell measuring from 0.2 to 0.8 μ containing hydrolytic enzymes. Cell hydrolases are morphologically separated by a lipoprotein membrane. An increase in permeability or the destruction of this membrane leads to a freeing of the enzymes, an increase in their activity in the cell, and therefore to one pathological state or another. Among the factors increasing the entry of lysosomal enzymes into the cell are many toxins, vitamins, antibiotics, exposure to transverse accelerations, etc. (Burnhaimer and Schwartz; Tarnawski; A. M. Khartionova and A. A. Avakyan; Kh. Kh. Planel'yes, et al.). It was precisely the high sensitivity of lysosomes to exposure to different factors and their role in processes of a pathological or physiological dying out of cells that was the basis for selecting lysosomes as an object for studying the toxicological effect of synthetic carbohydrates.



UNCLASSIFIED

TITLE--CATALYTIC SYNTHESIS OF CARBOHYDRATES FROM FORMALDEHYDE -U-

PROCESSING DATE--30OCT70

AUTHOR-(04)-KRYLOV, O.V., SINYAK, YU.YE., USPENSKAYA, V.A., SHULGINA, I.L.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN. FEB. 1970, P. 6-11

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBOHYDRATE, CHEMICAL SYNTHESIS, FORMALDEHYDE, CATALYTIC ORGANIC SYNTHESIS, CHROMATOGRAPHY, CALCIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

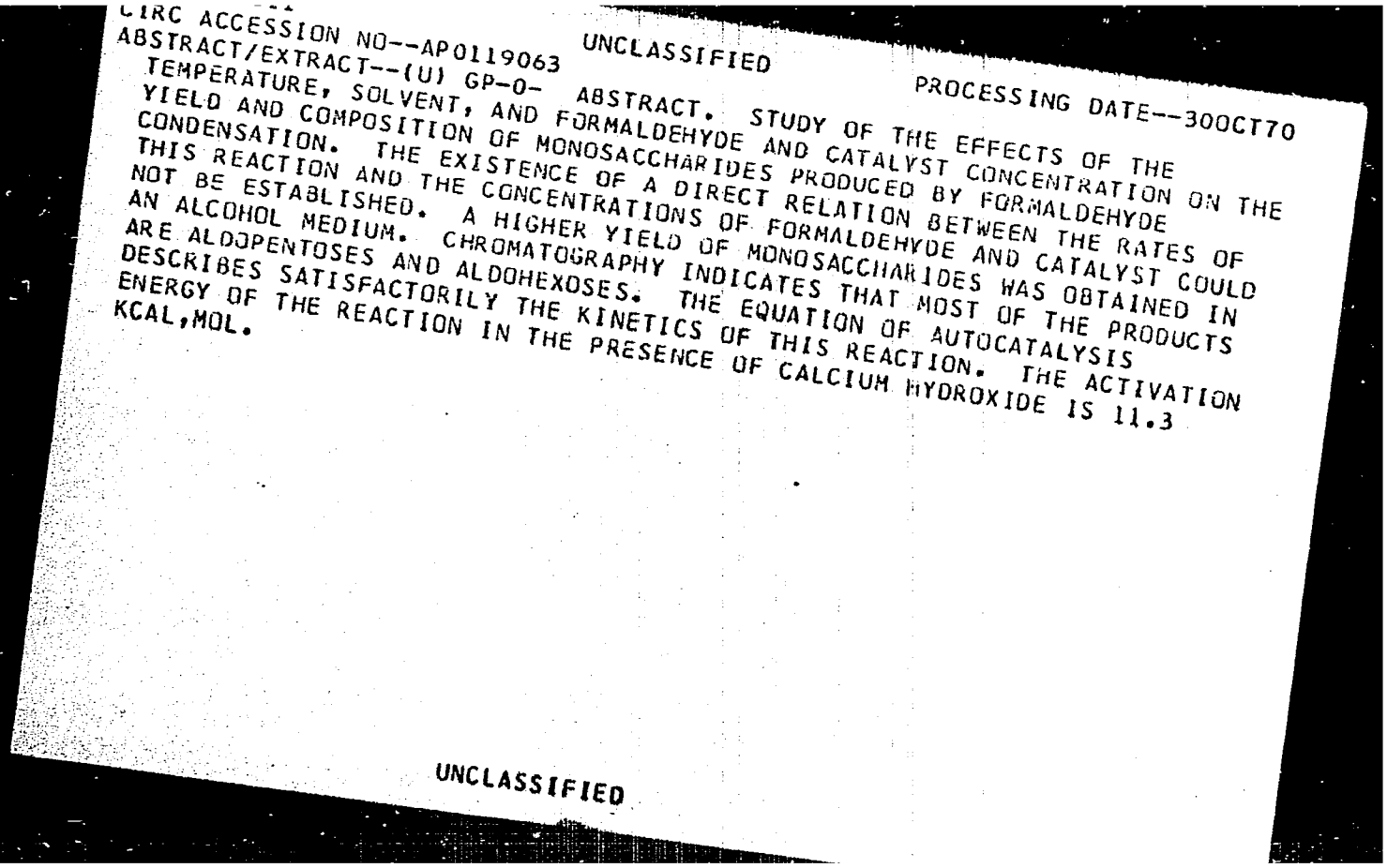
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0067

STEP NO--UR/0453/70/004/000/0006/0011

CIRC ACCESSION NO--AP0119063

UNCLASSIFIED



CIRC ACCESSION NO--AP0119063 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECTS OF THE TEMPERATURE, SOLVENT, AND FORMALDEHYDE AND CATALYST CONCENTRATION ON THE YIELD AND COMPOSITION OF MONOSACCHARIDES PRODUCED BY FORMALDEHYDE CONDENSATION. THE EXISTENCE OF A DIRECT RELATION BETWEEN THE RATES OF THIS REACTION AND THE CONCENTRATIONS OF FORMALDEHYDE AND CATALYST COULD NOT BE ESTABLISHED. A HIGHER YIELD OF MONOSACCHARIDES WAS OBTAINED IN AN ALCOHOL MEDIUM. CHROMATOGRAPHY INDICATES THAT MOST OF THE PRODUCTS ARE ALDOPENTOSES AND ALDOHEXOSES. THE EQUATION OF AUTOCATALYSIS DESCRIBES SATISFACTORILY THE KINETICS OF THIS REACTION. THE ACTIVATION ENERGY OF THE REACTION IN THE PRESENCE OF CALCIUM HYDROXIDE IS 11.3 KCAL,MOL.

UNCLASSIFIED

USSR

UDC 612.16+612.1

KARPMAN, V. L., LYUBINA, B. G., and SINYAKOV, A. F., Laboratory of Cardiology and Chair of Sport Medicine, Central Institute of Physical Culture, Moscow

"Circulation During Controlled Tachycardia"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 292-298

Abstract: On a bicycle ergometer, trained athletes performed work at several levels of assigned heart rate. This was achieved by means of feedback information from an instrument with a programmed heart rate. The experimental subject's actual heart rate was being continuously recorded and compared with the programmed rate. A discrepancy between the two rates released a sound signal of high or low frequency, and the subject immediately adjusted his pedaling speed until the sound disappeared. In this way, the actual heart rate was kept within 2% of the programmed rates of 120, 130, 150, and 170 beats/min. It was found that the work rate increases in linear proportion with the heart rate. The stroke volume increases at a rate of about 8 ml per 10 beats increase in the heart rate up to a heart rate of 120-130 b/min. Thereafter, the average increase becomes about 2 ml/10 beats. Correspondingly, the cardiac output increases rapidly at first (from 5 L/min at rest to 14 L/min at a heart 1/2

USSR

KARPMAN, V. L., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 292-298

rate of 125 b/min) and slower subsequently (to a maximum of 20 L/min). With shortening duration of the cardiac cycle, not only the diastolic but also the systolic period becomes shorter. However, since the phase of isovolumetric contraction almost disappears, the ejection period is reduced to a smaller degree. On the average, the ejection rate increases approximately linearly from 360 ml/sec at rest to a maximum of 896 ml/min. Similarly, the ventilation perfusion ratio increases, to reach the value of 3.4 at the maximum work load. From the practical viewpoint, it appears important that the heart rate can be kept constant at any desired level by adjusting the work rate.

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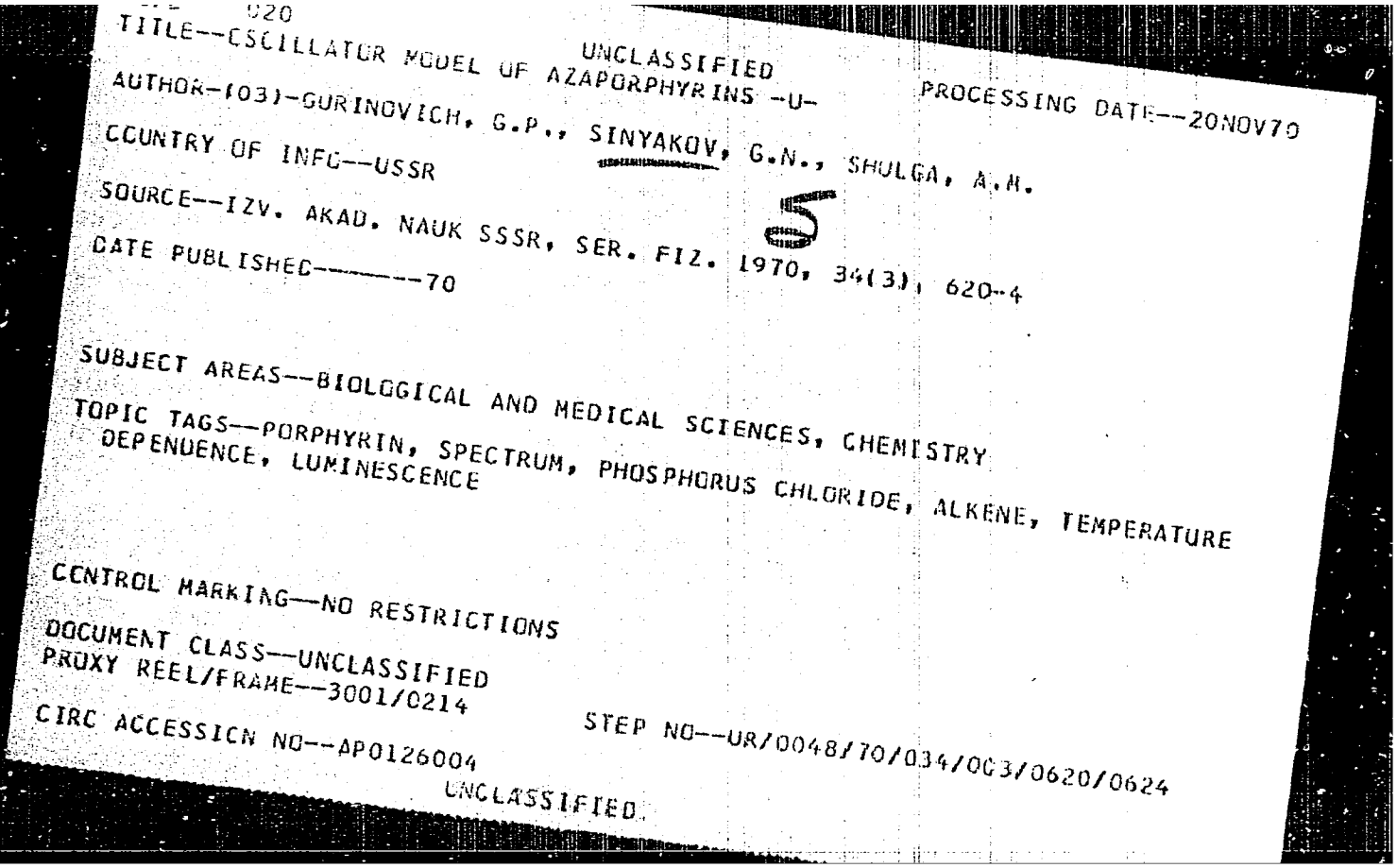

020 UNCLASSIFIED

TITLE--OSCILLATOR MODEL OF AZAPORPHYRINS -U- PROCESSING DATE--20NOV70

AUTHOR-(03)-GURINOVICH, G.P., SINYAKOV, G.N., SHULGA, A.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 620-4

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--PORPHYRIN, SPECTRUM, PHOSPHORUS CHLORIDE, ALKENE, TEMPERATURE DEPENDENCE, LUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0214

STEP NO--UR/0048/70/034/003/0620/0624

CIRC ACCESSION NO--AP0126004

UNCLASSIFIED

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AP0126004 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF AZA SUBSTITUTION ON A MCL. OSCILLATOR WAS STUDIED BY USING THE METHOD OF POLARIZED LUMINESCENCE AT AMBIENT TEMP. IN 3:1 CYCLOHEXANOL GLYCEROL SOLNS. OF ETIOPORPHYRIN II (I), ITS MONOAZA (II) AND TRANS DIAZA (III) ANALOGS, TETRAAZAPORPHINE (IV) AS WELL AS THE ZN II, ZN III, AND MG IV COMPLEXES. AZA SUBSTITUTION RESULTED IN SYMBATIC ALTERATION OF THE LUMINESCENCE AND ABSORPTION SPECTRA; THE ELECTRONIC TRANSITION BAND BECAME MORE INTENSE AND THE VIBRATIONAL BAND CONSIDERABLY WEAKER AS COMPARED WITH THE PARENT PORPHYRINS, AND THE SPECTRA EXHIBITED QUAL. MIRROR SYMMETRY. THE EXTENT OF POLARIZATION OF SINGLE BANDS OF THE SPECTRA IN THE SYM. AND UNSYM. COMPDS. IS DISCUSSED. UNCHAIN REACTION, AFTER THE INITIAL CLEAVAGE OF PCL SUB3 INTO PCL SUB2 AND CL RADICALS. THIS MECHANISM ALSO IS ABLE TO EXPLAIN THE GREATER REACTIVITY OF BRANCHED OLEFINS WITH THEIR HIGH ELECTRON D. AT THE DOUBLE BOND; HOWEVER, AT SIMILAR TO 40DEGREES THE BRANCHING BEGINS TO EXERT AN INHIBITING EFFECT ON THE REACTION AND THE STERIC FACTOR BECOMES PREDOMINANT OVER THE POLAR FACTOR; THIS ACCOUNTS FOR THE MAX. RADIOCHEM. YIELD OF THE PRODUCTS AT SIMILAR TO 40DEGREES FROM 2 METHYL 2 BUTENE, WHILE 2 PENTENE SHOWS A STEADILY INCREASING YIELD WITH RISING TEMP. EVEN AT 60DEGREES. FACILITY: INST. FIZ., MINSK, USSR.

UNCLASSIFIED

PHYSICS

USSR

Crystals and Semiconductors

UDC[537.226+537.311.33]:[537+535]

SINYAKOV, YE. V., LUDNIK, YE. F., and FILEROVA, S. A.

"Effect of External Forces on Polarization Reversal Processes of Single Crystals of Barium Titanate"

V sb. Segnetoelektriki i okisnyye poluprovodniki (Ferroelectrics and Oxide Semiconductors -- Collection of Works), Dnepropetrovsk, 1971, pp 34-40 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1286 by YE. LUDNIK)

Translation: The authors studied the polarization reversal parameters of single crystals of $BaTiO_3$ acted upon by a transverse electric field and uniaxial mechanical pressure. The method of making the measurements and constructing the holders is described. It was found that a weak biased (transverse) field under 170 v/cm and transverse contraction up to loads of 40-50 kgf/sq cm result in an increase in maximum current and switching time. As shown by study of domain structure, action of a weak transverse field (pressure) leads to c-domainization of a crystal in the (001) plane, and therefore even strongly fixed domains are switched in the direction of the polarization reversing field, causing an increase in t_s and I_{max}. Maximum current and switching time decline with further increase of transverse contraction (field). It is assumed that this variation in switching parameters is caused by "pinching" and by the exclusion of part of the domains from the process of polarization reversal.

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USSR

UDC[537.226+537.311.33]:[537+535]

SIRYAKOV, YE. V., and KOLESNICHENKO, K. A.

"Semiconductor Properties of WO_3-Doped Solid Solutions of $Ba(TiSn)O_3$"

V sb. Segnetoelektriki i okisnyye poluprovodniki (Ferroelectrics and Oxide Semiconductors -- Collection of Works), Dnepropetrovsk, 1971, pp 69-74 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1309 by YE. A.)

Translation: A study was made of the electrical properties of $Ba(TiSn)O_3$ solid solutions as a function of the concentration of WO_3 addition. Investigations were made in the $BaSnO_3$ concentration range of 0.5 to 16 mol. %. WO_3 was introduced over and above stoichiometry in the amount of 0.04-0.3 mol. %. The specimen preparation method is described. Variation of resistance (R) with temperature was measured by the d-c two-probe method in the 20-300°C temperature range. The field applied to a specimen did not exceed 10 v/cm. Permittivity (ε) was measured on a frequency of 1 kHz. From the sign of thermoelectromotive force it was established that all the crystals obtained possess electronic conductivity. Specimens containing 0.04-0.14 mol. % WO_3 possessed properties characteristic of semiconducting $BaTiO_3$. Specimens containing more than 0.17 mol. % WO_3 possessed high R and exhibited no positive temperature resistance coefficient in the phase-transition region. Strong dependence of ε

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SINYAKOV, YE. V. and KOLESNICHENKO, K. A., Segnetoelektriki i okisnyye poluprovodniki, 1971, pp 69-74

on electrode material due to the formation of pre-electrode layers with great R was found. Superlinear current-voltage characteristics were observed in the region of fields of 200 v/cm.

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USSR

UDC 548.0:537.228.4

SINYAKOV, YE. V., GOLOVYANKO, A. A., and SAVCHENKO, V. G., Dnepropetrovsk State University

"Electo-optical Properties of Single Crystals of $BaTiO_3$-Ta_2O_5 Solid Solutions"

Moscow, Akademii Nauk SSR Kristallografiya, Vol 16, No 3, May-Jun 71, pp 553-556

Abstract: To clarify the effect of replacing Ti^{+4} ions in $BaTiO_3$ with Ta^{+5} ions on the electro-optical properties of barium titanate monocrystals, the temperature functions of quadratic electro-optical coefficients $n_0^3(R_{11}-R_{12})$ and $n_0^3R_{44}$ of single crystals of $BaTiO_3$-Ta_2O_5 solid solutions were investigated. Different impurity concentrations were used (Ta_2O_5 content: 0.05, 0.1, 0.2 and 0.3 mol %). The measurements were taken above the Curie point by optical polarization at lambda 6328 A with a 50 Hz AC field applied to the crystal along the [100] and [110] axes. Mirror-surface crystals were selected and prepared into 1.5 x 0.8 x 0.25 mm specimens. The light was propagated perpendicular to the (001) plane. It was found that with an increase in the impurity concentration, electro-optical coefficients rise sharply (particularly the coefficients

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SINYAKOV, YE. V., et al., Akademii Nauk SSR Kristallografiya, Vol 16, No 3, May-Jun 71, pp 553-556

$n_0^3(R_{11}-R_{12})$) and this rise is the more pronounced, the closer the measurements are made to the Curie point. At 20-30° from the Curie points the electro-optical coefficients of the $BaTiO_3$-Ta_2O_5 solid solutions are practically identical to those of pure barium titanate. The rise in coefficients made close to the Curie point was shown to be caused by the reduction in the difference between the Curie point and the Curie-Weiss temperature obtained from electro-optical measurements.

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UDC 669.71.018.9

USSR

ZOLOTOREVSKIY, Yu. S., RUDOMETOV, V. S., SEREBRIYSKIY, E. I., SINYAVINA, N. P., TSAREGORODTSEVA, A. I.

"Study of the Relationship Between Structure of Ingots and Properties of Pressed Semifinished Goods of an Alloy in the System Al-Zn-Mg with $Zn/Mg \approx 0.5$"

Metallurgiya [Metallurgy -- Collection of Works], No. 13, Leningrad, Sudostroyeniye Press, 1970, pp. 121-127. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G172 by the authors).

Translation: The influence of crystallization rates on the microstructure of an alloy in the system Al-Zn-Mg is demonstrated. The inherited nature of structural elements of the ingot is established. 3 figs; 4 tables; 7 biblio refs.

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UDC 669.14.018.8

USSR

SHUSTOVA, Z. F., SHIYANOVA, A. A., YEMEL'YANOVA, V. A., ROZENFEL'D, I. L., KUZNETSOV, G. G., RAYMOND, E. D., and NEFEDOV, V. P.

"Inclination toward Stress Corrosion Cracking of 1Kh16NiB (EP-56) High-Strength Stainless Steel"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 696-700

Abstract: This article contains the results of a study of the effect of heat treatment conditions on the inclination of welded joints of 1Kh16NiB steel to stress corrosion cracking. This steel is a high-strength steel of the martensitic class heat-treated by quenching from 950-1,050° and annealing at 300 or 600°. The stress-rupture strength of the steel is $\geq$ 120 kg/mm^2 in the former case and $\geq$ 100 kg/mm^2 in the latter case. It was established earlier that neither the basic metal nor the welded joints of this steel in the fully heat-treated state were inclined to stress corrosion cracking. In the present investigation the inclination toward stress corrosion cracking was evaluated by the time of occurrence of cracks in the welded joint in a saline mist at room temperature.

From the tabulated data it is noted that unannealed samples and samples annealed at 300° exhibit an inclination toward stress corrosion cracking.

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Welded joints annealed at 600° are not inclined to such cracking. Pictures are presented showing the microstructure of a welded joint made of 1Kh16N4B steel and the hardness distribution in the welded joint. Comparison of metallographic and corrosion studies shows that the section near the weld subjected to heating in the temperature range of 475-550° is distinguished by lower corrosion resistance. It is possible to decrease the tendency toward corrosion cracking of 1Kh16N4B steel joints not only by high temperature annealing (600°) but also by high temperature quenching of the steel before welding. The tendency of the welded joints toward corrosion cracking was found to depend on the structural state of the basic metal before welding. A table is presented showing the effect of slow cooling and induced heating on the stress corrosion cracking of 1Kh16N4B thick sheet steel in a saline mist atmosphere.

It is concluded that welded joints of 1Kh16N4B steel made of material with a strength of 100 kg/mm^2 and annealed at 300 and 600° are not inclined to stress corrosion. Slow cooling of the steel during quenching increases the tendency of the unannealed and low-temperature (300°) annealed welded joints to stress corrosion cracking. Heating 1Kh16N4B steel subjected to high tempera-

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SHUSTOVA, Z. F., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 696-700

ture annealing in the 475-550° range can cause a tendency toward corrosion under stress. When quenching with slow cooling the inclination toward cracking is exhibited after a short delay (5 minutes) at 475-550°. In the case of air quenching this inclination is exhibited after a longer period (2 hours).

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UDC 541.49+541.65+546.18+546.31

USSR

SINYAVSKAYA, E. I., SHEKA, Z. A., MEDVED', T. YA., PISAREVA, S. A., KABACHIK, M. I., Institute of Physical Chemistry imeni A. V. Pisarzhevski, Academy of Sciences, UkSSR, Kiev, and Institute of Heteroorganic Compounds, Academy of Sciences, USSR, Moscow

"Reaction of Some Metal Halides with Tetraphenyl- and Tetrabutylalkylenediphosphine Dioxides"

Moscow, Zhurnal Neorganicheskoi Khimii, vol 18, No 9, Sept 73, pp 2427-2433

Abstract: The reaction of alkali metal halides and cupric chloride with $(C_6H_5)_2P(O)(CH_2)_nP(O)(C_6H_5)_2$ (n = 1 to 3) and $(C_4H_9)_2P(O)(CH_2)_nP(O)(C_4H_9)_2$ (n = 1 to 6) was studied by measuring the electrical conductivity of the respective salts in nonaqueous solvents. Owing to formation of electrically neutral complexes, the electrical conductivity decreased when the subject compounds were added to LiCl or LiI or to $CuCl_2$. The most effective complexes of the inorganic compounds were the compounds with the methylene bridge with n = 1 or 2. With higher n values the complex

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SINYAVSKAYA, E. I., et al., Zhurnal Neorganicheskoi Khimii, vol 18, No 9, Sept 1973, pp 2427-2433

formation decreased sharply. This is in agreement with published data on protonation in such dioxides, which show formation of stable cyclic structures for n = 1 or 2.

UDC 546.46-38.04+546.41-38.04

USSR

SINYAVSKAYA, E. I., and SHEKA, Z. A., Institute of General and Inorganic Chemistry, Acad. Sc., USSR

"Magnesium and Calcium Halide Complexes With Phosphine Oxides"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 4, Apr 71, pp 896-901

Abstract: A study was made of the reaction of magnesium and calcium chlorides and iodides with phosphine oxides in acetonitrile. On the basis of electroconductivity and ion transfer studies, it was determined that in acetonitrile the magnesium iodide can form the $[MgL]^{2+}$ and $[MgIL]^{+}$ complexes with tetraphenylmethylenediphosphine oxide $[(C_6H_5)_2PO]-CH_2$. Solubility and electroconductivity studies of calcium chloride in acetonitrile, with the same complexing agent, showed the presence of $[CaL]^{2+}$ and $[CaClL_2]^{+}$ complexes.

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UDC 546.732 - 386

USSR

YATSIMIRSKIY, K. B., SHEKA, Z. A., and SINYAVSKAYA, E. I.

"Reaction of $CoCl_2$ With Triphenylphosphazobenzene"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 6, Jun 70, pp 1552-1557

Abstract: A study is reported on the complex formation of $CoCl_2$ with triphenylphosphazobenzene (I), its chemical bonding, and the behavior and properties of these complexes in nonaqueous medium. On the basis of the absorption spectrum determined in the range of 14000-18000 cm^{-1}, $CoCl_2$ and (I) form complexes of tetrahedral structure in tetrahydrofurane solutions. Their formulas are: $CoCl_2[(C_6H_5)_3P{:}NC_6H_5]_2$, and $CoCl_2(C_6H_5)_3P{:}NC_6H_5 \cdot THF$, the former being isolated in crystalline form. Comparison of the properties of these complexes with complexes of $CoCl_2$ and triphenylphosphine oxide showed that the phosphazo complexes are more stable than the phosphine oxide complexes; the covalency of the bonds in $CoCl_2$ complexes with triphenylphosphazobenzene and the effect of π-antibonding in this compound are higher than analogous effects in the $CoCl_2$ complexes with phosphine oxides.

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UDC: 669.295:620.1

USSR

POL'KIN, I. S. and SINYAVSKAYA, S. N.

"Heat and Thermomechanical Treatment of the VT16 Grade Alloy"

Moscow, Tsvetnyye Metally, No 10, Oct 73, pp 59-61

Abstract: The authors study the conditions of heat treatment and hot and cold deformation on the phase composition and properties of the VT16 grade alloy having the following composition by percent: 2.45 Al, 4.8 Mo, 4.55 V, and the remainder Ti. The results show that the maximum degree of deformation of up to 70 percent during cold drawing is obtained after annealing at 780°C for two hours. Aging at 400°C makes it possible to increase ultimate strength up to 160 kg/mm^2 after quenching in water and up to 135 kg/mm^2 after quenching in air. The experimental portion of the work was completed by S. A. Afanas'yeva.

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UDC 627.45:624.131.52

USSR

SINYAVSKAYA, V.M., PAVLOVA, E.YE.

"The Influence of Periodic Shifts of the Lock Wall Upon the Pressure of the Fill Earth and the Stresses in the Framework"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 3, 1971, pp 28-33

Abstract: Between 1959 and 1969 the Volgograd section of the Scientific Research Department of the All-Union Planning, Surveying, and Scientific Research Institute imeni S.Ya. Zhuk has been conducting integrated full-scale research upon the wall of the upper chamber of the Volgograd Lock, which had commenced while the lock was being built. By now, sufficient observation data have accumulated for the lock under consideration to be regarded as a system of interacting elements (chamber wall - filling soil). The article gives quantitative characteristics of the wall shifts, and a classification of them: changes in the time that the soil pressure and the stresses of the framework are under the influence of these shifts, are described. 3 figures, 3 tables, 6 bibliographic entries.

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UDC 539.3

USSR

VAYNBERG, D. V., SAKHAROV, A. S., SINYAVSKIY, A. L.

"Investigation of Flexible Plates and Shells"

V sb. Raschet prostranstv. konstruktsii. Vyp. 14 (Calculation of Three-Dimensional Structures. No. 14 -- Collection of Works), Moscow, Stroyizdat, 1971, pp 35-51 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V102)

Translation: The deformation of flexible shells and plates with eccentric ribs is discussed. Restrictions are not imposed on the shape of the middle surface of the shell, the nature of the load distribution and support conditions. The discrete positioning of the ribs is taken into account. The problem is solved by numerical methods. A variational method is proposed for constructing the difference equations which consists of minimizing the elastic potential of the deformed system represented in discrete form. Iteration algorithms are developed for solving the linear and nonlinear equations of higher order. A set of programs was developed for fully automating the calculating process including the computer formation of grid equations. Several numerical examples are included for calculating ribbed shells and plates for various parameters, boundary conditions, and load characteristics. Authors abstract.

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UDC 621.178.3

USSR

TROSHCHENKO, V. T., STRIZHALO, V. A., SINYAVSKIY, D. F., Kiev. Institute of Strength Problems, Ukrainian SSR

"Rules Governing the Destruction and Modification of High-Melting Alloys in a Highly Plastic State With Low-Cycle Fatigue"

Kiev, Problemy Prochnosti, No 6, 1971, pp 32-37

Abstract: In the repeated static loading of high-melting metals under conditions of high temperatures in excess of 0.5 of the melting point, the mechanism of their modification differed essentially from the modification mechanism of heat-resistant and structural alloys, and this is apparently explained by the high plasticity of high-melting metals at these temperatures. For metals having such high plasticity, a new approach is required for evaluating their work capacity as structural metals under conditions of alternating low-cycle loading. Results of an investigation of the kinetics of the deformation and modification of highly plastic metals undergoing low-cycle loading permits the conclusion to be drawn that there exists a unique mechanism of deformation, based upon the cyclical transfer of material from certain deformed zones into others, and that this mechanism determines the

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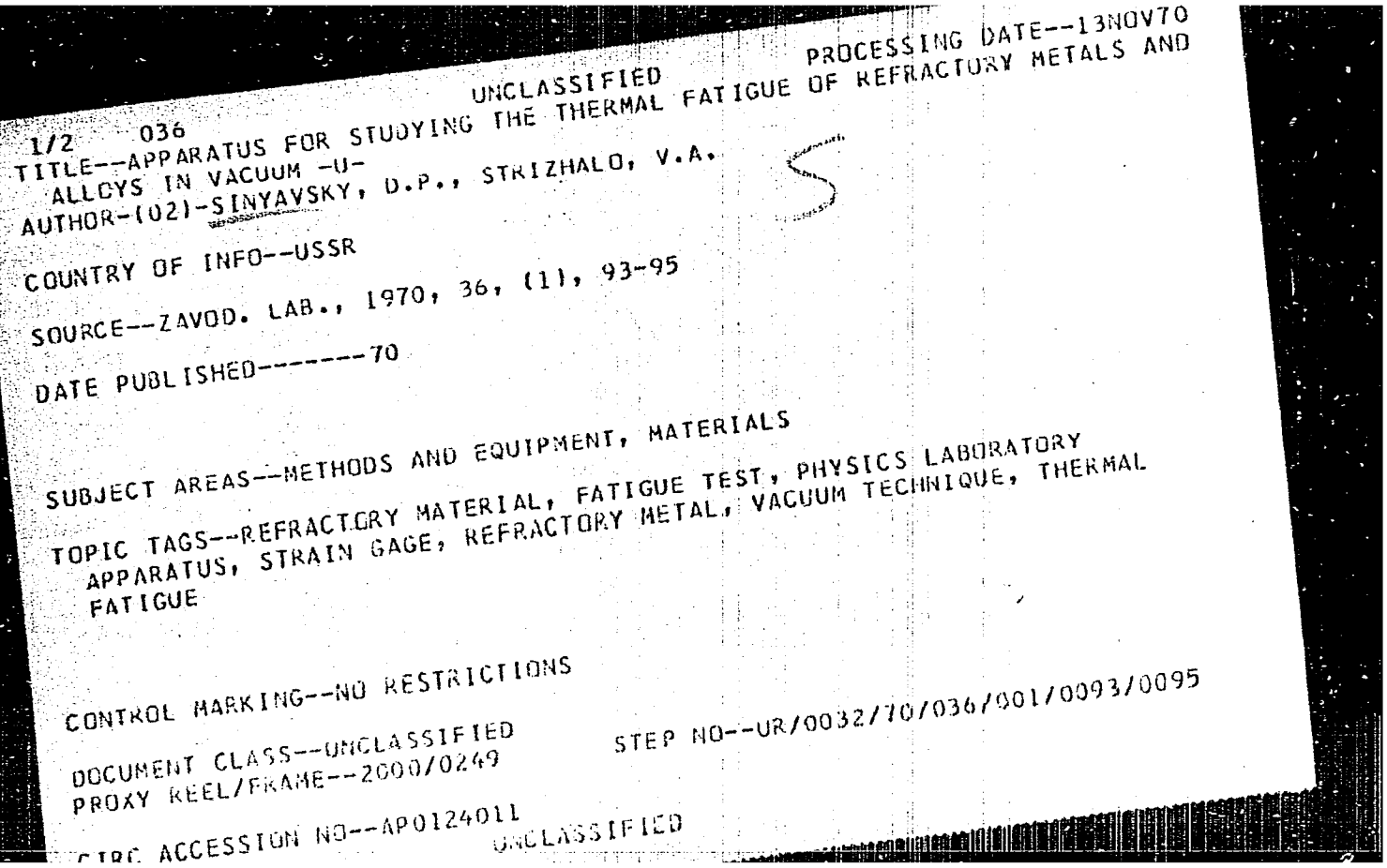
USSR

TROSHCHENKO, V. T., et al., Problemy Prochnosti, No 6, 1971, pp 32-37

onset of destruction in the material under alternating repeated static deformation only after complete realization of its plasticity. The strength of such materials can be evaluated only with account taken of the kinetics of their modification, and is determined only upon complete exhaustion of plasticity in the dangerous cross sections. 8 figures, 1 table, 4 references.



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TITLE--APPARATUS FOR STUDYING THE THERMAL FATIGUE OF REFRACTORY METALS AND ALLOYS IN VACUUM -U-

AUTHOR-(02)-SINYAVSKY, D.P., STRIZHALO, V.A.

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