USSR

UDC 621.791.76:621.7.044.2.052:621.791.011

POKATAYEV, YE. P., Engineer, TRYKOV, YU. P., Candidate of Technical Sciences, KHRAPOV, A. A., Engineer, Volgograd Polytechnic Institute

"Residual Stresses in Explosion-Welded Joints"

Moscow, Svarochnoye proizvodstvo, No 9, 1972, pp 10-12

Abstract: A study was made of the distribution law of the residual stresses with respect to thickness of explosion-welded joints between like (steel-steel) and unlike (steel-titanium) metals. The residual stresses were determined in rods cut from bimetal billets 250 × 250 mm. The thickness of the base layer of MSt.3 steel was 31.5 mm in the steel-steel joint and 37 mm in the steel-titanium joint. The thickness of the cladding layer of MSt.3 steel and OT4-1 alloy was the same, 10 mm, in both cases. Graphs were plotted for the hardness distribution in an explosion-welded joint of steel-steel, steel-titanium, the OT4-1 titanium alloy in the initial state and MSt-3 steel in the initial state, the variation of the relative deformation of bimetal steel-titanium rods on removal of layers from the titanium and steel sides, the distribution of the residual stresses in the steel-steel bimetal obtained by explosion welding for longitudinal and transverse specimens after welding and after annealing, the residual stress distribution in the steel-titanium bimetal after explosion welding and the residual stress distribution in the steel-titanium bimetal

USSR

POKATAYEV, YE. P., et al., Svarochnoye proizvodstvo, No 9, 1972, pp 10-12

after tempering. After annealing the residual stresses in the steel-steel bimetal were eliminated in practice as a result of intense relaxation of high temperatures and subsequent uniform cooling. In the steel-titanium bimetal, after tempering a new residual stress field arose caused by the different thermal expansion of the layers.

The residual stresses in the explosion-welded bimetals can be determined by the same methods as in uniform materials. The nature of the residual stress distribution in the initial state after welding is in practice the same in the joints between like and unlike materials.

2/2

USSR

CHIZHENKO, YU. D., and KHRAPOV, A. YA., Siberian Metallurgical Institute

"Effect of Microdefects and Graphite Porosity on the Strength, Elastic, and Damping Properties of Iron"

Novokuznetsk, IVUZ-Chernaya Metallurgiya, No 6, 1971, pp 135-137

Abstract: A study was made of the change in the strength, elastic, and damping properties in relation to the magnitude of total volume of microdefects in iron. Iron with a degree of eutecticity from 0.83 to 1.16 was melted in an OKB-868 induction furnace and modified in the ladle with metallic magnesium, ferrosilicocalcium with magnesium, and 75% ferrosilicon. It was shown that the strength and damping properties of iron depend on the structure of the metallic matrix and on the total volume and shape of defects (graphite inclusions, gas-shrinkage micropores, and nonmetallic inclusions). The elastic properties of the same iron depend only on the total volume of matrix defects. Two figures, 3 bibliographic references.

1/1

USSR

PEREDERNIN, L. V., KHRAPOV, A. YA., and SELYANIN, I. F., Siberian Metallurgical Institute

"Investigation of the Properties of a Graphitized Steel"

Novokuznetsk, IVUZ- Chernaya Metallurgiya, No 6, 1971, pp 151-154

Abstract: The properties of graphitized Fe-C alloys depend on the structure of the metallic matrix and the graphite phase. Modification has a considerable effect on the phase parameters and changes both the mechanical and casting properties. A steel (0.9-1.7% C, 0.9-2.3% Si, 0.3-0.6% Mn, 0.043% P (max), 0.04% S (max), and 0.03% Cr (max)) was melted in an induction furnace with an acid lining, heated to 1590-1620°C, and upon tapping treated with 75% ferrosilicon (up to 5%), silicocalcium grade KaSiO (0.3% max), silicocalcium with magnesium grade FTsM-5 (0.4% max), ferrosilicocalcium+magnesium grade FSKM (1.2% max) and aluminum (0.15% max) as well as with the above-mentioned alloys in combination with aluminum and ferrosilicon.

The complex modification of graphitiezed steel with alloys having globularizing (Mg, Ce, Ca) and graphitizing (Si, Al) elements makes it possible to shorten the heat treatment time and increase both the mechanical

1/2

USSR

PEREDENERNIN, L. V., et al., IVUZ-Chernaya Metallurgiya, No 6, 1971, pp 151-154

and casting properties. The investigated steel had the best properties when modified with alloys FSKM (0.6% min) or FTsM-5 (2% min) + 0.3% Si75 and heated by normalizing at 980°C and annealed at 760°C. Four figures, one table, five bibliographic references.

2/2

USSR

UDC 669.131.6:539.217.1

CHIZHENKO, Yu. D., and KHRAPOV, A. Ya., Siberian Metallurgical Institute

"Determination of Quantity of Graphite and Porosity of Cast Iron by the Photometric Method"

Novokuznetsk, Izv. VUZ, Chern. Metallurgiya, No 10, 1970, pp 117-120

Abstract: The most common method of determining the porosity of metals is the method of hydrostatic weighing, consisting of successive determination of the weight of the specimen and a standard piece in air and in a liquid. For gray cast iron, it is almost impossible to find a standard in relation to which the porosity of an alloy can be determined. The authors suggest a method which does not have this defect, consisting of determination of the total porosity of gray cast iron, with subsequent differentiation into graphite and gas-shrinkage porosity. A diagram of the photometric device used to perform this differentiation is presented.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT7C

TITLE--PRODUCTION OF COMPACT GRAPHITE IN GRAPHITIZED STEEL WITH GRANULAR PEARLITE -U-

AUTHOR-(03)-PEREDERNIN, L.V., SELYANIN, I.F., KHRAPOV, A.YA.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 129-33

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GRAPHITIC STEEL, GRAPHITIZATION, METAL MELTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1393 STEP NO--UR/0148/70/013/002/0129/0133

CIRC ACCESSION NO--AT0120186

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT7C
CIRC ACCESSION NO--AT0120186
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTIMUM CHEM. COMPN. AND HEAT TREATMENT CONDITONS WERE WORKED OUT TO OBTAIN THE STRUCTURE OF GRANULAR PEARLITE WITH FINE, COMPACT, AND UNIFORMLY DISTRIBUTED GRAPHITE INCLUSIONS. SEVEN MELTINGS OF STEEL WERE MADE (C (SUBTOTAL) 0.85-1.41, C (SUBGRAPHITE) 0.28-1.07, SI 1.01-2.47, MN 0.45-0.51, P 0.027-0.045, AND S 0.012-0.028 WT. PERCENT). SPECIMENS WERE CAST INTO GREEN SAND CLAY MOLDS. THE OPTIMUM HEAT TREATMENT CONDITIONS WERE HEATING TO 1000DEGREES IN 2 AND ONE HALF HR, NORMALIZING FOR 1 AND ONE HALF HR AT 950-1050DEGREES, COOLING TO ROOM TEMP., AND ANNEALING FOR 2 AND ONE HALF HR AT 750-800EGREES. A CONTENT OF SI LARGER THAN 1.5PERCENT DID NOT GIVE PEARLITE IN THE STRUCTURE, WHILE IN ORDER TO OBTAIN GRANULAR PEARLITE, THE SIC, AND MN SHOULD BE WITHIN THE LIMITS 0.9-1.5PERCENT, 1.0-1.5, AND 0.45-0.65PERCENT RESP. AT C CONCNS. LARGER THAN 1.5PERCENT, THE GRAPHITE INCLUSIONS LOST THEIR COMPACT FORM.
FACILITY: SIB. MET. INST., NOVOKUZNETSK, USSR.

Graphite

USSR UDC: 669.111

PEREDERNIN, L. V., SELYANIN, I. F., and KHRAPOV, A. YE.

"The Problem of Producing Compact Graphite in Graphitized Steel with Grainy Pearlite"

Izv. VUZ, Chernaya Metallurgiya, No 2, 1970, pp 129-133

Abstract: Charges of rail steel were smelted in a 60-kg induction furnace in an attempt to produce graphitized steel with a structure consisting of grainy pearlite with fine, compact, evenly distributed graphite inclusions. This structure was produced with contents of 1.0-1.5% C, 0.9-1.5% Si, and 0.45-0.65% Mn with a heat-treatment mode consisting of heating to 1000° over two and one-half hours, holding at 1000° for one and one-half hours, cooling to room temperature over one-half hour, annealing at 770°C for three hours, and gradual cooling to 400° followed by quenching to room temperature. Higher contents of silicon do not facilitate the formation of the pearlite structure (the more silicon, the more ferrite was present). Increasing the carbon content results in a more compact form of the separated graphite. The influence of silicon on the rate of graphite sinter growth results from its action on the energetic position of the conductivity electrons in the lattice of the γ (α)-iron, in which this element is dissolved.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--USE OF GAMMA RESONANCE SPECTROSCOPY TO STUDY COORDINATION IN SOLUTIONS OF ORGANOTIN MONOHALIDES -U-

AUTHOR-(05)-GOLDANSKIY, V.I., ROCHEV, V.YA., KHRAPOV, V.V., KRAVTSOV, D.N., ROKHLINA, YE.M.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 134-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOSSBAUER EFFECT, ORGANOTIN COMPOUND, COORDINATION CHEMISTRY, POLYNUCLEAR HYDROCARBON, HALIDE, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0017 STEP NO--UR/0020/70/191/001/0134/0137

CIRC ACCESSION NO--AT0125857

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0125857

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOESSBAUER EFFECT WAS USED TO STUDY THE COORDINATION OF PH SUB3 SNF, PH SUB3 SNCL, PH SUB3 SNBR, PH SUB3 SNI, AND THEIR ET AND ME ANALOGS IN SOLVENTS SUCH AS HEPTANE, ET SUB2 O, CHCL SUB3, PYRIDINE, TETRAHYDROFURAN, ME SUB2 NCHO, ME SUB2 SO, (CH SUB2 OME) SUB2. THE SPECTRAL CHARACTERISTICS ARE TABULATED. COORDINATION WAS DETECTED FOR THE ORGANOTIN HALIDES IN STRONGLY SOLVATING SUBSTANCES AND COORDINATION WAS OBSERVABLE IN CRYSTALS IN THE INDIVIDUAL SUBSTANCES. THIS WAS CAUSED BY THE FACT THAT IN PASSAGE FROM INDIVIDUAL HALIDES TO THEIR SOLNS. IN STRONGLY SOLVATING SOLVENTS THE CHANGE IN QUADRUPOLE SPLITTING IS DETD. BY THE DIFFERENCE IN INTENSITY OF COORDINATIONAL INTERACTIONS IN THE CRYSTALS OF THE INDIVIDUAL SUBSTANCE AND ITS SOLN. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CHEMICAL STATE OF THE TIN ATOM IN ORGANOTIN CELLULOSE DERIVATIVES STUDIED BY GAMMA,RESONANCE SPECTROSCOPY -U-
AUTHOR-(05)-KHRAPOV, V.V., ROCHEV, V.YA., ARTEMOVA, YU.V., VIRNIK, A.D., ZEMLYANSKIY, N.N.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(2), 145-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOTIN COMPOUND, CELLULOSE, ACRYLIC ACID, COPOLYMER, POLYMER STRUCTURE, GAMMA SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0315 STEP NO--UR/0460/70/012/002/0145/0149

CIRC ACCESSION NO--AP0111509
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0111509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF A CELLULOSE (I),POLY, (ACRYLIC ACID) GRAFT COPOLYMER (II) AND OF CM CELLULOSE (III) WITH (BU SUB3 SN)SUB2 O OR BU SUB2 SNCL AND THE STRUCTURE OF THE POLYMERS THEREOF WERE STUDIED BY GAMMA,RESONANCE SPECTROSCEOPY. THE GAMMA,RESONANCE SPECTROSCOPIC PARAMETERS OF THE ORGANOTIN DERIVS. OF II AND III SUGGESTED THAT NEW SN CONTG. I DERIVS. HAVING BU SUB3 SNO SUB2 C GROUPS WERE FORMED. THE DATA AGREED WITH CHEM. ANAL.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE RELATIONSHIP BETWEEN THE PHYSICOCHEMICAL AND RADIOPROTECTIVE CHARACTERISTICS OF INHIBITORS OF RADICAL PROCESSES -U-
AUTHOR--KHRAPOVA, N.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA. INFORM. BYUL. (RADIOBIOLOGY. INFORMATION BULLETIN,
REFERENCE--R ZH-BIOLOGIYA, II(II), NOV 69, ABSTRACT NO 11S112
DATE PUBLISHED-------69

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOPROTECTIVE AGENT, MOUSE, X RAY RADIATION BIOLOGIC EFFECT, RADIATION SENSITIVITY, ANTIOXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605011/C08 STEP NO--UR/0673/69/000/012/0072/0074

CIRC ACCESSION NO--AR0140188

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AR0140188

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES IN THE RADIOPROTECTIVE EFFECT (RPE) OF 12 INHIBITORS OF FREE RADICAL PROCESS (IRP) WITH INCREASING CONCENTRATION WERE STUDIED IN BALB MICE OF BOTH SEXES WEIGHING 18-22 G. THE IRP WERE ADMINISTERED 15-30 MIN BEFORE X RAY IRRADIATION OF THE ANIMALS WITH A DOSE OF 650 R. THE EFFECTIVENESS OF THE IRP WAS JUDGED BY HTE NUMBER OF ANIMALS SURVIVING ON THE 30TH DAY AFTER EXPOSURE. A CLOSE RELATIONSHIP WAS NOTED BETWEEN THE RPE AND ALL THE IRP STUDIED. THE PRE INCREASED WITH INCREASE IN CONCENTRATION OF THE IRP, BUT UP TO A CERTAIN CONCENTRATION, C SUBOPT, AFTER WHICH AN INCREASE IN CONCENTRATION REDUCED THE DEGREE OF PROTECTION. THE CONCENTRATION OF THE SUBSTANCES AT WHICH NO RPE WAS FOUND WAS DESIGNATED AS C SUBNEG. A CONCENTRATION ABOVE THE C SUBNEG AGGRAVATED THE CONDITION OF THE IRRADIATED ANIMALS, AND THE IRP HAD A RADIOSENSITIZING EFFECT. THE VALUE OF C SUBOPT WAS FOUND TO BE DIRECTLY PROPORTIONAL TO THE PRODUCT OF THE ANTIOXIDATIVE ACTIVITY AND THE CONCENTRATION OF THE COMPOUND ADMINISTERED, I.E., WITH EQUAL ANTIOXIDATIVE ACTIVITY SUBSTANCES WITH THE HIGHER OPTIMUM CONCENTRATIONS PROVIDED THE GREATER DEGREE OF PROTECTION.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320007-4"

USSR

SOLDATOV, I., Academy of Medical Sciences USSR and KHRAPPO, N., Candidate of Medical Sciences

"Medical Treatment of Vestibular Malfunction"

Moscow, Meditsinskaya Gazeta, 26 May 72, p 3

Abstract: Dizziness, disturbance in equilibrium, and nausea are the symptoms of vestibular malfunction. Medical treatment during the acute period is described below. Novocain is widely used in the form of different blocks: vago-sympathetic and "peri nephritic" blocks, as described by A. V. Vishnevskiy; blocks of the stellate ganglion and upper cervical ganglion of the sympathetic nerves; inner nasal block, from the methods of G. L. Komendantov, O. G. Ageyeva-Maykova, and Ya. S. Temkin. In the latter case, 0.25 to 1.0 ml of a 1% or 2% solution are used; for the 0.25%, 0.5%, and 1.0% solutions, 300 ml were used. Intravenous administration of novocain was rather effective. For this 5 ml of a 0.5% solution was used; it was introduced slowly over a period of 3 minutes. The following year, treatment consisted of 120-250 ml of a 7% sodium bicarbonate solution intravenously (at a speed of about 120 drops per minute). Treatment consisted of 15 injections. In a few patients, undesirable side effects necessitated a decreased dosage of 100 ml and a

1/2

USSR

SOLDATOV, I., and KHRAPPO, N., Meditsinskaya Gazeta, 26 May 72, p 3

reduction of the number of shots to 10. A variety of other treatments are also described, including the use of nicotinic acid, vitamin A, the B group, and E, glucose, manganese sulfate, and others. In general, for the majority of cases of Meniere's disease, the surgical method may be used on the vegetative nervous system.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ON THE HYSTERO ORGANIC COORDINATIONS -U-

AUTHOR-(03)-SVIRSKAYA, Z.V., KUZNETSOVA, YE.A., KHRAPUNOVICH, YE.A.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 2, PP 48-50

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIAGNOSTIC METHODS, REPRODUCTIVE SYSTEM, NERVOUS SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1908/1515 STEP NO--UR/0477/70/000/002/0048/0050

CIRC ACCESSION NO--AP0106271

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0106271
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIAGNOSIS OF HYSTERO ORGANIC COORDINATIONS IS OFTEN RATHER EMBARRASSING. A WRONG INTERPRETATION OF THE COORDINATED SYMPTOMS LEADS TO A LATE DETECTION OF THE NATURE OF THE DISEASE, TO A TARDY BEGINNING OF THE PATHOGENETICALLY INDUCED TREATMENT. THE ARTICLE GIVES AN ANALYSIS OF 19 CLINICAL OBSERVATIONS OVER VARIOUS HYSTERO ORGANIC COORDINATIONS. THE THERAPY IN ALL CASES MUST BE COMBINED, STRICTLY DIFFERENTIATED.

UNCLASSIFIED

USSR UDC: 621.373:530.145.6

DOLGINOV, L. M., DRUZHININA, L. V., YELISEYEV, P. G., KHRASAVIN, I. V., LIBOV, L. D.

"Continuous Emission in Semiconductor Lasers at Room Temperature"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 2, pp 57-63 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D158)

Translation: The authors describe injection lasers based on symmetric heterostructures with strip geometry operating in the continuous mode at a temperature of 300°K. The heterostructures are produced by the method of liquid epitaxy from solutions in gallium. A layer of N-type $Al_xGa_{1-x}As$ 2-5 μ thick doped with tin (N emitter) was grown on a substrate of N-type GaAs oriented in plane (100), followed by a layer of N-type GaAs (undoped) or P-type germanium-doped GaAs (active layer) 0.4-1.2 μ thick, a layer of P-type germanium-doped $Al_xGa_{1-x}As$ 1.7-2.5 μ thick (P-emitter), and finally a fourth layer of P-type GaAs (with germanium) to make a low-resistance contact no more than 2 μ thick. A silicon dioxide film was deposited on the P-side of the heterostructure, and bands 15 μ thick were photographically etched in this film in direction [110]. The value of x was typically

DOLGINOV, L. M. et al., Kratkiye soobshch. po fiz., 1971, No 2, pp 57-63

0.2-0.4. Measurements showed that the main pumping power is released in a band 18-20 μ wide. It is shown that the necessary conditions for obtaining continuous emission are low threshold current density, which is realizable so far only in symmetric heterostructures, a thin diode base, and low series resistance of the diode (per unit area of the active region). A. K.

2/2

USSR

UDC: 621.396.69:621.314.2(088.8)

NEKRASOV, M. M., LAVRINENKO, V. V., PLAKHOTNYY, N. V., KHRASHCHEVSKIY, V. A., Kiev Polytechnical Institute

"A Method of Making Multilayered Piezoelectric Transformers"

USSR Author's Certificate No 264497, filed 26 Jul 68, published 12 Jun 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V387 P)

Translation: A method is proposed for making multilayered piezoelectric transformers. The procedure is based on making the excitation sections from separate plates with subsequent acoustic joining of the sections. To increase the trnasformation ratio, useful power and maximum permissible stresses, the plates of the excitation section are made from an unannealed piezoelectric material by pouring the slip onto the substrate, and acoustic joining of the sections is done simultaneously with brazing of the electrodes by pressing the sections in bundles at the ceramic sintering temperature.

1/1

Electrochemistry

USSR

UDC 541.67:537.311.33

KORSHAK, V. V., KHRENKOVA, T. M., SILING, S. A., CHUBAROVA, M. A., VINOGRADOVA, S. V., and KASATOCHKIN, V. I.

"Structure and Properties of Polymeric Semiconductors Based on Pyrromellitic Acid Tetranitrile and p-Phenylenediamine"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 14, Series A, No 3, 1972, pp 701-705

Abstract: The heating of a polymer based on pyrromellitic acid tetranitrile and p-phenylenediamine (polyhexazocyclane PF) from 20 to 300, 400, 500, 600, 700, 800, and 900° at 5 x 10^{-3} torr, yielded polymers with specific resistance ρ_{spec} from 10^{13} to 5 x 10^{-1} ohm cm and activation energy of conductivity ΔE from 1.7 to 0.1 ev, depending on the heat treatment. The structure of the polymers was determined by X-ray diffraction analyses, nmr studies, and IR spectroscopy. At heat-treatment temperatures above 500°C the polymer undergoes degradation and cross-linking accompanied by the formation of bundles of aromatic layers consisting mainly of condensed aromatic compounds.

1/1

Pharmacology and Toxicology

USSR

UDC: 591.1.15

KUKULYANSKAYA, M. F., KHRIPCHENKO, I. P.

"Activity of Hexokinase and Cholinesterase in the Brain and Heart of Rats Under the Effect of Relatively Low Doses of Systemic Fractional X-Irradiation"

Vestn. Belorus. un-ta (Belorussian University Herald), 1972, Ser. 2, No 1, pp 43-46 (from RZh-Biologicheskaya Khimiya, No 12, Jun 72, Abstract No 12F1423)

Translation: The activity of hexokinase and cholinesterase in homogenates of the brain and heart of intact and adrenalectomized rats was determined on the first, third and seventh day after systemic fractional x-ray exposure to a total dose of 40 roentgens. On the seventh day after irradiation, the activity of hexokinase and cholinesterase in the brain decreased, while the corresponding activity for the heart increased. Irradiation of the adrenalectomized rats caused a slight increase in the activity of these enzymes in the brain and heart muscle.

1/1

Instrumentation and Equipment

USSR

UDC: 621.762.002.5(088.8)

(2)

PAVLOVSKAYA, Ye. I., TIKHONOV, G. F., NIKOLAYEV, A. N., SHTUTMAN, B. A., KHRENOV, B. A., GORYACHEVA, Z. V.

"Device for Feeding of Powder into Rolls of a Rolling Mill"

USSR Author's Certificate Number 352685, Filed 8/06/70, Published 26.10/72 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G450).

Translation: The device suggested contains a hopper and a feeder. In order to increase the quality of the product produced, the feeder is made in the form of a strip transporter connected through a drive to the rolls of a rolling mill.

1/1

USSR

UDC 621.791

KHRENOV, K. K.

"Welding, Cutting and Soldering Metals"

Moscow, Svarka, rezka i payka metallov (cf. English above), Fourth Edition, Mashinostroyeniye, 1973, 408 pp (from Svarka, rezka i payka metallov, Mashinostroyeniye, 1973, pp 2, 405-408)

Translation of Annotation: This book contains a description of individual types of welding. The essence of the process and the characteristic features of the heating source used, the required materials, machines, equipment and auxiliary equipment, and the process technology are discussed. Examples are presented from industrial application of many of the methods, and their basic technical-economic indexes are given. A study was made of the peculiarities of welding various metals.

The book is designed for engineering and technical workers. It is of significant interest to highly qualified industrial workers in the welding field.

Contents

USSR

KHRENOV, K. K., Svarka, rezka i payka metallov, Mashinostroyeniye, 1973, 408 pp.

2/8

USSR

KHRENOV, K. K., Svarka, rezka i payka metallov, Mashinostroyeniye, 1973, 408 pp

USSR

KHRENOV, K. K., Svarka, rezka i payka metallov, Mashinostroyeniye, 1973, 408 pp

4/8

UDC 621.791.1:621.57

USSR

KHRENOV, K. K., CHUDAKOV, V. A., KOZOLUP, P. M., LYMAR, P. I., and SKLYAR, I. D.

"Magnetic Impulse Welding of Domestic Refrigerator Tubes"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 70, pp 74-75

Abstract: A brief description is given of technology for the magnetic-impulse welding of copper and aluminum tubes 6 and 8 mm in diameter, respectively. The technology was developed jointly by the Institute of Electric Welding imeni Ye. O. Paton and the Dnepropetrovsk Plant for Radio Relay Devices (DZARP). A copper tube is introduced inside the aluminum tube with a certain clearance. In order to retain the inside diameter of the copper tube a 30KhGS steel rod is inserted inside it, and is removed after welding by a special device. The welding is achieved by an inductor, supplied by an 80-microfarad capacitor bank with a voltage of 20 kv and capacity of 16 kilojoule. The energy required for welding is 4.4-6.5 kilojoule and is determined by the inductor parameters. The current is about 165-200 kilo amperes. The inductor coils are water cooled.

1/1

USSR UDC 621.791.1:621.574

KHRENOV, K. K., BALAKIN, V. I., MNISHENKO, I. A., and SERGEYEVA, YU. A., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR; BERSUDSKIY, S. YU., and CHERNYAK, G. I., Minsk Plant of Refrigeration Units

"Cold Welding of Copper and Aluminum Tubing"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 49-50

Abstract: A new welding technology is described for aluminum and copper tubing. For aligning the mechanical properties of both aluminum and copper tubing, the latter was annealed at 600 to 800° C for 20-30 minutes up to the point of removing the work hardening. A microstructural examination of the joints performed by cold welding failed to reveal any flaws. Copper appears to preserve its coarse-grained structure (acquired after annealing) almost up to the very line of the copper-aluminum interface. The grains were slightly stretched in the direction of the metal flow. Specimens of pipes welded by the new method were mounted in two refrigeration units and subjected to laboratory tests for prolonged vibration and transportability. The continuous action of vibration damaged the condensers but failed to affect the strength of the welded joints.

1/1

Acc. Nr: AT0040576 Abstracting Service: CHEMICAL ABST. Ref. Code: 4-76 UR0020

K

83522g **Formation of a eutectic phase during contact fusion.** Khrenov, K. K.; Rossoshinskii, A. A.; Kislitsyn, V. M. (Inst. Elektrosvarki im. Patona, Kiev, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(2), 402-3 [Chem Technol] (Russ). The process was studied by compressing a perfect single crystal of Si and a Au foil 100-μ thick. The 2 were compressed between 2 plungers preheated to 400°, which exceeds somewhat the temp. of the eutectic Au-Si. To follow the process, the plungers were moved apart periodically. The process then proceeded as follows. First, some defects appeared, such as dislocations, and microcracks were formed on the surface of the Si. These defective spots were satd. with Au up to stoichiometric compn. of the eutectic. These spots enlarged to a point where they formed nuclei of the liq. phase, and finally the eutectic spread over the contact area and inside the crystal. M. Hoseh

LD

1

REEL/FRAME

19750097

18

USSR K UDC: 621.791.1:669.3

KHRENOV, K.K., GURSKIY, P.I., and DUBOLAZOV, V.A., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Cold Welding of Copper With Kovar in the Hermetic Sealing of Semiconductor Devices"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 51-53

Abstract: Investigations were conducted of the cold welding of copper with Kovar (54 Fe, 28 Ni, 18 Co) for the hermetic sealing of semiconductor devices. Semiconductor devices are hermetically sealed by cold lap welding with the circular joint of the hollow parts. In vibration and impact strength tests of semiconductor instruments, there were no cases of breakdown in welds performed by cold welding. In conformance with technological requirements, copper and Kovar parts are prepared for cold welding by nickel plating. Analysis of microsections of the joint showed that the coating plays a decisive role from the point of view of the container and the optimum is a ratio of coating to base metal thickness of 0.01:0.02. The coating on Kovar is subjected to etching, washing, and drying, which have no effect on cold welding quality, although coating thickness decreases sharply. Regardless of this, the nickel film preserves its stabilizing influence. In attempts to dispense with nickel plating, airtightness stability of the instruments dropped sharply. The hermetic sealing of semiconductor instruments, two deformation schemes are used: bilateral and unilateral. Bilateral deformation ensures

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320007-4"

USSR

KHRENOV, K.K., et al, Avtomaticheskaya Svarka, No 5, May 70, pp 51-53

the plastic flow of metals needed for obtaining airtight joints. Welding with unilateral deformation provides a better external appearance of the instruments, and increases the weld width and corrosion resistance of the joint.

2/2

USSR

YERSHOV, Yu. G., KHRENOV, V. I.

"The Problem of the Role of Adsorbed Gas During Boiling"

K Voprosu o Poli Adsorbirovannogo Gaza pri Kipenii [English Version Above], Minsk, 1971, 9 pages (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 B1467 by the author's).

Translation: A study is made of the filling of glass capillaries from 4 to 180 μ in diameter with various liquids. The capillaries are used as models of microdepressions on heat exchange surfaces. It is found that the rate of filling of the capillaries depends on their length, capillary diameter and conicity, as well as surface tension of the liquid. It is shown that brief boiling and later cooling of a fluid sharply increases the rate of filling of capillaries. Based on these data, it is assumed that the adsorbed gas trapped by the liquid in depressions on a heating surface can serve as a center of vapor formation only at the very beginning.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF CHARGE FORMED IN A DIELECTRIC ON THE VOLTAMPERE CHARACTERISTICS OF AL,SIO SUBX AL STRUCTURES -U-

AUTHOR-(02)-KHRENOV, V.P., NIKOLSKIY, YU.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(5), 991-2

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIELECTRIC MATERIAL, VACUUM TECHNIQUE, GLASS, CERAMIC MATERIAL, ELECTRON CHARGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1821 STEP NO--UR/0449/70/004/005/0991/0992

CIRC ACCESSION NO--AP0130651

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130651

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS 0.1-0.4 MU THICK OF AL,SIO SUBX AL WERE PREPD. BY VACUUM EVAPN. ON A HEATED GALSS CERAMIC SUBSTRATE; THE PPTN. RATE OF SIO WAS 10-80 ANGSTROM-SEC. THE I,V CHARACTERISTICS EXHIBITED AN OHMIC REGION FOR V EQUALS SEVERAL MV, THEN A TRANSITION REGION UP TO A VOLTAGE V SUB3 (SEVERAL V), AND AN EXPONENTIAL REGION FOR V LARGER THAN V SUB3. WITH A D.C., A TEMPORAL INSTABILITY WAS OBSD. FOR V SMALLER THAN V SUB3. FROM THE TIME DEPENDENCE OF THE DEPOLARIZATION CURRENT, THE CHARGE ACCUMULATED IN THE DIELEC. WAS CALCD. WITH INCREASING V, THIS CHARGE INCREASED UNTIL A SATN. VALUE WHICH CORRESPONDED TO V SUB3. THE INSTABILITY IS EXPLAINED BY DEEP TRAPPING LEVELS WHICH ARE FILLED AT V LARGER THAN V SUB3. THEIR CONCN. IS ESTD. AS LARGER THAN 1 TIMES 10 PRIME17-SM PRIME3, AND THE LAYER WITH THE MAX. CONCN. OF SPACE CHARGE IS A FEW 100 ANGSTROM THICK.

UNCLASSIFIED

USSR

SIMONOV, V. D., IVANOV, A. V., GAZIZOV, R. T., NEDEL'CHENKO, V. M., KIRENOVA, N. N.

"Method of Producing Octachlorocyclopentene"

USSR Author's Certificate No 303312, filed 6/01/69, published 28/06/71. (Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 4N591P by T. A. Belyaeva).

Translation: Octachlorocyclopentene (I), intermediate product for synthesis of pesticides, is produced by chlorination of hexachlorocyclopentadiene (II) or octachloropentadiene in a medium of chlorosulfonic acid (III) at a temperature of 40-45°. Cl_2 gas is passed through a mixture of 81.9 g II and 140 g III for 5 hr at 40-45°, gas temperature about 20° (2.3 l/hr). It is then cooled to 10°, filtered, the precipitate is washed with water, dried in air, producing I, m. p. 37-8°. III is returned to the process.

1/1

USSR

UDC 621.373.826:772.99

KOTOSONOV, N. V., KHRILCHENKO, I. A., CHERNOV, YE. A.

"Application of Infrared CO_2 Lasers for Holography and Data Recording"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3 (Utilization of Lasers in Modern Engineering and Medicine. Parts 2-3—collection of works), Leningrad, 1971, pp 57-59 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D628)

Translation: A study was made of the possibility of using CO_2 lasers for high-speed data recording systems and for holography in the infrared range. It was proposed that thermo-optical structures with the thermal recording procedure be used as the media for recording radiation on a wavelength of 10.6 microns. The devices constitute an absorption receiver the operation of which is based on the dependence of the transparency of the semiconductor material for visible light on a certain wavelength on temperature. The semiconductor material is deposited in the form of a thin layer on a mica substrate which simultaneously serves as the infrared radiation absorber. It was demonstrated that for recording data arriving with a frequency of 1 megahertz, the required laser power for recording 100 micron spots must be ~1 watt. Self-erasure of the recording ($\sim 10^{-1}$ seconds) provides for the operativeness of the given system. There is 1 illustration and a 3-entry bibliography.

1/1

USSR

UDC 621.396.67:624.97(088.8)

ILINSKIY, V. G., KHRIPACH, YU. B.

"Telescopic Multisectioned Mast"

USSR Author's Certificate No 252416, Filed 21 Sep 67, Published 12 Feb 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B84P)

Translation: The proposed telescopic mast is equipped with cylindrical sections entering one into the other, a lift mechanism in the form of a screw which is connected with a reduction gear and installed inside the stationary section of the mast, and a locking mechanism. In order to increase the operating reliability of the mast a screw with variable pitch is used in the lift mechanism along the grooves of which lift rolls move. In the upper part of the sections there are spring-loaded levers and supporting strips, and the locking mechanism is executed in the form of a lever connected by means of the cable to a dog. There are three illustrations.

1/1

USSR

UDC: 621.385:530.145.6.77

KOTOSONOV, N. V., KHRIPCHENKO, I. A., CHERNOV, Ye. A., SVIRIDOVA, O. A.

"Resolution of Thermoholograms"

V sb. Radiofiz. i mikroelektronika (Radio Physics and Microelectronics--collection of works), Voronezh, 1970, pp 40-46 (from RZh-Radiotekhnika, no 6, Jun 71, Abstract No 6D421)

Translation: The paper deals with recording devices (thermoholograms) on which the exposing irradiation is recorded in the form of a temperature relief which reproduces the distribution of the irradiating flux intensity. The operating principle of the thermogram is based on the transparency of the material as a function of temperature. The device consists of a heat--sensing element (thermoplate) which absorbs the exposing irradiation, and a thin semiconductor film which is in thermal contact with the thermoplate. With a change in temperature, the long-wave edge of the absorption band is displaced. If radiation from an auxiliary transillumination source with a wavelength close to the edge of the absorption band is sent through this layer, the intensity of the emission after passing through the layer will depend on the position of the absorption band, and hence on the tem-

KOTOSONOV, N. V. et al., Radiofiz. i mikroelektronika, Voronezh, 1970, pp 40-46

perature of the layer. For a semiconductor layer with linear temperature dependence of the displacement, the process of restoration of the wave front from the thermohologram is analogous to restoration from amplitude holograms on photographic emulsions. The resolution of a thermogram is evaluated, and its value is calculated for a device in which the thermoplate is "Muscovite" mica, while the semiconductor plate is a selenium layer vaporized onto the mica substrate. A. K.

2/2

USSR

UDC 591.1.15

PIKULEV, A. T., GURKO, A. V., ZHIGALKOVICH, N. V., KHRIPCHENKO, I. P., and CHERNOGUZOV, V. M.

"On the Mechanism of the Action of Ionizing Radiation on the Activity of Aminotransferase in the Brain of White Rats"

Nauch. dokl. vyssh. shkoly. Biol. n. (Scientific Papers of the University. Biological Sciences), 1971, No 9, pp 43-48 (from RZh-Biologicheskaya Khimiya, No 2, 25 Jan 72, Abstract No 2F272)

Translation: The rate of transamination processes catalyzed by the alanine- and aspartate-aminotransferase enzyme system is disrupted in rat brain under the effect of X-radiation in a dose of 700 roentgens. This is due to a change in the activity of the given enzymes in individual subcellular fractions of the brain, and also to discoordination in the transamination system which is especially pronounced on the first and seventh days after exposure to radiation. Résumé.

1/1

1/2 036 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--CHOLINESTERASE ACTIVITY IN SUBCELLULAR FRACTIONS OF RAT BRAIN DURING X IRRADIATION IN RELATION TO HYPOPHYSEALADRENAL FUNCTION -U-

AUTHOR-(02)-KHRIPCHENKO, I.P., KOKHNYUK, V.I.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR. SER. BIYAL. NAVUK 1970, (2), 90-3

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RAT, BRAIN, X RADIATION, CHOLINESTERASE, HYDROCORTISONE, RADIOPROTECTIVE AGENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605014/F08 STEP NO--UR/0440/70/000/002/0090/0093

CIRC ACCESSION NO--AP0140540

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHOLINESTERASE (I) ACTIVITY OF THE NUCLEAR, SUPERNATANT, AND MITOCHONDRIAL FRACTIONS OF RAT BRAIN HOMOGENATES WAS DETD. IN INTACT ANIMALS, MITOCHONDRIA DISPLAYED THE HIGHEST I ACTIVITY. THIS PATTERN WAS CHANGED IN ADRENALECTOMIZED RATS IRRADIATED WITH A SINGLE DOSE OF X RAYS (40 R). ADMINISTRATION OF HYDROCORTISONE ACETATE, ALONE OR WITH ADRENALINE, STIMULATED I ACTIVITY AND EXERTED A RADIOPROTECTIVE EFFECT. FACILITY: BELORUSS. GOS. UNIV. IM. LENINA, MINSK, USSR.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SYSTEMATIZATION OF DRYING PROCESSES FOR SEMIFINISHED LEATHER PRODUCTS -U-

AUTHOR-(03)-KHRIPIN, A.G., LIVYY, G.V., BARGINSKIY, M.A.

COUNTRY OF INFO--USSR

SOURCE--KOZH. OBUV. PROM. 1970, 12(3), 27-32

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TANNING MATERIAL, LEATHER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1733 STEP NO--UR/0498/70/012/003/0027/0032

CIRC ACCESSION NO--AP0125354

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0125354
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEVERAL METHODS USED FOR DRYING CHROME TANNING UNFINISHED LEATHERS ARE DISCUSSED AT LENGTH. THE KNOWN METHODS AND THOSE PRESENTLY BEING DEVELOPED WERE TABULATED AND THEIR ADVANTAGES AND DISADVANTAGES NOTED.

UNCLASSIFIED

USSR

UDC 541.11:546.791

KHANAYEV, YE. I., KHRIPIN, L. A.

"Standard Enthalpy of Formation of Uranium Trifluoride"

Leningrad, Radiokhimiya, Vol 12, No 1, 1970, pp 178-181

Abstract: The enthalpy of formation of uranium trifluoride was found from the heat of its solution in concentrated hydrochloric acid (HCl 3.91 H_2O) containing about 10 percent $FeCl_3$ and 1 percent H_3BO_3 at 50°C. The heats of solution in this solvent under the same conditions were determined for anhydrous crystalline uranium tetrachloride and uranyl chloride, as well as ferric and ferrous chloride. The following values were found for the standard enthalpy of formation of uranium trifluoride on the basis of the resultant experimental data and, by using the data of A. GLASSNER on the heat capacity of UF_3: $\Delta H^0_{298} = -355 \pm 6$ kcal/mole (according to the first method) and $\Delta H^0_{298} = -358 \pm 4$ kcal/mole (according to the second scheme), or an average of -357 ± 5 kcal/mole.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--STANDARD ENTHALPY OF FORMATION OF URANIUM TRIFLUORIDE -U-

AUTHOR-(02)-KHANAYEV, YE.I., KHRIPIN, L.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12,1, 178-81

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ENTHALPY, URANIUM COMPOUND, FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0883 STEP NO--UR/0186/70/012/001/0178/0181

CIRC ACCESSION NO--AP0118052
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO VALUES FOR THE STD. ENTHALPY OF FORMATION OF UF SUB3 (MINUS 358 PLUS OR MINUS 4 AND MINUS 355 PLUS OR MINUS 6 KCAL,MOLE) WERE OBTAINED BY 2 INDEPENDENT SERIES OF MEASUREMENTS OF THE SOLY. OF UF SUB3 AND OTHER U COMPDS. IN THE HCL CONTG. BORIC ACID AND FECL SUB3 AT 50DEGREES.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--SKELETAL ISOMERIZATION DURING ISOPENTANE DEHYDROGENATION IN A FLUIDIZED BED OF K 5 CATALYST -U-

AUTHOR--MIKHAYLOV, R.K., BUSHIN, A.N., TYURYAYEV, I.YA., KHRIPINA, S.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1) 3-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FLUIDIZED BED, ISOMERIZATION, ISOPENTANCE, CATALYTIC DEHYDROGENERATION, PENTANE, PENTENE, CATALYST/(U)K5 CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1451 STEP NO--UR/0064/70/046/001/0003/0007

CIRC ACCESSION NO--AP0101537

UNCLASSIFIED

CIRC ACCESSION NO--AP0101537

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEHYDROGENATION OF ISOPENTANE IN AN 8 SECTION FLUIDIZED BED APP. WIT K 5 CATALYST WAS CARRIED OUT AT LARGER THAN OR EQUAL TO 580DEGREES WITH FLOW RATE 120 VOLS.-HR. PRETREATMENT OF THE CATALYST BY HEATING TO 640 TO 500EGREES IN BUTANE OR "ABGAS" (70 VOL.PERCENT H SUB2, 2PERCENT CO, 13PERCENT N, BALANCE C SUB1- C SUB5 HYDROCARBONS) INCREASED THE YIELD OF ISOPENTENES, E.G. FROM 30 TO 35PERCENT AT 580DEGREES, AND ALSO INCREASE THE YIELD OF N,PENTENES FROM 3.5 TO 4.5PERCENT BUT HAD NO EFFECT ON THE YIELD OF PIPERYLENE (SIMILAR TO 1PERCENT). THE RATIO OF 1,PENTENE TO 2,PENTENE IN THE PRODUCT WAS 1:3 TO 5. SMALL AMTS. N,PENTANE WERE ALSO FORMED IN THE REACTION AND ADDN. OF 5 TO 7PERCENT N,PENTANE TO THE STARTING ISOPENTENE SUPPRESSED ALMOST COMPLETELY THE ISOMERIZATION OF THE ISOPENTENE, ALTHOUGH THE MECHANISM OF THIS EFFECT IS NOT CLEAR. THE RATIO OF 2,METHYL,2,BUTENE,2,METHYL,1,BUTENE,N,PENTENES IN THE PRODUCT (OBTAINED BY USING THE PRETREATED CATALYST) WAS 100:60:14:13.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320007-4"

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PRODUCT OF DIFORMAMIDINE SULFIDE OXIDATION -U-

AUTHOR-(03)-CHERKASOV, V.M., VLADIMIRTSEV, I.F., KHRIPKO, S.S.

COUNTRY OF INFO--USSR

SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(3), 254-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SULFUR COMPOUND, AMINE DERIVATIVE, OXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0716 STEP NO--UR/0442/70/032/003/0254/0256

CIRC ACCESSION NO--AT0124386

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AT0124386
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (HN:C(NH SUB2)) SUB2 S.2HCL (I) GAVE WITH H SUB2 O SUB2 IN ACOH 74-86PERCENT HN:C(NH SUB2)S(O)SC(NH) SUB2):NH.2H SUB2 O SUB2 (II) M. 136-7DEGREES. II TREATED WITH HCL, YIELDED I. ALK. HYDROLYSIS OF II GAVE H SUB2 NCN, (NH SUB2) SUB2 CS, AND NA SUB2 SO SUB4. FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

7

USSR

UDC 632.95

PARSHUTIN, S. N., STONOV, L. D., ZABALUYEV, I. T., BATYROVA, M. SH., GALIFANOV, G. G., MULLIYEV, K. M., PAVLOVA, G. N., SHOGAN, S. N., KHRIPKO, T. V., KUR'YANOV, V. A., and KHRIPKO, V. G.

"Control of Overgrowth of Sewers and Drains in Turkmeniya"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 225-241 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N533 by T. A. Belyayeva)

Translation: The article compares the effectiveness and profitability of mechanical, manual, thermal biological and chemical methods of removing vegetation from drains. Data are given on results of herbicide tests and applications. To kill reeds, cattails and other weeds in sewers during the second and subsequent years of service, dalapon shows the greatest promise in doses of 24-30 kg/ha with the addition of wetting agent OP-7 or OP-10.

1/1

USSR UDC 632.95

PARSHUTIN, S. N., STONOV, L. D., ZABAIUYEV, I. T., BATYROVA, K. SH., GALIFANOV, G. G., MULLIYEV, K. N., PAVLOVA, G. N., SHOSAN, S. N., KHRIPKO, T. V., KUR'YANOV, V. A., and KHRIPKO, V. G.

"Control of Overgrowth of Sewers and Drains in Turkmeniya"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 225-241 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N533 by T. A. Belyayeva)

Translation: The article compares the effectiveness and profitability of mechanical, manual, thermal biological and chemical methods of removing vegetation from drains. Data are given on results of herbicide tests and applications. To kill reeds, cattails and other weeds in sewers during the second and subsequent years of service, dalapon shows the greatest promise in doses of 24-30 kg/ha with the addition of wetting agent OP-7 or OP-10.

USSR UDC 539.219.3

BLINKIN, A. M., OZHIGOV, L. S., MIROSHNICHENKO, YU. T., KHRIPKOV, YU. F., and SEMENENKO, V. YE., Kharkov State University imeni A. M. GOR'KIY

"Diffusion in Composite Materials"

Sverdlovsk, Fizika Metallov i Metalloyedeniye, Vol 35, No 4, 1973, pp 870-872

Abstract: The effect of the fiber-matrix boundary interface and excess concentration of non-equilibrium defects, formed in the reinforced metal due to thermal stresses, on diffusion parameters in composite materials of the core-shell type was investigated for Cu-W and Cu-Mo composites in which copper was the core and tungsten and molybdenum were the shells. Tungsten wire with diameters of 1.0, 1.5, and 2.0 mm was placed in the center of a crucible and fused with copper of electron-beam purity. Sample diameter was 6 mm. The Cu-W composite consisted of molybdenum shells 0.5 and 1.0 mm thick and an external diameter of 9 mm, inside of which the copper was melted. A eutectic composition Al-Al_3Ni was produced by directed crystallization and drawing rates of 25, 40, 90, 360, and 720 mm/hr. The nickel and aluminum were added according to a method described in a previous work of the authors. The ratios of diffusion coefficients for nickel (D/D_{Cu}) in the composites to the coefficient of diffusion in pure copper were plotted against the volume content (in %) of the reinforcing

1/2

USSR

BLINKIN, A. M., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 870-872

phase at 700°C. From the graph it was determined that the diffusion coefficient ratio increases with increased content of the reinforcing phase with the effect much more intense in the Cu-Mo composite. The diffusion activation energy for pure copper was 54.8 kcal/mole, while for copper, reinforced with molybdenum shells 0.5 and 1.0 mm thick, these energies were 43.3 and 35.2 kcal/mole, respectively. From experimental data it was found that the diffusion coefficients increase with decreased fiber diameter and are maximum in the composite produced at a drawing rate of 720 mm/hr. These results allowed the assumption to be made that the diffusion coefficients are increased with decreased fiber diameter (for one and the same content of reinforcing phase content) due to the increased length of the matrix-fiber boundary interface. 2 figures, 5 bibliographic references.

2/2

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--TRUE SPECIFIC HEAT AT LOW TEMPERATURES, ABSOLUTE ENTROPY AND ENTHALPY UNDER STANDARD CONDITIONS OF KBO SUB2 -U-

AUTHOR-(03)-PAUKOV, I.YE., KHRIPLOVICH, L.M., POPOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 547

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--SPECIFIC HEAT, ENTROPY, ENTHALPY, LOW TEMPERATURE PROPERTY, CALORIMETRY, POTASSIUM COMPOUND, BORATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1419 STEP NO--UR/0076/70/044/002/0547/0547

CIRC ACCESSION NO--AP0135093

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135093

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEST SPECIMENS WERE PREPD. FROM PURE K SUB2 CO SUB3 AND H SUB3 BO SUB3 AND DEHYDRATED AT 550DEGREES. THE SP. HEAT C SUBP WAS MEASURED IN A VACUUM ADIABATIC CALORIMETER AT 12.11-312.22DEGREESK. THE C SUBP VALUES INCREASED WITH TEMP. FROM 0.106 CAL PER MOLE DEGREE AT 12.11DEGREESK TO 16.39 CAL PER MOLE DEGREE AT 312.22DEGREESK. BELOW 18DEGREESK, C SUBP FOLLOWS THE ALPHATAU PRIME3 LAW. THE C SUBP (TAU) CURVES WAS EXTRAPOLATED TO ODEGREESK (S SUB12 EQUALS 0.0339 ENTROPY UNIT; H SUB12 MINUS H SUBO EQUALS 0.303 CAL PER MOLE). UNDER STANDARD CONDITIONS SDEGREES SUB298 TIMES 15 EQUALS 19.12 ENTROPY UNIT AND ETADEGREES SUB298 TIMES 15 MINUS H SUBO DEGREES EQUALS 2895 CAL PER MOLE.

UNCLASSIFIED

USSR

KOSTINA, M. A., KHRIPUN, M. S.

"Feier Processes and Approaches for Acceleration of Their Convergence"

Mat. Metody v Nekotor. Zadachakh Optimal'n. Planir. Vyp 3 [Mathematical Methods in Certain Problems of Optimal Planning, No 3 -- Collection of Works], Sverdlovsk, 1971, pp 45-54 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V556 from the Introduction).

Translation: Feier processes, as applicable to the problem of solution of systems of linear (and also convex) inequalities, refer to processes generated by M-Feier mappings. Suppose $M \subset R^n$ and $M = \emptyset$. The mapping $\phi: R^n \to R^n$ is called an M-Feier mapping, if $||\phi(x)-y|| < ||x-y||$ and $\phi(y) = y$ for all $y \in M$ and $x \notin M$. If set $M \neq \emptyset$ allows at least one M-Feier mapping, it is automatically convex and closed.

1/1

USSR UDC 539.3:534.1

KHRISTENKO, A. S., KHOMCHENKO, A. N.

"Natural Vibrations of Orthotropic and Isotropic Cylindrical Shells With Concentrated Masses"

Sudostr. i mor. sooruzh. Resp. mezhved. temat. nauch.-tekhn. sb. (Shipbuilding and Marine Equipment. Republic Interdepartmental Thematic Scientific-Technical Collection), 1971, No. 17, pp 36-43 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6V187)

Translation: Free vibrations of closed cylindrical orthotropic shells with a concentrated mass rigidly fastened at some point on the surface of the shell are considered. The shell is assumed to be resting freely along the edges. Familiar equations are used. The separation method is applied in the solution: initially there is a separate consideration of the motion of the shell under the action of an unknown radial force from the side of the mass and the motion of the mass under the action of the shell. The shape of vibrations of the shell is represented in a double trigonometric series. The force of interaction of the mass and the shell is assumed to be a sinusoidal function. An analytical

1/2

USSR

KHRISTENKO, A. S., KHOMCHENKO, A. N., Sudostr. i mor. sooruzh. Resp. mezhved. temat. nauch.-tekhn. sb., 1971, No. 17, pp 36-43

representation of the spectrum of the natural frequencies of the shell and the frequencies with the connected mass is given. The expressions obtained are investigated on a computer. The dynamic stress of the state of the shell is investigated under the condition of the introduction of an approximate concentrated shear modulus. Expressions for the bending and maximum moments are given. A. G. Ugodchikov.

2/2

USSR UDC 669.72.620.17

TIKHINSKIY, G. F., and KHRISTENKO, I. N., Physicotechnical Institute, Academy of Sciences Ukrainian SSR

"Temperature-Yield Strength Relationship in Textured Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 865-867

Abstract: The temperature-yield strength of high-purity (~99.95%) textured beryllium was studied as well as the effect of grain size and strain rate on metal flow stress. Beryllium ingots were deformed by sequential upsetting, extrusion, radial upsetting, and transverse rolling with intermediate annealings. Tensile testing was conducted at strain rates of 0.02-20 mm/min after the samples had been given a recrystallizing anneal. At -200°C sample yield strength was approximately 18.5 kG/mm^2, dropping to 14 kG/mm^2 at -70°C, then reaching a maximum of 17 kG/mm^2 at 70°C. A change in the strain rate from 0.02 to 20 mm/min causes the yield strength maximum to shift to the side of higher temperatures at 30°C. Position of the minimum on the curve of yield strength vs temperature depends on the concentration of impurities and additives in the beryllium. However, since the impurities and additives affect both the dissociation process and fixing of dislocations, one can assume that the position of the minimum can be shifted to the side of higher temperatures. V. MIKHAYLOV conducted the beryllium texture studies. 2 figures, 9 bibliographic references.

1/1

USSR

UDC 669.725:539.374

IVANOV, V. YE., TIKHINSKIY, G. F., SHPAGIN, I.V., KORNIYENKO, L.A., KHRISTENKO, L.N., and NIKOLAYENKO, A.A., Physicotechnical Institute of the Academy of Sciences USSR

"The Effect of Admixtures on the Cold Brittleness of Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 6, Jun 71, pp 1286-1292

Abstract: The dependence of the transition temperature of beryllium from the brittle into the plastic state on the metal purity is investigated. This dependence is very sharply expressed at low concentrations (~0.05%) of the admixtures. By the replica method and the transmitting electron-microscopy method, the deformation mechanism and the desintegration character of beryllium at temperatures corresponding to the brittle and plastic states was studied. The contribution of turning to deformation and the potential to brittle failure on cleavage elements decrease with increasing purity; further, in the pure metal there appears the possibility of a light slipping on grain boundaries. The strength of beryllium increases with increasing bending test temperature up to the transition temperature from there brittle to the plastic state, which is connected with the decreased tendency of beryllium to brittle failure on cleavage elements. Six illustr., one table, 21 biblio. refs.
1/1

USSR

UDC 569.725: 539.292

IVANOV, V. Ye., TIKHINSKIY, G. F., SHPAGIN, I. V., and KRISTENKO, I. N., Physicotechnical Institute of the Academy of Sciences, Ukrainian SSR

"The Effect of Grain Size on Cold Brittleness of Beryllium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 6, Jun 71, pp 1281-1285

Abstract: An investigation was made of the dependence of the brittle-plastic transition temperature (T_b) of high-purity beryllium (99.95%), determined from bending test results, on the grain size d. In the scope of the theory of R.W. Armstrong this dependence is characterized by the equation $T_b = A - B\,d^{-\frac{1}{2}}$, where A and B are constants. The limiting possibility of lowering T_b for the metal under consideration by a decrease of the grain size is analyzed. The cross-breaking strength and the yield point near T_b change in relation to the grain size in accordance with presented functions. The coefficients of these functions are determined for three types of the metal, the distilled, hot-pressed, and hot-pressed deformed types. On the basis of calculations and the analysis of results, an attempt is made to determine the deformation mechanism and the breakdown c..aracte of p re beryllium. The bending strain of beryllium is brought about principally as a result of realization of the mechanism characterized by high breaking stresses. Three illustr., one table, four formulas, 15 biblio. refs.
1/1

USSR UDC 621.316.722.1(088.8)

KOMAROV, V.A., TIKHONOV, V.I., KHRISTIANOV, A.S. (N.-i radiotekhn. in-t--Scientific-Research Institute Of Radio Engineering)

"Low-Voltage Regulator"

USSR Author's Certificate No 305465, filed 3 Nov 69, published 13 July 71 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B469P)

Translation: A regulator is developed for the power supply of microelectronic consumers and tunnel semiconductor diodes. It has a relaxation generator fulfilled with a tunnel semiconductor diode and an inductance. The pulses of the high-frequency generator are amplified by a two-stage amplifier and are fed to the control circuit of a regulating transistor, which is switched over into the cutoff region. The transistor in question is connected across commutating semiconductor diodes to the circuit of the primary windings of the transformer of the network, and consequently during blocking of the transistors the collector current is reduced, the currents in the primary windings of the 3-phase transformer are decreased, and the output voltage of the regulator is reduced. During this the oscillations of the generator are stopped and the collector current of the regulating transistor increases which is accompanied by an increase of the voltage at the rectifier output. Subsequently, the processes in the regulator are repeated. 1 ill. V.Sh.

1/1

USSR

UDC: 537.591.15

KALMYKOV, N. N., FOMIN, Yu. A., KHRISTIANSEN, G. B., Scientific Research Institute of Nuclear Physics, Moscow State University imeni M. V. Lomonosov

"Extensive Air Showers and Characteristics of Nuclear Interactions at Superhigh Energies"

Moscow, Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 7, Jul 73, pp 1430-1432

Abstract: One of the most important problems in the physics of extensive air showers of cosmic rays is the acquisition of data relative to the characteristics of nuclear interactions in the superhigh energy region (above 10^5 GeV). In connection with the interpretation of a number of experiments from the field of extensive showers, the authors examine a hypothesis according to which the model of development of extensive air showers must include a sharp increase in the multiplicity of secondary particles such that $n \sim E_0^{\frac{1}{4}}$ when $E_0 < 10^4$ GeV and $n \sim E_0^{\frac{1}{2}}$ when $E_0 > 10^5$ GeV. A comparison of theoretical and experimental relations shows that the model with high multiplicity in pure form does not agree well with the

USSR

KALMYKOV, N. N. et al., Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 7, Jul 73, pp 1430-1432

experiment; however, the agreement is considerably improved if it is assumed that 30% of the energy lost by a nucleon is transferred to an isobaric pion. The introduction of such a pion reduces the percentage of muons in the shower and at the same time makes no appreciable change in the variation of the shower with altitude. Some experiments are suggested for refining the proposed shower model.

2/2

USSR UDC 537.591.15

VERNOV, S. N., Y'EGOROV, T. A., Y'EFIMOV, N. N., KOLOSOV, V. A., KORYAKIN, V. D., KRASIL'NIKOV, D. D., KUZ'MIN, A. I., KULAKOVSKAYA, V. P., MAKSIMOV, S. V., NESTEROVA, N. M., NIKOL'SKIY, S. I., ORLOV, V. A., SLEPTSOV, I.YE., SIZOV, V. V., KHRISTIANSEN, G. B., and SHAMSUTDINOVA, F. K.

"Preliminary Results of Recording Extensive Showers on a Recording Array in Yakutsk"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

Abstract: Experiments are described in which attempts were made at determining the energy spectrum, composition, and anisotropy of cosmic rays within the range of energy 10^{17} to 10^{18} ev. It is desired to extend the range to cover 10^{19} ev and above. Of a particular interest are the following problems: do the rays originate within the Galaxy or in metagalactic regions, what is the direction from which they arrive, and how Cerenkov radiation produced by them is distributed within the atmosphere. The test equipment consists of 13 recording points distributed over an area of 3 km², with a central time control point. The output spectrum was measured over a period of 29.5 hours. 82 showers were noted during that period, with the axes falling within the

USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

array area. The orientation of the axis was found by the "triangulation" method, comparing the time of arrival of the showers at different recording points. An analytic expression is given in the paper for the integral output spectrum of extensive showers at sea level for the interval of N between 2×10^7 and 2×10^8. The intensity, determined with this formula, appears to be 2 to 3 times as great as recorded elsewhere. Distribution of Cerenkov light with respect to the shower axis was determined by observations conducted on clear, moonless nights. It was found to be similar to that of the primary gamma quanta, but it decayed with the distance from the axis more slowly than the amount of charged particles ($R^{-2.5}$ as against $R^{-3.3}$ for charged particles).

Examination of the energy spectrum of primary particles lead to the conclusion that the electromagnetic component is responsible for 80% of it. Dependence of primary energy on the output N was established, and on the basis of this relation the integral spectrum was computed. The coefficient connecting these two magnitudes was found to be twice as high as the one previously accepted elsewhere.

USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2098-2101

In the final analysis, variation of Cerenkov light at the primary particle energy of 3.6×10^{16} ev and the output (intensity) of 1.5×10^{7} particles at sea level is given, as well as the expected distribution of the nuclear components of primary rays.

3/3

USSR

FOMIN, YU. A. and KHRISTIANSEN, G. B., Institute of Nuclear Physics of Moscow State University

"Shape of the Čerenkov Radiation Impulse of an Extended Atmospheric Shower"

Moscow, Yadernaya Fizika, Vol 14, No 3, 1971, pp 642-646

Abstract: Calculation of the duration of an impulse of Čerenkov radiation from an extended atmospheric shower (e. a. s.) is discussed. If the time t is recorded from the instant of intersection of the plane of observation by the e. a. s. axis, then the arrival time of the Čerenkov light at the level of observation at the point A, at a distance r from the shower axis, will be defined by the expression

$$t = \frac{n}{c}\sqrt{h^2 + r^2} - \frac{h}{c}, \qquad (1)$$

where n is the index of reflection of light in air. To calculate the shape of the Čerenkov impulse at point A, one must know the values of the densities of the Čerenkov light shower at the point A arriving from different altitudes H. The e. a. s. was generated by a primary particle with an energy of 10^{17} ev. An expression was derived for the total number of quanta of Čerenkov light arriving from altitude H corresponding to pressure x in the solid angle d

USSR

FOMIN, YU. A. and KHRISTIANSEN, G. B., Yadernaya Fizika, Vol 14, No 3, 1971, pp 642-646

$$\Phi(x,\vartheta,E)\,dx\,d\Omega = \int_{E_{\text{пор}}(x)}^{E_0} N(E_0,x)\,W(E_0,E,x)\,f(\vartheta,E)\,a(E,x)\times \\ \times \sin\vartheta\,d\vartheta\,d\varphi\,dx\,dE; \qquad (2)$$

where $N(E_0, x)$ is the number of electrons at the level x in the shower from a particle with primary energy E_0, $W(E_0, E, x)$ is the spectrum of secondary electrons, $f(\vartheta, E)$ is the angular distribution of electrons, and $a(E, x)$ is the number of quanta of Čerenkov light emitted by an electron with energy E per unit path length. To obtain the number of electrons in the shower at sea level, the cascade curves $N(E_0, x)$ from a primary proton with energy $E_0 = 10^{17}$ ev were calculated. To obtain the shape of the Čerenkov impulse at a given distance r, in expression (2) a conversion must be made from the variables ϑ and x to the variables t and r, using equation (1) to do this. Also considered were fluctuations in the shape of the Čerenkov impulse caused by fluctuations in the cascade curve. An array of 100 individual cascade curves formed by a primary proton with energy $E_0=10^{17}$ ev was calculated. It was found that the

2/3

USSR

FOMIN, YU. A. and KHRISTIANSEN, G. B., Yadernaya Fizika, Vol 14, No 3, 1971, pp 642-646

shape of the Čerenkov impulse depends on the kind of cascade curve employed. Thus this provides information on the energy of the primary particle. The density of the flux of Čerenkov light as a function of time was plotted for three distances from the shower axis: 500, 1000, and 2000 m.

3/3

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--1,1,3,TRICHLOROACETONE -U-

AUTHOR-(05)-BUGROVA, L.V., RUDNEV, G.K., RADCHENKO, V.I., KHRISTICH, A.I., DRAKINA, N.V.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,385.

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

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETONE, CHLORINATED ORGANIC COMPOUND, CHEMICAL PATENT, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0841 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136275

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136275

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 1,1,3,TRICHLOROACETONE IS PREPD. BY CHLORINATING ACETONE WITH GASEOUS CL IN THE PRESENCE OF A SUBSTITUTED AMINE CATALYST NR PRIME1 R PRIME2 R PRIME3 (R PRIME1 EQUALS H, ET, PH; R PRIME2 EQUALS H, ME, ET; R PRIME3 EQUALS ME, ET, PH. THE CL IS FED INITIALLY AT A RATE OF 0.8-1 G-MIN (OPTIMUN 0.983 G-MIN) AND AT THE END AT A RATE OF 162 G-MIN FOR 1 G ACETONE. THE END PRODUCT IS SEPD. BY H SUB2 O EXTN. WITH THE RATIO 1:2 CHLORINATED PRODUCT, H SUB2 O AT 15-16DEGREES.

UNCLASSIFIED

USSR

UDC 547.831'781.1

KHRISTICH, B. I., KRUCHININ, V. A., POZHARSKIY, A. F., and SIMONOV, A. M., Rostov-on-Don State University

"Effect of the Basicity of Aza-groups on the Course of Nucleophilic Substitution in Imidazo [4,5-f] quinolines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 814-817.

Abstract: Imidazo [4,5-f] quinoline was selected as a model compound becuase it contains two potentially active centers with respect to the nucleophilic reagents such as phenyllithium, sodamide, - namely positions 2 and 7. It was established that the quinoline nucleus is more reactive towards these reagents than the imidazole nucleus. An assumption was stated that the course of nucleophilic attacks is principally determined by the relative basicity of the aza group. The nucleophilic attack occurs at the carbon atom adjacent to the more basic nitrogen atom. This assumption was supported by molecular orbital calculations and pK_a values. The positive charge or the energy of anionic localization on C_2- and C_7- atoms in a neutral molecule appear to be of no consequence to the course of nucleophilic attack.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--IMIDAZO(4,5 F) QUINOLINE. II. UV ABSORPTION AND LUMINESCENCE OF IMIDAZO(4,5 F) QUINOLINE AND ITS QUATERNARY SALTS -U-

AUTHOR-(05)-KHRISTICH, B.I., KNYAZHANSKIY, M.I., OSIPOV, O.A., ASMAYEV, O.T., SIMONOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 234-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--UV SPECTRUM, ABSORPTION SPECTRUM, LUMINESCENCE, IMIDAZOLE, QUINOLINE, QUATERNARY SALT, ACTIVIATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1109 STEP NO--UR/0409/70/000/002/0234/0237

CIRC ACCESSION NO--AP0104507

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104507

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UV ABSORPTION SPECTRUM OF THE TITLE COMPD. IS VERY SIMILAR TO THAT OF NAPHTHO(1,2-D)IMIDAZOLE AND INDICATES THAT PROTONATION OCCURS ON THE QUINOLINE N ATOM. LUMINESCENCE SPECTRA WAS STUDIED IN THE 17,000-24,000 CM PRIME NEGATIVE1 REGION AND A MAX. WAS FOUND AT 458-96 NM. A POLAR MEDIUM FACILITATES THE TRANSITION OF THE EXCITED MOLS. IN THE POLAR FORM WITH HIGHER PROTON ACCEPTOR PROPERTIES. THE EXCITATION ENERGY FOR THE IMIDAZO-QUINOLINIUM SALT IS REDUCED DUE TO THE POSITIVELY CHARGED N ATOM WHICH SHIFTS THE ELECTRON CHARGE IN THE SAME SENSE AS THE ABSORPTION OF A PHOTON DOES. THE IRRADN. OF THE QUATERNARY SALT DOES NOT INVOLVE ENERGY ABSORPTION CONNECTED WITH THE CHANGE OF N HETEROATOM HYBRIDIZATION.

UNCLASSIFIED

USSR

UDC 621.438.621.43.056

DIDENKO, V. I., KHRISTICH, V. A., SHEVCHENKO, A. M.

"Stability and Completeness of Combustion in the Ring-Tube Chamber of an Aviation Jet Engine Burning Natural Gas"

Vestn. Kiev. Politekhn. In-ta. Ser. Teploenerg. [Herald of Kiev Polytechnical Institute, Heat Engineering Series], No 9, 1972, pp 57-59, (Translated from Referativnyy Zhurnal, Aviatsioynnye i Raketnye Dvigateli, No 8, 1972, Abstract No 8.34.16, from the Resume).

Translation: Results are presented from an experimental study of the stability and completeness of combustion in a ring-tube aviation gas turbine engine burning natural gas. With a certain plan for gas distribution and unchanged combustion chamber design, in chamber operating modes with $\alpha \approx 5$, the fuel combustion stability is rather high ($\alpha_{av} \approx 44$), completeness of combustion $\eta_z \approx 0.91$-0.92 (studies performed with cold air at near atmospheric pressure $t_b \approx 80°C$; $P_b \approx 1.5$ atm.). 3 Figures; 3 Biblio. Refs.

1/1

1/2 051 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--BURNER DESIGN AND ITS EFFECT ON THE FORMATION OF NITROGEN OXIDES IN GAS TURBINE COMBUSTION CHAMBERS FIRED BY NATURAL GAS -U-

AUTHOR-(03)-TUMANOVSKIY, A.G., KHRISTICH, V.A., SHEVCHENKO, Y.M.

COUNTRY OF INFO--USSR

SOURCE--TEPLOENERGETIKA 1970, 17(5), 35-8

DATE PUBLISHED--------70

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

TOPIC TAGS--GAS TURBINE, COMBUSTION PRODUCT, NATURAL GAS, MASS TRANSFER, MODEL, NITROGEN OXIDE, COMBUSTION CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1909 STEP NO--UR/0096/70/017/005/0035/0038

CIRC ACCESSION NO--AP0132171

UNCLASSIFIED

2/2 051 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132171

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONCN. OF NO PLUS NO SUB2 INEFFLUENT GASES FROM THE COMBUSTION OF NATURAL GAS IN GAS TURBINE COMBUSTION CHAMBERS (ONE FOURTH SCALE MODELS) WAS STUDIED AS A FUNCTION OF BURNER DESIGN (PREMIXED, DIFFUSIONAL, STREAM STABILIZED) AND LOCATION, EXCESS PRIMARY AIR (ALPHA SUB1) AND TOTAL AIR USED, CHAMBER PRESSURE, AND FLAME FRONT CHARACTERISTICS. EFFECTS OF EACH OF THE VARIABLES ARE DISCUSSES. THE LOWEST NO PLUS NO PLUS NO SUB2 CONCNS. WERE OBTAINED WITH A DIFFUSIONAL BURNER IN THE EXCESS PRIMARY AIR REGION ALPHA SUB1 EQUALS 1.8-2.0. LARGE AMPLITUDE PRESSURE PULSATIONS (VIBRATIONAL COMBUSTION) IN THE COMBUSTION CHAMBER REDUCED THE NO PLUS NO SUB2 CONCN. IN THE EXHAUST GASES. THIS EFFECT IS RELATED TO IMPROVED MASS TRANSFER IN THE FLAME AND THE GENERAL LOWERING OF THE TEMP. LEVEL OF THE COMBUSTION VOL.

UNCLASSIFIED

USSR

UDC 621.372.543.2:621.372.543.3(088.8)

KUFLEVSKIY, YE. I., KHRISTICH, V. V.

"Active Band or Band-Elimination RC-Filter"

USSR Author's Certificate No 296228, filed 12 Jun 1969, published 8 Apr 1971 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D114P)

Translation: A filter is proposed which contains an amplifier and a double T-type bridge in a negative feedback circuit. In order to improve the temperature stability of the filter parameters, a temperature compensation device is included in parallel to the double T-type bridge. The temperature compensation device comprises a series-connected phase-shifting circuit and a Wheatstone bridge one arm of which is formed by a heat-sensitive element, for example, a thermoresistor, and the emitter-base junction of a semiconductor triode is included in the output diagonal. This triode together with the resistor in the collector circuit constitudes a dynamic load of the complex emitter repeater. The input of the latter is connected directly to the output of the double T-type bridge. The feedback voltage proportional to the algebraic sum of the output voltages of the double T-type bridge and the Wheatstone bridge is picked up from the collector of the semiconductor triode, which is the dynamic load of the complex emitter repeater.

1/1

KHRISTICHENKO, P. I.

KATHY

SD: JPRS 57504
14 NOV 1972

UDC 537.353

ON THE EFFECT OF ENERGY DISSIPATION ON THE DRIFT OF A HORIZONTAL PENDULUM

[Article by [illegible] and P. I. Khristichenko, Leningrad, Izvestiya VUZ. Priborostroyeniye, Russian, No 8, 1972, pp 82-84]

The differential equations of motion of a horizontal pendulum on a vibrating base is refined in this article and a formula is derived for calculating the angular drift velocity.

Vibrations of a horizontal pendulum suspension point lead to a systematic pendulum rotation. Similar phenomena in gyroscopic systems are customarily termed null drift. Studies [1], [2], [3], and others dealing with this problem consider only the resistance force due to the relative travel velocity, while the resistance force due to the drift speed is usually ignored. The medium is assumed to be stationary. Meanwhile, this component of the resistance force can prove to be appreciable.

In deriving the differential equation of motion for a pendulum while allowing for resistance forces, we will employ the second order Lagrange equations

$$\frac{d}{dt}\left(\frac{\partial T}{\partial \dot{q}_k}\right) - \frac{\partial T}{\partial q_k} = Q_k - \frac{\partial \Phi}{\partial \dot{q}_k}, \quad k = 1, 2, \ldots, n. \qquad (1)$$

Here, the kinetic energy of the system

$$T = \frac{1}{2}\sum_{i,j=1}^{n} a_{ij}(q_1, q_2, \ldots, q_n, t)\dot{q}_i\dot{q}_j + \sum_{i=1}^{n} a_i(q_1, q_2, \ldots, q_n, t)\dot{q}_i + a_0(q_1, q_2, \ldots, q_n, t). \qquad (2)$$

Q_k is the force related to a generalized coordinate q_k. According to [4], the energy dissipation is characterized by the function

USSR UDC: 681.3

KASATKIN, V. N., PEREKHOD, I. A., LITVINENKO, V. M., KHRISTIN, I. V., ZDOROVTSEV, A. A.

"Algorithmic Station System, and the Teaching of Programming in Secondary Schools"

V sb. Primeneniye tsifr. vychisl. mashin dlya obuch. programmir. (Use of Digital Computers for the Teaching of Programming--collection of works), Kiev, 1970, pp 25-30 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V779)

[No abstract]

1/1

USSR

UDC [621.357.5.035.4.:621.79.027]:669

KHRISTO, MITIKOV AND SVETOZAR, KOLEV

"Flotation Method for the Removal of Residues From Electrolytes Used in the Electrochemical Treatment of Metals"

Mashinostroyene (Machine Construction), 21, No 8, 1972, pp 351-352 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L349 by A. D. Davydov)

Translation: A study was carried out on a process, using the flotation principle, for purifying electrolytes (10% solution of NaCl) during the electrochemical sizing treatment. The flotation system is described. The effectiveness of the purification using different PAV [expansion unknown]. The optimum concentration of selected PAV was determined. (Composition of the PAV was not given).

1/1

USSR UDC: 534.11:533.6.013.42

Kandidov, V. P., Khristochevskiy, S. A.

"Use of Method of Finite Elements for Investigation of Bending and Twisting Flutter on an Analog Computer"

Kazan', Izvestiya Vysshikh Uchebynkh Zavedeniy, Aviatsionnaya Tekhnika, No 1, 1972, pp 43-50.

Abstract: The method of finite elements is used to study the dymanics of a straight, long-span wing in a subsonic flow of air using an analog computer. The use of a simple model of finite elements allows the number of operational elements of the analog computer to be reduced by a factor of 1.5 in comparison with a finite difference model with the same accuracy of frequency determination. A system of equations is developed which describes the oscillations of the wing. A method of solving these equations by the analog computer is also developed. As an example, the oscillations of a homogeneous wing are studied, the wing represented by a model of four finite elements. The analog computer produces the frequencies and forms of natural oscillations of this wing in a vacuum and in a flow, and the trajectory of natural values as the flow velocity is changed.

1/1

Acc. Nr.: AP0046765 Ref. Code: UR0125

USSR UDC 621.791:14.011.539.163

SELEZNEV, A. G., KHRISTOFOROV, A. I., MOZHAROV, M. V., BUGAYEV, G. P.

"Radioactive Isotope Investigation of the Structure of the Transition Layer During Spin Welding"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 21-24 (from Avtomaticheskaya Svarka, No 1, 1970, p 79)

Translation: Results are presented from using tagged atoms to study the structure of the contact layer during spin welding of heterogeneous metals. During spin welding of steel 30 and R18 and also steel 30 and armco-iron, no essential movement of the carbon atoms is observed. The absence of carbon atom diffusion is demonstrated to a depth of more than 5-10 microns. There are 2 illustrations and a 6-entry bibliography.

1/1 Reel/Frame 19790089 di 19

USSR UDC 532.593

KOROTKOV, P. F., LOBANOV, V. S., KHRISTOFOROV, B. D., Moscow

"Calculation of a Water Explosion by Experimental Data on the Cavity Expansion"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 558-565

Abstract: Numerical calculations are presented for the equations of hydrodynamics in which the shock wave parameters and pressure in an expanding bubble during an underwater explosion of a spherical charge are calculated by the experimental dependence of the gas bubble radius on time. A comparison of the calculation results for explosions of PETN charges with a density of 0.4 grams/ /cm^3 with the experimental data is presented. By means of the proposed program it is possible to obtain a number of parameters characterizing the effect of the explosion which cannot be determined experimentally at this time. The proposed procedure does not require knowledge of the equation of state of the explosive and can be used for approximate determination of it. For determination of all the parameters characterizing the underwater explosion it was sufficient only to photograph the movement of the gas bubble. The same results can be obtained if the parameters of the shock wave front are given as the boundary condition.

1/1

UDC 532.593

USSR

KOZACHENKO, L. S., KHRISTOFOROV, B. D., Moscow

"Surface Phenomena for Underwater Explosions"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 433-438

Abstract: Results are presented from experimental studies of the initial rate of ascent of the mushroom, the variation in its height with time and the surface wave parameters for underwater explosions of spherical charges of cast TNT weighing 100 kg at different depths in bodies of water up to 12 radii of the charge ($R_0 \approx 0.25$) meters in depth. The experimental procedures are described in detail, and the data are depicted as graphs, oscillograms and photographs. The geometric similarity law is derived for describing the surface waves for an explosion in shallow water.

1/1

RAN/ / R·760/S·RRF·73
Dec 1973

(5)

Khristoforov, B. D. Shock wave parameters for explosion of a spherical charge in porous NaCl. FGiV, no. 4, 1971, 594-599.

Laboratory experiments were conducted to determine the parameters of shock waves in a solid at various porosity values within the range $1 \lesssim \bar{R} \lesssim 9$, where $\bar{R} = R/R_0$ is the ratio of the distance R between the point of measurement and the charge to the charge radius R_0. The effect of rock porosity near an explosion on the explosion parameters in the medium was considered. NaCl powder with a grain size of about 0.3 mm was used to simulate the properties of natural rock. The powder was pressed to densities of $\rho_{00} = 2.12$, 1.87, and 1.72 g/cm^3, and the single-crystal density was $\rho_0 = 2.16$ g/cm^3. The porosity of the pressed specimens, defined by the ratio $\eta = 1 - \rho_{00}/\rho_0$, was 2, 13.5, and 20%. The shock-wave parameters were measured by an electromagnetic method proposed by Ye. K. Zavoyskiy. Results show that the porosity of the medium substantially affects the energy dissipation and the shock-wave parameters in the near explosion zone.

Khristoforov, B. D., Ye. E. Gotler, A. Ya. Sidorin, and L. D. Livash. Manganin sensor for measuring shock wave pressure in solids. FGiV, no. 4, 1971, 613-615.

A manganin sensor and circuitry are described for recording plane shock wave pressure in a solid within the range 1 to 10^2 kbar. The plane shock wave in the specimen is actuated by a detonation lens (1, Fig. 1) and explosive charge (2). Variation of the charge density and the introduction

KHRISTOFOROV, B.D.

USSR UDC 532.593 + 332.595.2

KOZACHENKO, L. S., KHRISTOFOROV, B. D., Moscow

"Parameters of a Shockwave in Water Resulting from an Explosion at the Bottom of a Reservoir"

Fizika Goreniya i Vzryva, No 1, Mar 71, pp 127-135.

ABSTRACT: Results are presented from piezoelectric measurements of shockwave parameters in a deep reservoir during explosion of spherical charges of explosive at the bottom, which consisted of air-saturated sand, polystyrene and concrete. The experimental data show that at great distances from the center of the explosion, the influence of all bottom types studied on shockwave parameters in the water are similar in general features to the influence of a free surface. The parameters of the shockwave can be calculated according to formulas presented in the article. At measurement points near the bottom, the time of action is generally greater than that calculated due to the influence of the bottom wave, the intensity of which decreases with increasing distance from the bottom. The pressure in the side and head waves is generally not over 20-30% of the pressure in the direct wave. Near the area of intersection of the leading edges of head and direct waves, the maximum pressure is 30-40% higher than that measured with an explosion in an unlimited liquid.
1/1

USSR

UDC 532.593

KHRISTOFOROV, B. D., Moscow

"Attentuation of Shock Waves in Tubes with Underwater Explosion"

Novosibirsk, Fizika Goreniya i Vzryva, No. 4, Dec. 70, p. 555-560.

Abstract: Steel tubes 78 and 52 mm in diameter, 1.2m in length, with a ratio of diameter to wall thickness of about 15:1 were submerged to a depth of 0.3m in a tank of water. Small spherical charges of PETN weighing 0.2 and 0.9g were set off at the ends of the tubes at distances of 0, 5, 10, 15 and $25 \cdot 10^{2}$m. The parameters of the shock waves produced were measured by pressure sensors in the tubes. The experiments showed that a flat shock wave is formed from the spherical shock wave entering the tube. A formula is presented for the attenuation of pressure with distance in the tube.

1/1

AP9053071

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR, Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5, pp 153-155

A. G. Merkulov, B. S. Khristoforov

THE SYNTHESIS OF ZINC β-SILICATE

The method is proposed of β-Zn_2SiO_4 synthesis starting with zinc chloride and sodium silicate solutions and involving ignition at 790—750°. The lattice parameters of specimen have been calculated.

1949 1827

AP9053078

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR, Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5, pp 7-12

G. A. Motornaya,
E. Ya. Benyash, B. S. Khristoforov

STUDY OF $Pb(NO_3)_2$—$Zn(NO_3)_2$—H_2O and $Pb(NO_3)_2$—$Cd(NO_3)_2$—H_2O SYSTEMS AT 25°C WITH AN ISOPIESTIC METHOD

Activities of water in ternary systems $Pb(NO_3)_2$—$Zn(NO_3)_2$—H_2O and $Pb(NO_3)_2$—$Cd(NO_3)_2$—H_2O were determined with an isopiestic method at 25°C in the range of total molalities of solutions from 0,6 to 5,2 *m*.

Average molality coefficients of activity and Harned's coefficients were calculated for lead, zinc and cadmium nitrates at the total molality of solutions from 0,8 to 1.8 *m*. It was found that the systems studied conform with the rules of Zhdanovsky and Harned.

1/1 1957 1834 18

USSR

UDC 629.7.036.3:536.46

GORBUNOV, G. M. and KHRISTOFOROV, I. L.

"Mechanism of the Combustion Process Behind the Front Devices and in the Secondary-Air Jet Inflow Zone in the Chambers of a Gas Turbine Engine"

Moscow, Goreniye i Vzryv--Sbornik (Combustion and Explosion--Collection of Works), Nauka, 1972, pp 421-425 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.21. Resume)

Translation: The work is devoted to an experimental investigation of the process of combustion in the initial part of the fire tubes behind the front device and at the secondary-air jets. There are presented the basic results obtained behind typical front devices, taken from series chambers and distinguished by the method of introduction of the primary air into the fire tube. Two burning schemes are established: 1) a heterogeneous fuel-air mixture is delivered to the combustion zone, and the combustion products are led off from the combustion zone; 2) fuel and air diffuse from two different directions to the combustion zone, and the combustion products are led off in both directions. During the investigation of combustion at the secondary-air jets it was established that if the burning process behind the front device of the heat tube takes place according to scheme 1 or 2, the same corresponding scheme is realized during burning of the fuel around the secondary-air jet of the first zone of openings. 5 figures. 6 references.

1/1

USSR

UDC 536.46:629.7.036

GORBUNOV, G. M., PESHKOV, A. V., KHRISTOFOROV, I. L., and EMMIL', M. V.

"Investigation of the Turbulence Intensity in the Region of Inflow of Secondary Air Jets Into a Gas Turbine Combustion Chamber"

Kazan', IVUZ Aviatsionnaya Tekhnika, No 4, 1971, pp 38-43

Abstract : The intensity of the turbulent mixing process by inflow of a system of round jets into the drifting flow is determined not only by parameters of the jet and the depth of its penetration but to a considerable extent also by the turbulence induced by the jet wake. Experimental results of measuring turbulence intensity in the inflow region of a single jet into the drifting flow and behind jets of secondary air in the combustion chamber of a gas turbine engine are presented. The measurements were made with the electro-hot-wire anemometer ETA-5A, of P. V. Chebyshev's design. The experiments demonstrated that by the use of cross jets with optimum relative pitch of holes (by specific depth of their penetration into the drifting flow), in combustion chambers of gas turbine engines a high degree of turbulence (ε_{max} = 25—30 %) can be obtained, thus ensuring an active mixing of fuel with air and a forced thorough combustion of the mixture. Six illustr., seven biblio. refs.

1/1

USSR

UDC 536.46.621.454

GORBUNOV, G., PESHKOV, A. V., KHRISTOFOROV, I. L., EMMIL', M. V.

"Air Flow Behind the Vane Swirler in the Fire Tube of the Combustion Chamber of a Gas Turbine Engine"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Aviatsionnaya Tekhnika, No 1, 1971, pp 63-68

Abstract: A study is made of some of the characteristic features of the whirling flow in the forward section of the combustion chamber pertaining to the shape of the jet leaving the swirler, the static pressure distribution and the turbulence intensity. Comparison of the calculated and the experimental data shows that in the presence of proper agreement of the parameters of the vane swirler and the transition cone, a smooth continuous whirling flow is observed along the generatrix of the transition cone. The profile of the distribution of the turbulence intensity in the forward section of the chamber essentially depends on the aerodynamics of the flow which are determined by the shape of the frontal structure.

1/1