

3/3 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134668

ABSTRACT/EXTRACT--L III WAS OBTAINED SIMILARLY TO D III IN 97PERCENT

YIELD, B SUB10 158-60DEGREES, (ALPHA) SUBD MINUS 37DEGREES (ETOH);

PICRATE 113-14DEGREES (ETOH).

FACILITY: TASHKENT. GOS. UNIV.

IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 547.944/661.2

ASLANOV, KH. A., ISHBAYEV, A. I., INOYATOVA, K., YUSUPOV, SH., SADYKOV, A. S.,  
and ZAKHAROV, V. P., Order of the Labor Red Banner Tashkent State University  
Imeni V. I. Lenin

"New Method for Isolation of the Anabasis Aphylla Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 324-328

Abstract: A new method has been developed for isolation of individual Anabasis aphylla alkaloids from technical anabasin sulfate. Direct extraction of anabasine sulfate with chloroform yields aphylline, aphyllidine, and some anabasine. The major portion of anabasine and lupinine is obtained by converting them to nitroso derivatives followed by hydrolysis with 18% hydrochloric acid at 98-100°C. Also a modification was developed for production of the anabasine sulfate. The commonly used sulfation method required 40% H<sub>2</sub>SO<sub>4</sub> at 70-80°C, leading to considerable hydrolysis of the alkaloids. This could be avoided preserving most of the alkaloids by the use of 40% H<sub>2</sub>SO<sub>4</sub> at 50-60°C.

1/1

USSR

UDC 547.94 + 543.43

ISHBAYEV, A. I., ASLANOV, KH. A., SADIKOV, A. S., and RAMAZANOVA, M. A., Order of the Labor Red Banner Tashkent State University Imeni V. I. Lenin

"Study of the Quinolizidine Alkaloids by the Method of Optical Rotatory Dispersion (ORD). I. ORD of Lupinin, Citizin, Spartein Group of Alkaloids, and Aphylinic Acid"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1972, pp 328-333

Abstract: ORD curves of Spartein, lupinin, Citizin group of alkaloids and some derivatives of aphylinic acid were studied. Among the group of  $\alpha$ -pyridone ring containing compounds a higher molecular amplitude was exhibited by the epimers with a trans-quinolizidine junction of the nuclei than with the cis-isomers. It has been shown that alkaloids with a lactam group in the external ring have a higher molecular amplitude than corresponding compounds with an  $>N-C=O$  group at the internal ring. A relationship has been shown between the form, sign and molecular amplitude of the curves and the type of a build-up of quinolizidine rings, as well as of the molecular rotation and the location of a double bond in ring A or D. The derivatives of Lupinin and aphylinic acid have a smooth curve with minor anomalies shifted towards longer wavelength in case of the aphylinic acid derivatives.

1/1

- 5 -

USSR

REMENTSOVA, M. M., SHIN, N. G., ISHCHANOVA, R. ZH., and ZAGORODSKAYA, N. N.,  
Scientific Research Institute of Regional Pathology, Ministry of Health,  
Kazakh SSR

"Use of Fluorescence Microscopy to Differentiate Brucella"

Alma-Ata, Adravookhraneniye Kazakhstana, No 4, 1971, pp 32-34

Abstract: Use of the method of fluorescent antibodies made it possible to differentiate Br. melitensis and Br. abortus among 130 cultures of Brucella isolated from farm animals and sick humans. However, Br. suis could not be identified by this technique. Comparison of the results of fluorescence microscopy with those obtained by the ordinary tests (e.g., hemagglutination) showed a coincidence in approximately 60% of the cases. Fluorescence microscopy is more sensitive than the other methods and the procedure is considerably quicker.

1/1

- 12 -

USSR

UDC 621.791.754

RABKIN, D. M., Doctor of Technical Sciences, ISHCHENKO, A. YA., Candidate of Technical Sciences, IGNAT'YEV, V. G., Candidate of Technical Sciences, LOZOVSKAYA, A. V., Candidate of Technical Sciences, SAYENKO, M. I., Engineer, Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences UkrSSR, KOZLOVSKAYA, V. P., Candidate of Technical Sciences, and IODA, M. V.,  
[expansion unknown]

"Influence of Admixtures on the Mechanical Properties of Joints of 1201 Aluminum Alloy"

Kiev, Avtomaticheskaya Svarka, No 7(244), Jul 73, pp 53-55

Abstract: Mechanical test results of joints of aluminum alloys, 1201 type (0.15% Fe, 0.12% Si) and 01203 type (0.003% Fe, 0.02% Si), are discussed by reference to curves of the effect of temperature on the strength of the initial metal and the joint and of the effect on the relative elongation of the initial metal. The decrease of the total Fe and Al content to 0.06% in alloys of Al-Cu type improves the mechanical properties of the initial metal and of welded joints at normal temperature. The relative elongation, impact ductility, and the angle of bend of the initial metal and of joints of 01203 alloy are  $\approx 1.5$  times higher than on 1201 alloy. The mechanical properties of both alloys  
1/2

- 32 -

USSR

RABKIN, D. M., et al., *Avtomaticheskaya Svarka*, No 7(244), Jul 73, pp 53-55

improve with decreasing temperature. At liquid He temperature, the resistance to rupture of the initial metal and of joints of O1203 alloy are somewhat higher than on 1201 alloy and the relative elongation of the initial metal is two times higher. Three figures, one table, four bibliographic references.

2/2

USSR

UDC 621.791.89

BEREZINA, N. V., SAENKO, M. I., ISHCHENKO, A. Ya., KUDINOV, V. M.

"Strengthening of Welded Joints in Aluminum Alloys by Explosive Processing"

Kiev, Avtomaticheskaya Svarka, No 1, Jan 73, p 71.

Abstract: The influence of explosive processing was tested on joints of sheets 3 mm thick of AMg6N alloy with 40% cold working. The strength and yield point increased by 10-15 and 10-25% respectively. The impact toughness and bending angle was slightly lower, but significantly higher than the corresponding values for the base metal. When flat explosive charges are used with weights an order of magnitude greater than the weights of elongated charges such as plastic explosives, the yield point increases by 35-40%, but specimens are significantly deformed.

1/1

Extraction and Refining

UDC 669.71.411

USSR

RADKIN, D. M., ISHCENKO, A. Ya.

"The Results of Pilot-Plant Scale Testing of the Effectiveness of Electric Slag Refining of Aluminum Alloys"

Tekhnol. Legkikh Splavov. Nauchno-tekhn. Byul. VILSa [The Technology of Light Alloys, Scientific and Technical Bulletin of the All-Union Institute of Light Alloys], 1970, No. 6, pp. 14-17. (Translated from Referativnyy Zhurnal Metallur-giya, No. 5, 1971, Abstract No. 5 G167 by S. Krivonosova).

Translation: Electric slag refining produces Al of increased purity both as to content of inclusions such as oxide films and as to H<sub>2</sub> content. The active interaction of the melted Al with the slag with specific thermal and dynamic influences of the alternating electric current causes the nonmetallic impurities to be transferred from the Al into the slag and absorbed by it. Electric slag refining is recommended for introduction to production of primary and secondary high-purity Al alloys. 3 figs, 3 tables.

1/1



USSR

UDC 621.791.756:669.715

RABKIN, D. M., ISHCHEKNO, A. Ya., SINCHUK, A. G., Institute of Electric Welding imeni Ye. O. Paton and PORTNOY, N. D., KUKLINA, S. S., and BARANOV, A. V., Ural Railroad Car Plant imeni F. E. Dzerzhinskiy

"Electroslag Welding of Large-Cross-Section Pressed Profiles From AMg6 Alloy"

Kiev, Avtomaticheskaya Svarka, No 12, Dec 70, pp 52-54

Abstract: A description is given of the process of electroslag welding of large-dimensioned rings made of AMg6 aluminum alloy. The process was developed by the two institutions of which the authors named above are members, working in collaboration, and has been put into production. The weldings were from plane electrodes made of the AMg6 alloy (GOST standard 4784-65) and SvAMg7 alloy (GOST 7871-63). This method of welding is said to be the most convenient for short seams on large-dimensioned specimens, offering the advantages of high productivity, reduced difficulties in production, reduced expenditures of electrical energy and auxiliary materials, and improved working conditions for employees. A table gives the compositions of the AMg6 and SvAMg7 alloys.

1/1

- 67 -

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--STRUCTURE AND STRENGTH OF AM66 ALLOY JOINTS EXECUTED BY ELECTROSLAG WELDING -U-

AUTHOR--ISHCHENKO, A.YA., BUKALO, L.A.

COUNTRY OF INFO--USSR

SOURCE--KIEV, AVIATIONICHESKAYA SVARKA NO 1, 1970, PP 17-20

DATE PUBLISHED-----70

21  
5  
26

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

TOPIC TAGS--ELECTROSLAG WELDING, METAL MECHANICAL PROPERTY, WELD JOINT, MAGNESIUM ALLOY/ALUMINUM MAGNESIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1970/0070

STEP NO--08/C125/70/J00/C01/C017/C020

CIRC ACCESSION NO--AP004-760

UNCLASSIFIED

Acc. Nr.: AP0046766

Ref. Code: URO125

USSR

UDC 621.791.756:669.715

ISHCHENKO, A. YA., BUKALO, L. A.

"Structure and Strength of AMg6 Alloy Joints Executed by Electroslag Welding"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 17-20  
(from Avtomaticheskaya Svarka, No 1, 1970, p 79)

Translation: This article contains a study of the mechanical properties of AMg6 alloy joints executed by electroslag welding and their dependence on the structure and chemical composition of the weld metal. Electrode wires and welding conditions are proposed which insure sufficiently high and stable mechanical properties of the joints. There are 3 tables, 3 illustrations and a 6-entry bibliography.

1/1

18 di

Reel/Frame  
19790070

USSR

UDC 621.791.72.019:546.621

BONDAREV, A. A., VOROPAY, N. M., ISHCHEKNO, A. Ya., RABKIN, D. M., Ye. O.  
Paton Electric Welding Institute

"Influence of Technological Factors on Porosity of Seams in Aluminum, Produced by Cathode Ray Welding"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 1972, pp 24-26.

Abstract: This work studies the influence of various technological factors on the porosity of seams produced by cathode ray welding of the alloys AMg6 and D20-1. The hydrogen content in the base metal was 0.86 and 0.23 cm<sup>3</sup>/100 g respectively. Experimental production batches of AMg6 with various hydrogen contents were also studied. It was found that seam porosity was determined by welding rate, spatial position of the joint, initial hydrogen content in the base and welding materials and method of material treatment before welding. Under identical welding conditions, series-produced AMg6 alloy is more inclined to pore formation than D20-1 alloy, a result of its higher content of hydrogen and intensive evaporation of magnesium. Porosity can be decreased or eliminated by removal of the surface film from the base metal and welding material, increasing the welding speed and decreasing the hydrogen content in the base metal.

1/1

- 53 -

USSR

UDC: 620.171.2

SKLYAROV, N. M., KONONCHUK, N. I., ISHCHENKO, I. I., POGREBNIYAK, A. D.,  
LOZITSKIY, L. P., SHIPIL', V. Ya., LAPITSKIY, Yu. A., SINAYSKIY, B. N.,  
KUFAYEV, V. N., Kiev

"Determination of Durability of Heat-Resistant Alloys in Unstable Operating  
Modes Considering Brief Overloads"

Kiev, Problemy Prochnosti, No 3, Mar 73, pp 100-104.

Abstract: The specific features of application of the linear hypothesis of addition of damage during calculation and accelerated experimental determination of the guaranteed durability of parts operating with brief overloads during individual stages in the program of unstable loading with static and variable loads are studied, as well as problems of adjustment of the corresponding calculation characteristics for heat-resistant alloys. The concept developed by the authors is in that the share of durability expended at any moment is determined by successive addition of its parts for stages of the program under the combined influence of loads and temperatures in a quasi-stable mode for each stage; the sets of long-term static strength and endurance characteristics are utilized, considering the influence of the loading prehistory and the corresponding limiting curves for various

1/2

USSR

SKLYAROV, N. M., et al, Kiev, Problemy Prochnosti, No 3, Mar 73, pp 100-104

temperatures and durabilities. The spectrum of loads is studied in combination with the sequence of their application, i.e., in time.

2/2

- 71 -

UDC: 539.3/5

USSR

BASH, V. Ya., ~~ISHCHENKO, I. I.~~, KUYUN, A. I., Institute of Mechanics,  
Academy of Sciences of the UkrSSR, Kiev

"Determining the Yield Stress of Materials by a Thermoelectric Method"

Kiev, Prikladnaya Mekhanika, Vol 8, No 4, Apr 72, pp 128-131

Abstract: The paper presents the results of a study of various materials (technical copper in the cold-deformed state, L68 brass, VT1-00 technical titanium, technical molybdenum, USA steel, NP-2 nickel and tungsten) under tension in the elastic and elastoplastic regions of deformation. Analysis of stress-strain and stress-temperature differential deformation curves shows that the thermoelectric method can be recommended for determining the yield stress of these materials with appropriate allowance for residual deformation. Two figures, three tables, bibliography of seven titles.

1/1

UDC 620.178.38:620.193

USSR

SINAYSKIY, B. N., POGREBNIYAK, A. D., ISCHENKO, I. I., Institute of Strength Problems, Academy of Sciences, Ukrainian SSR

"The Effect of Test Temperature Upon the Fatigue Strength of Alloy ZhS6K"

Kiev, Problemy Prochnosti, No 2, Feb 72, pp 24-31

Abstract: The fatigue strength of the nickel-base turbine-blade alloy ZhS6K was investigated within the working-temperature range 600 -- 1000°C. Acute weakening of the material was observed to occur at temperatures in the top portion of the working range. The fatigue properties of this alloy changed differently for symmetric and asymmetric loading cycles in the vicinity of the upper and lower boundaries of the investigated temperature range. It was established that after preliminary holding at 950° C for 1000 hours the fatigue strength of the material decreases, the tensile strength and the maximum hardness decrease, and the chemical composition of the surface layers changes. Seven figures, 9 references.

1/1



ISHCHENKO, I. I.

INVESTIGATION OF THE INFLUENCE OF OXIDATION-RESISTANT COATINGS ON THE FATIGUE STRENGTH OF HEAT-RESISTANT ALLOY

UDC 620.176.38:620.137

JPRS 55972

12 May 1972

Article by I. I. Ishchenko, V. I. Dopolichansky, B. N. Starytsky, A. D. Pogorennyak, G. S. Panik, M. I. Reznik (Kiev, Zaporozh'ye); Kiev, Problemy Prochnosti, Russian, No 10, 1971, signed to press 8 February 1971, pp 76-81]

The use of heat-resistant alloys with good strength properties increases the service life of gas turbine engines.

Service life can be increased even further by certain design and technological measures, one of which is the use of oxidation-resistant coatings for protecting parts from oxidation. This is particularly important in connection with high working temperatures in an engine. The most reliable results can be obtained from tests of an engine with coated parts. Such tests, however, are extremely expensive and take a long time. Therefore they must be preceded by investigations of specimens and structural components under laboratory conditions.

A great deal of work has been done on investigation of the structure of coatings, their oxidation resistance in the unstressed state, development of the technology of application of coatings. However, evaluation of the effectiveness of oxidation-resistant coatings according to data on their structure, composition and oxidation resistance is not sufficiently reliable without additional determination of the strength properties of materials and structural components with coatings under conditions approximating operating conditions, i.e., under the influence of working stresses and temperatures, real media and other factors [1-3]. Moreover, the use of many heat-resistant materials depends largely on the choice of coating. Consequently the effectiveness of an oxidation-resistant coating is determined largely on the basis of results of investigation of the strength characteristics of heat-resistant materials with coatings. In such investigations great attention should be devoted to evaluation of the effectiveness of the coatings under conditions of variable stresses, when the state of the surface layer plays a particularly important role.

It has been demonstrated [4-7] that the influence of oxidation-resistant coatings on the fatigue strength of heat-resistant materials is

USSR

UDC 620.178.38:620.197

ISHCHENKO, I. I., OMEL'CHENKO, V. I., SINAYSKIY, B. N., POGREBANYAK, A. D.,  
BANAS, P. S., REZNIK, M. I., Kiev, Zaporozh'ye

"Study of Influence of Heat Resistant Coatings on Fatigue Strength of Refractory Alloy"

Problemy Prochnosti, No 10, 1971, pp 76-81.

Abstract: This work presents results of studies of the influence of certain types of heat resistant coatings on the fatigue strength of ZhS6K nickel alloy, widely used for aviation engine turbine blades. None of the coatings studied were found to increase fatigue resistance without preliminary heating of the specimens. Preliminary heating without application of the coatings caused a decrease in fatigue resistance. However, the combination of preliminary heating to 950°C for 1,000 hours with application of coatings (nitriding and application of aluminozirconium coatings) caused an increase in fatigue resistance.

1/1

- 60 -

8

UDC 620.171.2

USSR

SKLYAROV, N. M., KONONCHUK, N. I., ZHUKOV, S. L., ZHUKOV, N. D., VASIL'EV, B. N., AKIMOV, L. M., LAPITSKIY, Yu. A., BELYAYEV, M. S., KRIVONOGOV, G. S., ISHCHENKO, I. I., POGREBNIYAK, A. D., and KUFAYEV, V. N. (Moscow, Kiev)

"Estimating the Heat Resistance of Heat-Resistant Alloys Under Actual Operating Conditions"

Kiev, Problemy prochnosti, No 1, 1971, pp 13-21

Abstract: Problems concerned with estimating the endurance of heat-resistant materials under unstable loading conditions are analyzed. A method is suggested for producing and using "secondary" endurance characteristics, increasing the accuracy of estimation and calculation of guaranteed durability under operating conditions and forced equivalent loading modes. These secondary characteristics represent the dependence of the durability of materials on combinations of preceding programed and subsequent stationary loads in various proportions. The formula of linear addition of damage applies. The secondary characteristics are produced by accelerated testing over limited test periods with extrapolation to the area of increased durability.

1/1

USSR

UDC 547.091:632.936.2

KOVALEV, B. G., ISHCENKO, R. I., MARCHENKO, V. A., and FILIPPOVA, M. P.,  
All Union Scientific Research Institute of Biological Methods of Plant Pro-  
tection, Kishinev

"Synthetic Studies in the Area of Insect Attracting Materials (Sex Attractants).  
I. Synthesis of 2-Methyl-7-octadecene Oxide (Disparlure) -- Sex Attractant  
of Gypsy Moth Parthetria Dispar L."

Leningrad, Zhurnal Organicheskoy Khimii, Vol 9, No 1, Jan 73, pp 6-8

Abstract: Alkylation of dodecynyllithium with isoheptyl bromide was carried  
out in phosphoric acid hexamethyltriamide. The reaction product -- 2-methyl-  
7-octadecyne (I) -- was hydrogenated in hexane over Lindlar catalyst yielding  
cis-2-methyl-7-octadecene. This material was epoxidized with monophtallic  
acid in chloroform, yielding Disparlure. Reduction of (I) with sodium in  
liquid ammonia yielded trans-2-methyl-7-octadecene which could be used for  
production of trans-disparlure. Preliminary field trails showed this synthetic  
material to be biologically active in 0.25-0.01 mg doese per trap, retaining  
their sex attracting activity for prolonged periods under field conditions.

1/1

172 028 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--MAGNETIC HYPERFINE AND QUADRUPOLE INTERACTIONS OF F-CENTRES IN NaCl  
AS MEASURED BY ENDOR -U-  
AUTHOR--(05)-DEIGEN, M.F., ZEVIN, V.YA., ISHCHENKO, S.S., BARAN, N.P.,  
RUBAN, M.A.  
COUNTRY OF INFO--USSR  
SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 1, PP 237-246  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--F CENTER, HYPERFINE STRUCTURE, QUADRUPOLE MOMENT, SODIUM  
CHLORIDE, NUCLEAR MAGNETIC RESONANCE, ELECTRON RESONANCE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/1075 STEP NO--GE/0030/70/037/001/0237/0246  
CIRC ACCESSION NO--AP0107584  
UNCLASSIFIED

272 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0107584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HYPERFINE AND QUADRUPOLE INTERACTIONS OF F-CENTRES IN NaCl WERE INVESTIGATED BY THE ENDOR METHOD. THE CONSTANTS OF HYPERFINE INTERACTIONS WITH NUCLEI OF COORDINATION SHELLS I TO X SURROUNDING THE VACANCY HAVE BEEN DETERMINED. THE QUADRUPOLE INTERACTION WITH NUCLEI OF SHELLS II, IV, VI, AND VIII HAS BEEN RECORDED AND MEASURED. GENERAL EXPRESSIONS FOR ENDOR FREQUENCIES ARE GIVEN IN SINGLE PARTICLE APPROXIMATION, ALLOWANCE BEING MADE FOR THE DEVIATION OF THE NUCLEAR SPIN QUANTIZATION AXIS FROM THE DIRECTION OF THE CONSTANT MAGNETIC FIELD II SURD AND FOR CORRECTIONS DUE TO SECOND ORDER PERTURBATION THEORY. THE ANGULAR DEPENDENCE OF ENDOR SPECTRA HAS BEEN INVESTIGATED IN DETAIL AND FULLY EXPLAINED ON THE BASIS OF THEORETICAL FORMULAE. THE CONSTANTS WERE DETERMINED AT T EQUALS 20, 77, AND 300DEGREESK. FACILITY: INSTITUTE FOR SEMICONDUCTORS, ACADEMY OF SCIENCES, UKRAINIAN SSR. FACILITY: KIEV POLYTECHNICAL INSTITUTE.

UNCLASSIFIED

USSR

UDC: 621.317.37.3

ISHCHENKO, V. A.

"Design of Broad-Band, Four-Probe Waveguide Devices for Measuring Complex Resistances"

Kiev, Izvestiya VUZ - Radioelektronika, vol. 14, No. 5, 1971, pp 572-576

Abstract: The author, having discovered some defects in the comparison made by an earlier article of waveguide devices for measuring complex resistances, and having found that the computation methods of other authors are too complex, has written the present article to correct that comparison and simplify those computations. He also computes the optimal positioning of the probes in the waveguide measuring instrument. The comparison of the various methods he makes indicates that the best system is one in which the electrical distance between the probes of the various detector pairs is  $\lambda/4$ . It is shown also that the optimal placement of the probes and the corresponding optimal accuracy can be determined from graphs given in the article.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT OF THE PHASE DISCRIMINATOR ASYMMETRY ON THE ACCURACY OF  
PHASE DIFFERENCE MEASUREMENTS -U-  
AUTHOR-(02)-GRUDINA, N.A., ISHCENKO, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--RADIOELEKTRONIKA, VOL. 8, MAR. 1970, P. 389-393  
DATE PUBLISHED--MAR70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS  
TOPIC TAGS--PHASE MEASUREMENT, ERROR ANALYSIS, FREQUENCY DISCRIMINATOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0538 STEP NO--UR/0452/70/008/000/0389/0093  
CIRC ACCESSION NO--AP0124233  
UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--50OCT70

CIRC ACCESSION NO--AP0124233

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. ANALYSIS OF THE ERRORS ARISING WHEN PHASE DIFFERENCES ARE MEASURED WITH A PHASE DISCRIMINATOR WHOSE BRIDGE CIRCUIT IS ASYMMETRICAL WITH RESPECT TO THE TRANSIENT ATTENUATION EFFECTS. IT IS SHOWN THAT THESE ERRORS ARE POSITIVE WHEN THE REFERENCE PHASE INVERTER IS SET IN SUCH A MANNER THAT THE SIGNAL PHASE DIFFERENCE AT THE PULSE DISCRIMINATOR INPUT IS CLOSE TO ZERO, OR NEGATIVE WHEN THIS DIFFERENCE IS CLOSE TO  $\pi$ . PROCEDURES FOR ERROR ELIMINATION ARE DESCRIBED.

UNCLASSIFIED

I

UDC 621.372.837

USSR

KOLCHENKO, O. F., ISHCHENKO, V. A., OGORODNIYCHUK, L. D., KLIMOV, V. P.

"Some Types of Wave Guide Commutators"

Vestn. Kiyevsk. politekhn. in-ta. Ser. radiotekhn. i elektroakust. (Kiev Polytechnical Institute Vestnik. Radiotechnical and Electroacoustics Series), 1969, No 6, pp 35-37 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B194)

Translation: This article contains an investigation of a series of electro-mechanical wave guide commutators which can be used in measuring devices of the interference type and as amplitude modulators: a commutator with a rotating plate, a commutator with reciprocal motion of the plate, and a commutator in a limiting wave guide. There are three illustrations and a three-entry bibliography.

1/1

- 294 -

USSR

UDC 591.524:597.6/9

SHVARTS, S. S. and ~~ISHCHENKO, V. G.~~

Puti prisposobleniya nazemnykh pozvonochnykh zhivotnykh k usloviyam sushchestvovaniya v subarktike, tom 3, zemnovodnyye (Methods of Adaptation of Land Vertebrates to Subarctic Conditions, Vol 3, Amphibians), Sverdlovsk, 1971, 60 p

Translation: Annotation: The preceding volumes of this series discussed methods by which mammals and birds adapt to the subarctic region. This volume deals with amphibians.

The data on this group of land vertebrates are still relatively meager, but the available information is not only interesting but potentially useful for analyzing the common patterns of adaptation of animals to conditions in the Far North. In many cases these patterns are manifested even more clearly in amphibians than in mammals or birds.

The authors hope that the synthesis of data on the ecology of subarctic amphibians will stimulate further research on this interesting group of animals.

This work should be regarded as a continuation of the early volumes. Hence the authors dispense with a special description of the natural conditions

1/2

USSR

SHVARTS, S. S. and ISHCHEENKO, V. G., Puti prisposobleniya nazemnykh pozvonochnykh zhivotnykh k usloviyam sushchestvovaniya v subartike, tom 3, zemnovodnyye, Sverdlovsk, 1971, 60 pp

in the subarctic region, for it was given in the first volume of the series (Shvarts, 1963).

CONTENTS		Page
Chapter 1. Distribution of Amphibians in the Subarctic Region.		
	Remarks on Intraspecies Systematics	3
Chapter 2. Development of the Subarctic Region		8
Chapter 3. Nutrition		14
Chapter 4. Biology of Reproduction		25
Chapter 5. Growth Rate and Age Structure of the Population		40
Chapter 6. Some Morphological and Physiological Characteristics of Northern Amphibians Related to the General Metabolic Level		47
Conclusion		55
Bibliography		57

2/2

- 90 -

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--RADIOISOTOPE METHOD OF DETERMINATION OF RESIDUAL URINE -U-

AUTHOR--VCZIANCV, A.F., ISHCENKO, V.P.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNYE DELO, 1970, NR 2, PP 45,47

DATE PUBLISHED-----70

14  
5  
21

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--URINE, DIAGNOSTIC METHOD, RADIOISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1582/0398

STEP NO--UR/C475/70/000/002/0045/0047

CIRC ACCESSION NO--APOC51915

UNCLASSIFIED

Acc. Nr: AP0051915

Ref. Code: UR0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 2, pp 45-47

RADIOISOTOPE METHOD OF DETERMINATION OF RESIDUAL URINE

A. F. Vozianov, V. P. Ishchenko (Kiev)

Appearance of residual urine in the urinary bladder evidences decompensation of the detrusor and necessitates urgent intervention. The authors employed a radioactive isotope technique for assessment of the amount of residual urine in 30 patients with different urological diseases. The assessment was performed 1-2 hours following radioisotope renography with hippuran I-31. Results were compared with data received at catheterization. The results coincided in all instances. Simplicity and safety are advantages of this method.

1/1

2/2

2

REEL/FRA  
19820398

USSR

UDC: 621.372.413.001.24

ISHCHENKO, Ye. F. and SUSHKIN, V. N.

"Using Similarity Laws for Computing Resonators With Coupling Apertures"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1566-1572

Abstract: A simple method is proposed for determining the parameters of resonators widely used in practice, with losses of 5% and more. It is first shown that, with large coupling apertures, resonators having circular spherical mirrors are equivalent, all other things being equal, to those with ribbon cylindrical mirrors. The equation for resonators of the first type is derived and compared with the equation for the second, and it is shown that the difference between the two is less than 4% if the Fresnel number of the aperture is at least 0.5. Because this error is so slight, the design of resonators with coupling apertures is substantially simplified, as is shown through the use of a resonator with plane circular mirrors as an example. The method proposed was checked for accuracy and utilization limitations by comparing its results with the results obtained by the method of successive approximations as computed on an electronic digital computer. The authors wish to thank V.A.Fabrikant for his interest and helpful comments.

1/1

USSR

UDC 627.81:624.131.6.001.5(47+57)

OVODOV, V. S., ISHCHEKHO, YU. A.

"Forecasting Seepage from the Krasnodar Reservoir to the Tailrace (1967)"

Izuch. i ispol'z. vodn. resursov SSSR, 1966-1967 -- V sb. (Study and Use of USSR Water Resources, 1966-1967 -- Collection of Works), Moscow, Nauka Press, 1970, pp 78-79 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D189)

Translation: The Krasnodar Reservoir with a capacity of 3,200,000,000 m<sup>3</sup> is formed by erection of an urban dam ~14,000 meters long in the Kuban' section. Seepage from the reservoir to the tailrace and the conditions of protection of the lands from possible elevation of the water table and swamping by draining the seep through vertical drains at the dam have been investigated. The studies were performed on the ESDA-9/60 integrator. It was established that the structure of the Krasnodar Reservoir without antiseepage measures implies water-table elevation and probably swamping of a broad area below the dam on the left bank.

1/1



USSR

UDC 621.791.754:621.643:669.715

BUKAROV, V. A., ISHCHENKO, Yu. S., PISHCHIK, V. T. AND SLAVINSKIY, V. D.,  
Engineers

"Pulse-Arc Welding of Aluminum Alloy Tubes Using Nonconsumable Electrodes"

Moscow, Svarochnoye Proizvodstvo, No 11, Nov 70, pp 14-15

Abstract: Results are presented from technological studies of pulsed argon-arc welding of joints in tubes of AMg6 and SAV1 alloys using a tungsten electrode without filler wire and reverse polarity current. This type of welding provides satisfactory quality of welded seams for these alloys. A new technology has been developed for welding tubing with wall thicknesses up to 2 mm, with programmed welding mode changes achieved by changing the pulse repetition frequency of current pulses. A pulse device has been developed, allowing welding by a pulsed arc using standard direct current power supplies.

1/1

USSR

I UDC 621.892.8.002.5(039.8) (47+57) 7

VAYNSHTOK, V. V., FUKS, I. G., SHEKHTER, YU. N., ~~ISHCHUK, I. I.~~, VIKNER, G. G.,  
DMITRIYEV, M. I., PESKOV, V. D., SMIOTANKO, E. A., LISHNEVSKIY, M. I.,  
MESHCHANINOV, S. M. and GORYACHEVA, V. I., Moscow Institute of the Petrochemical  
and Gas Industry imeni I. M. Gubkin

"Stand for the Production of a Plastic Lubricant"

USSR Author's Certificate No 228214, filed 19 Jul 67, published 25 Mar 69 (from  
RZh-Khimiya, No 1(II), 10 Jan 70, Abstract No 1 P 291 P)

Translation: A stand has been proposed for the production of soapy and nonsoapy  
plastic lubricants in which the metering units are consecutively connected to  
the mixing device, furnace, and evaporator.

V. Shch.

1/1

USSR

UDC 665.55

ISHCHUK, YU. L., SOKOLOVA, T. G., SINITSIN, V. V., and GOSHKO, N. S.,  
"The Effect of Viscosity and the Degree of Purification of a Dispersion  
Medium on the Properties of Complex Calcium Lubricants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 6, Nov-Dec 70, pp 37-39

Abstract: The viscosity of dispersion medium and the extent to which heavy aromatic materials have been removed from it have practically no effect on the stability of KCa-lubricants; presence of resinous materials lowers their stability. The effective viscosity of KCa-lubricants in positive temperature range drops with increased degree of oil purity and is hardly affected by the dispersion medium. Resinous substances lower the condensing action of the complex calcium soap. Changing the viscosity of dispersion medium or its purity exhibits no effect on the compressibility of oil from KCa-lubricant. Lubricants made of highly purified oils tend to harden at high temperatures. In general the use of high purity distillation oils lowers the mechanical stability of KCa-lubricants.

1/1

USSR

UDC 661.143

ISHCHUNIN, V. K., KOVALEV, V. A., and PONOMAREV, YU. V.

"Determination of the Energy Discharge of Cathodo-Lumenophors in Selected Electron Radiating Assemblies"

Sb. Nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works From the All-Union Scientific Research Institute of Lumino-phors and Principles for Purifying these Compounds), Vyp 7, 1972, pp 44-49 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L168)

Translation: In selected electron radiating assemblies produced industrially, there is observed a significant amount of light reflected from the upper surface of the discharging window and collector. A method is proposed for determining the energetic discharge and its value for some of the most widely used cathodo-luminescent compounds (Resume).

1/1

- 37 -

USSR

UDC: 621.319.4

ISHEKOV, P. A., Saratov Electronic Machine Building Plant

"A Braking Device"

USSR Author's Certificate No 283415, filed 3 Dec 68, published 10 Dec 70  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V385 P)

Translation: This Author's Certificate introduces a braking device which may be used for putting tension on foil and paper tapes when winding the sections of capacitors. The device contains a brake shoe controlled by a tracking roller which rests on the surface of the foil or paper roll. As a distinguishing feature of the patent, in order to improve the precision with which the initial tape tension is set, as well as the precision with which constant braking force is maintained, the brake shoe is fastened during the winding process to a rocker strip with one end fastened by a spring to a double-armed lever which carries the tracking roller. This lever is set on an axle, and the other end of the rocker strip rests on a movable thrust block connected to a micrometer screw.

1/1

- 70 -

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--DETERMINATION OF A MODIFIER USED IN PRODUCING CELLOPHANE  
POLYETHYLENE FILM OF THE PTS 2 BRAND -U-  
AUTHOR-(04)-POSTRIGAN, M.V., ISHEVSKIY, G.M., DUBOV, O.YE., GUL, V.YE.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (1), 168-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND.,  
CIVIL AND MARINE ENGR  
TOPIC TAGS--POLYETHYLENE, PLASTIC FILM, MELAMINE RESIN, FOOD CONTAINER,  
ADHESION, SPECIALIZED COATING, PACKAGING MATERIAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/1020 STEP NO--UR/0322/70/000/001/0168/0169  
CIRC ACCESSION NO--AT0119887  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 022  
CIRC ACCESSION NO--AT0119887  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KJELDAHL N DETN. OF PTS 2 FILMS,  
MELAMINE FORMALDEHYDE RESIN (I) AND PTS 2 FILMS COATED WITH I PERMITTED  
DETN. OF THE AMT. OF I USED IN COATING WITH SIMILAR TO 10PERCENT  
ACCURACY. SUCH COATINGS IMPROVE THE ADHESION OF PTS 2 TO FRESH MEAT,  
FISH, ETC. AND THUS IMPROVED THE MOISTURE RETENTION BY THESE PRODUCTS  
WRAPPED IN THE COATED FILMS. FACILITY: MOSK. TEKHNOL. INST.  
MYAS. MOLOCH. PROM., MOSXOW, USSR.

UNCLASSIFIED

USSR

UDC 621.52:539.23

TERENT'YEV, YU.P., ~~ISHIMRAYEV, R.V.~~, LIKHTMAN, A.YE., NEMIROVSKIY, L.N.,  
SEYDMAN, L.A., SUVOROV, V.N., KORZCOV, G.A.

\*Vacuum Deposition Unit With Electron Beam Evaporator [DE-394, 11 pp, 2 fig]

Elektron. prom-st'. Nauch.-tekhn.sb (Electronics Industry. Scientific-Technical Collection), 1971, No 3, p 62 (from RZ--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A45)

Translation: A vacuum deposition device was developed with an electron beam evaporator for deposition of layers of metals and semiconductors during their evaporation by the non-crucible method. The evaporator consists of an electron gun, a focusing and defocusing system and a magnetic prism. Use of the magnetic prism, which turns the electron beam by 90°, makes it possible to eliminate completely covering up [zaplyeniye] of the electron gun by the material being evaporated. The gun is removed from the evaporation zone and consequently heating of the substance being evaporated and the gas precipitated on it does not affect it. This assures great reliability of evaporation, the period of continuous operation of which  $\geq 50$  hours and is determined only by the lifetime of the cathode of the electron gun. The diameter of the evaporation zone with an accelerating voltage of 20 kv and a beam current up to 25 mA is not more than 1 mm. The distance from the evaporation zone to the substrate is 60 mm. A.F.

1/1

- 180 -



1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--GIANT DIPOLE RESONANCE ON NICKEL ISOTOPES -U-

AUTHOR--(05)-GORYACHEV, B.I., ISHKANOV, B.S., KAPITONOV, I.M., PISKAREV,  
I.M., SHEVCHENKO, V.G.  
COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 252-9

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--NICKEL ISOTOPE, INTEGRAL CROSS SECTION, PARTICLE PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0367

STEP NO--UR/0367/70/011/002/0252/0259

CIRC ACCESSION NO--AP0048639

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0048639

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTIVE CROSS SECTIONS OF  
PHOTO N PRODUCTION FOR PRIME58 NI AND PRIME60 NI IN THE DOMAIN OF THE  
GAINT DIPOLE RESONANCE ARE DESCRIBED. THE INTEGRAL CROSS SECTION UP TO  
30 MEV IS 310 FOR PRIME58 NI AND 620 MEV-MB. FOR PRIME60 NI. TOTAL  
ABSORPTION CROSS SECTIONS FOR THE ISOTOPES ARE CONSTRUCTED AS THE SUMS  
OF THE PHOTO N AND PHOTO P CROSS SECTIONS. THE VALUES DO NOT AGREE  
WELL WITH THOSE COMPUTED BY VARIOUS MODELS. FACILITY: INST.  
YAD. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--PHOTOPROTON CROSS SECTIONS FOR NUCLEI WITH (1F-2P) SHELL -U-  
AUTHOR--(05)-ISHKHANOV, B.S., KAPITONOV, I.M., PISKAREV, I.M., SHEVCHENKO,  
V.G., SHEVCHENKO, O.P.  
COUNTRY OF INFO--USSR I  
SOURCE--YAD. FIZ. 1970, 11(3), 485-91  
DATE PUBLISHED-----70  
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS  
TOPIC TAGS--PHOTONUCLEAR REACTION, PROTON SPECTRUM, EXCITATION CROSS  
SECTION, INTEGRAL CROSS SECTION, NICKEL ISOTOPE, CHROMIUM ISOTOPE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1991/1053 STEP NO--UR/0367/70/011/003/0435/0491  
CIRC ACCESSION NO--AP0110743  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTO-P CROSS SECTIONS WERE MEASURED FOR PRIME52 CR, PRIME58 NI, AND PRIME60 NI FROM THRESHOLD TO 30 MEV. THE P WITH ENERGIES GREATER THAN 1 MEV WERE REGISTERED. A NO. OF MAX. WERE FOUND. THE INTEGRAL CROSS SECTIONS FOR PRIME52 CR, PRIME58 NI, AND PRIME60 NI WERE 240,570, AND 320 MEV-MB, RESP. THE ANOMALOUSLY HIGH VALUE OF THE PHOTO-P PRODUCTION CROSS SECTION FOR PRIME58 NI, AS WELL AS THE SHIFT OF THE CENTERS OF GRAVITY FOR THE PHOTO-P CROSS SECTIONS TOWARD HIGHER EXCITATION ENERGIES, AS COMPARED TO THE PHOTO-N CROSS SECTION WHICH WAS OBSERVED FOR PRIME51 CR AND PRIME60 NI, CAN BE EXPLAINED BY THE INFLUENCE OF THE ANALOG STATES. FACILITY: INST. YAD. FIZ., MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INTERMEDIATE STRUCTURE OF CROSS SECTIONS OF PHOTONEUTRON REACTIONS  
ON MOLYBDENUM ISOTOPES -U-  
AUTHOR-(05)-ISHKHANDV, B.S., KAPITONOV, I.M., LAZUTIN, YE.V., PISKAREV,  
I.M., SHEVCHENKO, D.P.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(3), 702-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--PHOTONEUTRON, BETATRON, RESONANCE ABSORPTION, MOLYBDENUM  
ISOTOPE, INTEGRAL CROSS SECTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1991/1079 STEP NO--UR/0367/T0/0117093/0702/0704  
CIRC ACCESSION NO--AP0110769  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--0000770

CIRC ACCESSION NO--AP0110769

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTO-N REACTIONS ON PRIME92 MO AND PRIME98 MO ARE INVESTIGATED BY USING A 35-MEV BEAM. CROSS SECTIONS OF THE REACTION  $(\gamma, n)$  EQUALS CROSS SECTIONS OF  $(\gamma, n)$ , PLUS 2 (CROSS SECTION OF  $(\gamma, 2n)$ ) PLUS CROSS SECTION OF  $(\gamma, np)$ ; THERE ARE SIMILAR TO 15 RESONANCES FOR EACH CROSS SECTION. THE WIDTHS OF THE GIANT RESONANCES IN THE REACTION  $(\gamma, n)$  ON THE PRIME92 MO AND PRIME98 MO NUCLEI ARE 5 AND 7 MEV, RESP. FOR THE REACTIONS  $(\gamma, n)$  PLUS  $(\gamma, np)$ , THE VALUES OF THE INTEGRAL CROSS SECTIONS FOR PRIME92 MO AND PRIME98 MO ARE 1.12 PLUS OR MINUS 0.11 AND 1.10 PLUS OR MINUS 0.11 MEV-B, RESP. EXPTL. RESULTS ARE COMPARED TO THEORETICAL VALUES; THE EXPTL. VALUES SHOW A GREATER NO. OF RESONANCES. THE GREATEST DISCREPANCY BETWEEN THEORY AND EXPT. IS FOUND AT 24-30 MEV. FACILITY: INST. YAD. FIZ., MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 539.163.546.663

VYLOV, Ts., GROMOV, K. Ya., GROMOVA, I. I., ISKHA KOV, G. I., KUZNETSOV, V. V., KUZNETSOVA, M. Ya., POTEPA, A. V., FOMINYKH, M. I.

"Investigation of the Decay of  $^{148}\text{Tb}$  and  $^{150}\text{Tb}$ . Part II.  $\gamma\gamma$ -Coincidence. Decay Schemes of  $^{148}\text{Tb}$  and  $^{150}\text{Tb}$ "

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 1, Jan 73, pp 48-52

Abstract: The paper presents studies of  $\gamma\gamma$ -coincidence spectra of terbium isotopes  $^{148}\text{Tb}$  and  $^{150}\text{Tb}$  with their decay schemes and a comparison of the analogous excited states of  $^{148}\text{Gd}$  and  $^{150}\text{Gd}$  nuclei and the neighboring nuclei of samarium and neodymium. If it is assumed that the odd 65-th proton and 83-d (85-th) neutron in the nuclei of  $^{148}\text{Tb}$  and  $^{150}\text{Tb}$  are on shells  $d^{3/2}$  and  $f^{7/2}$  respectively, then according to the shell model the ground state of  $^{150}\text{Tb}$  has the configuration  $\{p(d^{3/2})^1n(f^{7/2})^3\}$ , while that of  $^{148}\text{Tb}$  is  $\{p(d^{3/2})^1n(f^{7/2})^1\}$ . These configurations allow values of the  $I^\pi$ -ground states of these isotopes of  $5^-$ ,  $4^-$ ,  $3^-$ , and  $2^-$ . From the decay schemes of these nuclei and the values of  $\log ft$ , it may be concluded that the spin and parity of the ground states of these isotopes must be  $2^-$ .

1/1

USSR

UDC 6.12.1/8.173.1;612.1/8-014.426

MOVSESYAN, M. A., ZAKHARYAN, A. B., SARUKHANOV, A. G., ZARKHUDARYAN, L., and ISHKHANYAN, A. S., Yerevan Physics Institute, Ministry of Health Armenian SSR

"Effect of a Permanent Magnetic Field on the Rat Myocardium Content of Na, K, Ca, and Glycogen in the Process of Acclimatization to the High Mountain Conditions of Aragats"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 24, No 2, Feb 71, pp 95-97

Translation: Considerable importance has been attached during the past few years to investigation of the effects of a magnetic field on the human and animal organisms. This is explained first by the fact that the intensity of magnetic fields utilized in industry and scientific research has been considerably magnified, and second -- by the fact that a connection has been established between the increase in the frequency of sudden deaths caused by cardiovascular failure and the formation of solar magnetic storms. At present the intensity of the permanent and temporary fields in free play attains a magnitude of 100,000 oersted, while impulsive magnetic structures can create a magnetic field with an intensity of up to 2,500,000 oersted.

Data obtained in investigations of the effect of a permanent magnetic field on the electrolyte (Na, K, Ca) and glycogen and content in the myocardium

1/6



USSR

MOVSESYAN, M. A., et al., *Biologicheskly Zhurnal Armenii*, Vol 24, No 2,  
Feb 71, pp 95-97

of rats during the process of acclimatization to high altitude conditions are cited in this report.

The investigations were carried out on 166 white nonbred rats 150-200 grams in weight transferred from Yerevan (900 meters above sea level) to Mount Aragats (3,250 meters above sea level).

At different periods of their habitation on the high mountain (24, hours, 7 and 40 days) a part of the rats were placed in a magnetic field with a magnitude of 7,800 oerstod where they were kept for two hours. Together with the controls (rats not placed in the magnetic field) they were then sacrificed for the purpose of determining the myocardium content of the indexes mentioned. The electrolyte content was determined with the help of a DEF-58 type of flame photometer and expressed in milliequivalents per liter; the glycogen content was determined by the Kendel-Khuglas method.

The same indexes were studied in intact rats under Yerevan conditions. A comparison of the data obtained in the investigation of the intact rats under Yerevan conditions with the data obtained at different periods of habitation of the rats at the high altitude enabled us to arrive at a representation of the changes which take place in the myocardium content of Na, K, Ca, and

2/6

USSR

MOVSESYAN, M. A., et al., Biologicheskii Zhurnal Armanii, Vol 24, No 2, Feb 71, pp 95-97

glycogen during the process of acclimatization. At the same time the data obtained in the study of these two groups served as a control for study of the influence of the magnetic field.

The results of the above-described investigations are presented in the table.

It is obvious from the data obtained that during the process of acclimatization changes in the rat myocardium content of Na, K, Ca, and glycogen take place.

In the course of the 40-day habitation of the rats on Mount Aragats the myocardium content of glycogen gradually diminished, with the largest diminution noted on the seventh day. In the same animals the myocardium content of Ca gradually and only slightly increased, while changes in the quantity of Na and K were wave-like in character: the heart tissue's content of Na and K increased within 24 hours, decreased by the seventh day, and again increased by the 40th day.

It was found that placing the animals in a magnetic field for two hours affects the course of the indicated changes, particularly if the rats are placed in the magnetic field on the first day of their transfer from Yerevan to Mount Aragats. For instance, it was noted that when rats 22 hours after

3/6

USSR

MOVSESYAN, M. A., et al., Biologicheskii Zhurnal Armenii, Vol 24, No 2,  
Feb 71, pp 95-97

their arrival on Mount Aragats were placed and kept for a period of 2 hours in a magnetic field and then sacrificed to determine the myocardium content of Na, K, Ca, and glycogen, the results obtained differed from the results obtained in investigation of the intact animals.

Differing from the intact animals, no wave-like changes in the content of Na, K, and Ca occur in the experimental rats. Under the influence of the magnetic field the heart muscle's content of Na and K is considerably diminished. In the same animals the effect of the magnetic field tends to induce a still greater decrease of the myocardium content of glycogen. When the rats, however, were placed in the magnetic field on the 7th and 40th days on Mount Aragats no particular changes were noted.

Thus the animals were found to be most sensitive to the influence of a magnetic field when they had not become adapted to high altitude conditions. As adaptation progresses the sensitivity of the organism to the influence of the magnetic field decreases.

4/6

Myocardium Content of Sodium, Potassium, Calcium, and Glycogen Table 1

Place where animals were kept	Period of time at high altitudes	Manipulation	Sodium			Potassium		
			M ± m	*P <sub>1</sub>	*P <sub>2</sub>	M ± m	*P <sub>1</sub>	*P <sub>2</sub>
Yerevan	—	Intact	33.6±1.5	—	—	67.6±2.0	—	—
Aragats	24 Hours	Intact	43.3±1.8	0.001	—	78.4±1.5	0.05	
		Under influence of magnetic field	27.7±0.5	0.05	0.001	54.5±3.3	0.01	0.001
	7 Days	Intact	28.0±0.3	0.01		61.7±2.1	0.1	
		Under influence of magnetic field	26.6±1.9	0.01	0.5	63.3±1.6	0.5	0.5
	40 Days	Intact	39.7±1.0	0.01		74.3±1.5	0.05	
		Under influence of magnetic field	36.6±0.9	0.5	0.05	73.5±1.7	0.05	0.5

5/6

(Table continued below)

(Table continued from above)

Place where animals were kept	Period of time at high altitudes	Manipulation	Calcium			Glycogen		
			M ± m	*P <sub>1</sub>	*P <sub>2</sub>	M ± m	*P <sub>1</sub>	*P <sub>2</sub>
Yerevan	—	Intact	3.3±0.04	—	—	690.0±19.0	—	—
		Aragats	3.8±0.05	0.01	—	510.0±71.0	0.05	—
	24 Hours	Intact	—	—	—	—	—	—
		Under influence of magnetic field	3.3±0.15	0.5	0.05	258.0±17.7	0.02	0.01
	7 Days	Intact	3.2±0.10	0.5	—	220.0±20.0	0.001	—
		Under influence of magnetic field	3.7±0.17	0.05	—	250.0±17.7	0.01	0.2
	40 Days	Intact	3.9±0.08	0.01	—	305.0±11.6	0.01	—
		Under influence of magnetic field	4.0±0.1	0.001	0.05	260.0±35.6	0.001	0.5

\*R<sub>1</sub> -- Reliability coefficient of the difference in comparison with data <sup>m</sup> and data obtained in rats under Yerevan conditions

\*R<sub>2</sub> -- Reliability coefficient of the difference in data obtained under Aragats conditions, under the influence of a magnetic field, and without it.

6/6

USSR

UDC 616-002.5+616.912+616.931.551]-034.47"72"

ISHKIL'DIN, M. I. and GRIGORYEV, R. N., Military Medical Academy imeni S. M. Kirov and Leningrad Scientific Research Institute of Tuberculosis

"Experimental Study of the Effectiveness of Simultaneous Inoculation by the Needleless Method Against Tuberculosis, Smallpox and Tetanus"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 71-76

Abstract: Rabbits were used to determine the feasibility and efficacy of simultaneous prophylactic vaccination of animals with tuberculosis (BCG) and smallpox vaccines and tetanus toxoid. Two series of experiments were conducted. The needleless method of injection was utilized. The animals in group one of the first series of experiments were intracutaneously injected with a mixture of BCG and smallpox vaccines. Rabbits in group two were given the same preparations separately, while those in groups three and four (--- control groups ---) were given either BCG or smallpox vaccine. In the second series of experiments all of the experimental animals in groups one and two, which received BCG and smallpox vaccine in a mixture or separately, were also given subcutaneous tetanus toxoid in a dose of 0.5 m and revaccinated with the same dose within 30 days. The animals of three control groups received

1/2

USSR

ISHKIL'DIN, M. I., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 71-76

respectively BCG vaccine, smallpox vaccine, or tetanus toxoid. The intensity of immunity to smallpox and tetanus was determined by the level of antibodies and sera obtained in the indirect hemagglutination reaction with ram erythrocytes treated with tannin and sensitized by concentrated tetanus toxoid or smallpox virus. The level of immunity to tuberculosis was determined by the intensity of postvaccinal allergy and the Mantoux test. Serological pathological, and bacteriological data obtained established that complex needleless immunization of rabbits with BCG and smallpox vaccines and with tetanus toxoid does not adversely affect development of postvaccinal tuberculin allergy or the production of antibodies to smallpox and tetanus. The intensity of immunity created by simultaneous vaccination with the three vaccines does not lower the immunity of the organism to the three antigens.

2/2

- 53 -

USSR

000 621.371

ISHKIN, V. Kh., TSITVER, I. I.

"Organization of Radio Communications in Power Systems in the Meter Range of Microwaves"

Vopr. ekspluat. ustroystv svyazi i telemekhan. v energosistemakh (Problems of Operational Communications Devices and Telemechanics in Power Systems -- Collection of Works), vyp. 10, Moscow, Energiya Press, 1970, pp 82-97 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A278)

Translation: A procedure is presented for calculating radio channels organized in regions with weakly broken and moderate terrain and in mountain area. Calculations of specific routes performed by the investigated procedure gave good comparison with the MKKR [International Radio Consultative Committee] data and the results of experimental measurements. There are 16 illustrations, one table, and a five-entry bibliography.

1/1



AA0040674

I

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 4/10

241583 MULTI-LAYER PIPE WELDING was improved by forming a depression under the weld in the lower layer, which is finally straightened after completion of the welding process. This method is applicable to the pipe manufacture with longitudinal and helical welded joints.

12.6.67 as 1163160/25-27. E.I. MIKLASHEV et alia.  
URAL SECT. PRODUCTION & TECHNOLOGY RES.INST.(19.69)  
Bul 14/18.4.69. Class 21b. Int.Cl.B 23k.

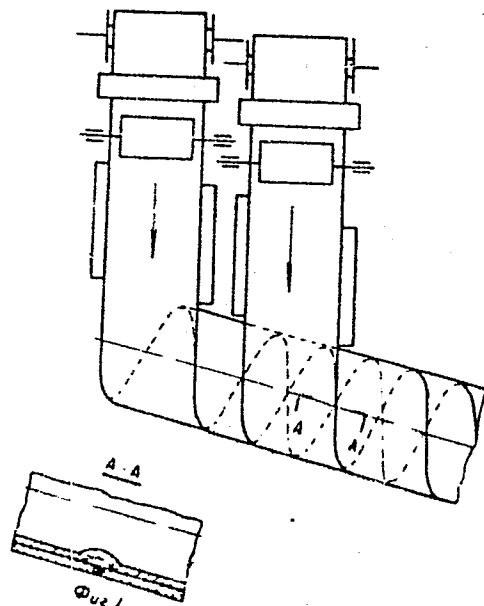
AUTHORS: Miklashevich, Ye. I.; Gur'yanov, G. F.; Ishmayev, O. N.;  
Solomonidin, O. V.; Yachmenev, O. N.; Kokorev, P. A.;  
and Voropayev, P. D. 18

Ural'skiy Filial Nauchno - Issledovatel'skogo Instituta

Tekhnologii i Organizatsii Proizvodstva

19750275

AA0040674



19750276

LD

USSR

UDC 547.341

ISHMAYEVA, E. A., KUTYREV, G. A., and PUDOVNIK, A. N., Kazan' State University  
imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Some Vinyl Derivatives of the Phosphoric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, p 2328

Abstract: Dipole moments were determined for the ethyl ester of vinylthiophosphoric acid (I) in  $\text{CCl}_4$  at  $25^\circ$ , trying to find out which conformations were the most stable ones. The theoretically calculated dipole moment of (I) was close to the experimental when the P=S and the ethyl groups were in gauche<sub>1</sub>-gauche<sub>1</sub> or gauche<sub>1</sub>-gauche<sub>2</sub> orientation, evidently due to a conformational equilibrium. Analogously the dipole moments of diethylvinylphosphine sulfide and vinyl-, vinylthiophosphonic acid dichlorides have been determined. On the basis of the dipole moment value a conjugation of a double bond with P(S)(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub> group has been demonstrated for diethylvinylphosphine sulfide.

1/1

USSR

UDC 547.20'18

ISHMAYEVA, E. A., CHERKASOV, R. A., OVCHINNIKOV, V. V., and PUDOVIK, A. N.,  
Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Organophosphorus Compounds. X. 1,3,2-Dioxa- and  
Dithiaphospholanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec '72, pp 2642-2644

Abstract: Dipole moments of the P-S bond were calculated from experimental dipole moments of 1,3,2-dithiaphospholanes. The values determined ranged from 0.26-0.25 D. The change in the bond angle S:P-Alk by  $\pm 3^\circ$  with regard to the accepted value of  $115^\circ$  results in a change of the dipole moment of the P-S bond by  $\pm 0.03$  D. The change of the dipole moment of the P-S bond caused by the effect of the elements surrounding the phosphorus atom indicates that interactions do take place in the system under investigation.

1/1

- 47 -

USSR

UDC 539.143.43+661.718.1

ISHMAYEVA, E. A., KHARRASOVA, F. M., ZAV'YALOV, A. P., and PUDOVIK, A. N.,  
Kazan State University imeni V. I. Ul'yanov-Lenin, Kazan

"The Dipole Moments of Para-Substituted Phenylphosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 71,  
pp 619-620

Abstract: The dipole moments of the p-substituted phenylphosphonates  $p\text{-XC}_6\text{H}_4\text{P}(\text{O})(\text{OEt})_2$  ( $X = \text{Me}, \text{MeO}, \text{Cl}, \text{Br}$ ) and of  $\text{PhP}(\text{O})(\text{OEt})_2$  were determined experimentally. They were also calculated on the assumption that the dipole moment of the  $(\text{EtO})_2\text{P}(\text{O})$  - group had the value 2.30 D which followed from an orientation of this group in such a manner that the components along the coordinate axes had the values  $m_x = 0.72$ ,  $m_y = 0$ ,  $m_z = 2.19$  D (shmayeva, et al Izv. AN SSSR, Ser. Khim., 1970, 2695). The calculated values for compounds  $p\text{-XC}_6\text{H}_4\text{P}(\text{O})(\text{OEt})_2$  did not correspond to the experimental values, apparently because of an interaction of X with the  $(\text{EtO})_2\text{P}(\text{O})$ -group by conjugation, through the phenyl ring. The experimentally determined dipole moment of  $\text{PhP}(\text{O})\text{Cl}_2$  corresponded to the calculated moment. 1/1

USSR

UDC 539.143.43+661.718.1

ISHMAYEVA, E. A., ZIMIN, M. G., CALEYEVA, R. M., and PUDOVNIK, A. N., Kazan State University imeni V. I. Ul'yanov-Lenin, Kazan

"The Dipole Moments of Organophosphorus Compounds. II. Benzoylphosphonates, Benzoylphosphinates, and Benzoylphosphine Oxides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 71, pp 538-543

Abstract: The diethyl esters of benzoylphosphonic acids  $X-C_6H_4COP(O)(OEt)_2$  (I) with  $X = p-Cl, m-Cl, m-Br, p-NO_2$  (bp  $150^\circ$  at 2 mm,  $146^\circ$  at 2 mm,  $164^\circ$  at 2 mm; and bp  $145^\circ$  at 1 mm, m.p.  $51.5^\circ$ , respectively) and diethyl(diphenyl) benzoylphosphine oxides  $PhCOP(O)R_2$  (II) with  $R = Et, Ph$  (bp  $155-6^\circ$  at 6 mm and  $167-8^\circ$  at 1.5 mm, respectively) were prepared. Compounds I were obtained by the reaction of  $X-C_6H_4COCl$  with triethyl phosphite and compounds II by reacting diethyl- or diphenylphosphinous acid  $HP(O)R_2$  with  $PhCOCl$ . The dipole moments of compounds I and II were determined experimentally and the spatial structure of these compounds was elucidated from the data obtained, that of ethyl esters of ethyl- and phenylbenzoylphosphinic acids from

1/2

USSR

ISHMAYEVA, E. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 71, pp 538-543

available experimental data. Differences between the experimentally determined and calculated values of the dipole moments of I indicated an interaction between X and the  $-P(O)(OEt)_2$  group.

2/2

- 48 -

USSR

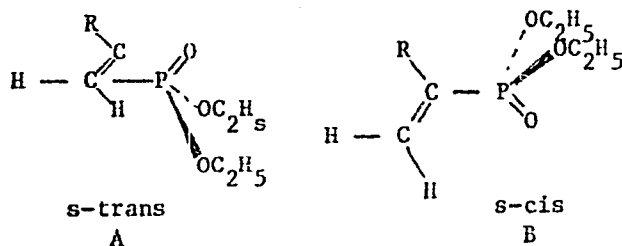
UDC 547.341

ISHMAYEVA, E. A., GAREYEV, R. D., YASTREBOVA, G. YE. PUDOVIK, A. N.

"Dipole Moments of Organophosphorus Compounds. IX. Vinylphosphonate and vinylphosphinoxides"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 73-76

Abstract: As a continuation of studies of organophosphorus compounds [E. A. Ishmayeva, et al., *Izv. AN SSSR, ser. khim.*, 2695, 1970] by the method of dipole moments to establish their spatial structure and electron density distribution, the dipole moments of the diethyl esters of  $\alpha$ -methyl,  $\alpha$ -cyano and  $\alpha$ -bromovinylphosphonic acids were determined. The possible conformers of these compounds are represented as follows:



1/2

- 40 -



USSR

ISHMAYEVA, E. A., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 73-76

The ratio of the s-cis and s-trans-conformers in the  $\alpha$ -substituted vinylphosphonates and their relative stability were determined by the electrostatic interaction of the dipoles. The presence of the rotational isomerism with respect to the  $C_{sp^2}$ -P bond was established in the diethyl ester and the acid dichloride of  $\beta$ -butoxyvinylphosphonic acid. The effective dipole moments of the  $C_{sp^2}$ -bonds in the oxides of vinylphosphines indicate conjugation of the vinyl and  $P(O)R_2$  radicals.

2/2

USSR

UDC 539.143.43:661.718.1

ISHMAYEVA, E. A., BONDARENKO, N. A., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Para-Substituted Styryl Phosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2565-2567

Abstract: Using the addition reaction of  $\text{PCl}_5$  to para-substituted styrenes, the authors synthesized the acid dichloride and diethyl ester of p-chlorostyrylphosphonic acid, determined their dipole moments and calculated the moment of the interaction of chlorine in the para position of the phenyl ring with the diethoxyphosphono group (1.12 D). This value indicates that the diethoxyphosphono group plays an important part in the general conjugation chain. The authors also determined the dipole moment of styrylphosphonic acid dichloride (3.14 D). The diethoxyphosphonic group and phenyl ring in the diethyl esters of p-halogen- and p-nitro- $\alpha$ -cyanostyrylphosphonic acids are in the transposition.

1/1

- 79 -

USSR

UDC 541.67

ISHMAYEVA, E. A., RAYEVSKIY, O. A., CHERKASOV, R. A., KHALITOV, V. V., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ulyanov-Lenin, Institute of Organic and Physical Chemistry iemni A. Ye. Arbuzov, USSR Academy of Sciences, Kazan'

"Estimating the Dipole Moment of the P-S Bond"

Moscow, Doklady Akademii Nauk SSSR, 1971, Vol 197, No 4, pp 862-864

Abstract: Successful use of the dipole-moment method in structural studies depends largely upon a rational choice of the moments of the individual bonds. In addition, special difficulties arise in connection with calculating the dipole moments of ordinary bonds in which rotation is possible. There is no published information on the dipole moment of the P-S bond, which, apart from being of interest in itself, would make possible extension of use of the dipole-moment method to the structure of organophosphorus compounds.

The authors studied experimentally the dipole moment of 2-thiono-2-methyl-1,3,2-dithiaphosphorine, and applied infrared spectroscopy to determine the dipole moment of the P-S bond.

It was found that the negative end of an ordinary P-S bond is the phosphorus, just as it is in the case of the P-O bond. Various graphic data on the infrared spectra of the above-noted compounds accompany the paper.

1/1

USSR

UDC 139.143.43:661.718.1

ISHMAYEVA, E. A., CHERKASOV, R. A., OVCHINNIKOV, V. V., and FUDOVIK, A. N.,  
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Cyclic Thio- and Dithiophosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71,  
pp 1317-1318

Abstract: The authors determined the dipole moments of cyclic thio- and  
dithiophosphonates. It is suggested that there is conformational ring mobility.

1/1

- 33 -

USSR

PUDOVIK, A. N., ISHMAYEVA, E. A., SHARGINA, I. V., Kazan University

"A Method for Preparing 2,6-bis-(dialkoxyphosphono)-dioxanes-1,4"

USSR Author's Certificate No 253804, class 12o, 26/01 (C 07 f),  
filed 24 Jan 68, published 3 Mar 70 (from RZh-Khimiya, No 21 (II),  
10 Nov 70, Abstract No 21 N599 P by G. V. Kuznetsova)

Translation: These substances, potentially useful as fungicides, are obtained by reaction of disodium derivatives of bis-(dialkoxyphosphono)-dimethyl ester with dihalo dimethyl esters; 3.34 g of Na is gradually added to a solution of 23.1 g of  $(EtO)_2P(O)CH_2OCH_4$  ( $P(O)(OEt)_2$  in 100 ml of absolute ether. After all the Na reacts, the small amount of excess  $(ClCH_2)_2O$  is added to the mixture a drop at a time. The precipitated NaCl is filtered out and 2.6-bis-(diethoxyphosphono)-dioxane-2,4 (boiling point  $154^{\circ}-7^{\circ}/1$ ,  $d_4^{20}$  1.1632,  $n_D^{20}$  1.4360) is formed from the filtrate.

1/1

- 62 -

AA0040640- ISHMAYEVA S.A. UR 0482

2

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-78

242312 CYCLONE FURNACE is more effective for treatment of charges containing a large number of components. It consists of a cylindrical shell 1 with connection 2 for fuel and air feed and connections 3 for filling the charge. The products of combustion go out through a centre tube 4 which has a contraction 7. The shell has enlargements 5 and contractions 6 and again an enlargement 8. The connections 9 are for feeding additional charge. The melt is discharged through a gate 10. The first charge is fed through the connections 3 and due to the heat in pockets 5, precious volatile components are separated. Second charge is fed through the connections 9.

8  
5  
13

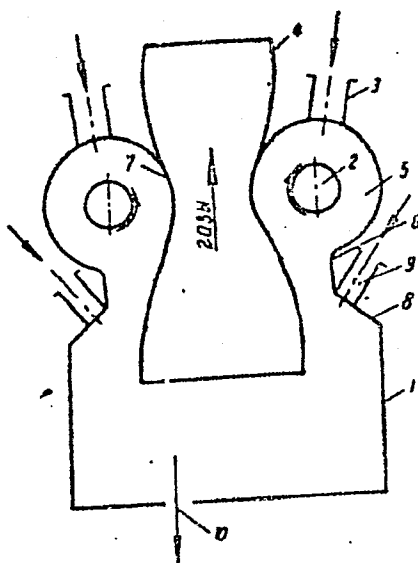
8.6.67 as 1166428/24-6. A.V.TONKONOGY et alia. POWER RES.INST.IN KAZACHSTAN (9.9.69) Bul 15/25.4.69. Class 241, 31a. Int.Cl.F 23c, F 27d.

18

1/3

19750211

AA0040640



$\frac{2}{3}$

19750212

AA0040640

AUTHORS: Tonkonogiy, A. V.; Vyshenskiy, V. V.; Balfanbayev, E.;  
Tolmachev, I. Ya.; Agureykin, S. S.; and Ishmayeva, S. A.  
Kazakhskiy Nauchno - Issledovatel'skiy Institut Energetiki

19750213

LD

$\frac{2}{3}$



Organophosphorous Compounds

USSR

ISHMAEVA, Z. A., PUDOVIK, M. A., TERENTEVA, S. A., and Associate Member of the USSR Academy of Sciences PUDOVIK, A. N., Kazan State University imeni V. I. Ulyanov-Lenin

"Determination of the P-N Bond Dipole Moment"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 21 Jan 71, pp 630-632

Abstract: The dipole moments of 1,3,2-oxaazaphospholanes with a tricoordinated phosphorus atom were determined experimentally and compared to calculated values, assuming valence angles of O-P-N  $95^\circ$ , O-C-C and N-C-C  $108^\circ$ . A value of 0.26D for the dipole moment of the P-N bond in the direction from the phosphorus to the nitrogen atom gave best agreement between experimental results and calculations made for a model for N-phenyl-2-methyl-1,3,2-oxaazaphospholane and for N-phenyl-2-ethyl-5-methyl-1,3,2-oxaazaphospholane. The polarity of the molecule was in agreement with the coplanar nature of the 5-membered ring. The dipole moments of 1,3,2-oxaazaphospholanes with a tetra-coordinated phosphorus atom were determined. Assuming that the heterocycle is also planar in this case, the dipole moment of the P-N bond was calculated. It was found that the change in hybridization of the phosphorus atom has a

1/2

USSR

ISHMAEVA, Z. A., et al, Doklady Akademii Nauk SSSR, Vol 196, No 3, 21 Jan 71,  
pp 630-632

profound effect on the dipole moment of the P-N bond, which was found to be  
equal to 0.99-1.13D. Also, insertion of a methyl group into the 5-membered  
ring changes the conformation of the ring.

2/2

- 43 -

1/2 052

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--SCATTERING OF ULTRAVIOLET RADIATION BY ANODIC ALUMINUM OXIDE -U-

AUTHOR--(03)-BOGOYAVLENSKIY, A.F., BELOV, V.T., ISHMURATOVA, A.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 286-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--UV RADIATION, ALUMINUM OXIDE, ELECTROLYTE, CRYSTAL STRUCTURE,  
METAL COATING, ALUMINUM, ENERGY SCATTERING, LIGHT SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1509

STEP NO--UR/0153/70/013/002/0286/0288

CIRC ACCESSION NO--AT0130438

UNCLASSIFIED

2/2 052

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0130438

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. AS THE THICKNESS OF AN ANODIC OXIDE FILM ON AL IS INCREASED, THE INTENSITY OF REFLECTED UV LIGHT DECREASES. WITH INCREASING VOLTAGE USED IN THE FORMATION OF THE OXIDE FILM, THERE IS A WELL DEFINED VARIATION IN THE INTENSITY OF THE REFLECTED BEAM THAT IS EXPLAINED BY CHANGES IN THE INTERNAL STRUCTURE OF THE OXIDE FILM. SCATTERING CHARACTERISTICS OF VARIOUS FILMS ARE EXPLAINED BY THE INFLUENCE OF THE ANIONS OF THE ELECTROLYTE ON THE INTERNAL STRUCTURE OF THE OXIDE. FACILITY: KAZAN. AVIATS. INST., KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 669.18.046.554

SIDOROV, N. V., GERASIMOV, Yu. V., KHAYRUTDINOV, R. M., ~~ELLATOV, S. K.~~  
KHASIN, G. A., BARMOTIN, I. P., KAS'YANOV, A. G., CHEREMNYKH, B. A., and  
ISHMURZIN, M. G., Zlatoust Metallurgical Plant, Scientific Research  
~~Metallurgical Institute, Chelyabinsk~~

"Out-of-Furnace Refining of Low-Carbon Corrosion-Resistant Steels"

Moscow, Metallurg, No 12, Dec 70, pp 22-23

Abstract: The smelting technology of low-carbon corrosion-resistant steels in electric arc furnaces with argon scavenging in the foundry ladle has been developed and introduced into production at the Zlatoust Metallurgical Plant. The main principles of the out-of-furnace degassing effectiveness depends on the chemical composition of the steel, the slag, and the scavenging parameters were investigated.

1/1

- 51 -

USSR

UDC: 531.38

ISHTULOV, A. G., KOVALENKO, V. M., KOSORYGIN, V. S., CHERNOV, A. T.,  
and SHOMSKIY, V. V.

"Aerodynamic Characteristics of Long Bodies of Revolution in the  
0.2-6.0 Mach Number Range"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR---  
Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 16-22

Abstract: The authors assert that they know of no earlier work in the experimental confirmation of results derived from the aerodynamic theory of long bodies of revolution. The fundamental point of interest in the experiments described in this paper is the effect of the body's extended length on the nature of the variation in the lift force factor and on the magnitude of the pressure center coefficient. In general, the method of the experiments was to use models of moderate length and extrapolate the results to much longer bodies. Eight such models were used, varying in the shape of the nose part and in the length of the cylindrical shaft. Drawings and scale photographs of the nose portions are shown, and a table of test results for Mach numbers of 0.2-6.0 is reproduced. Members of the Institute of Theoretical and Applied Mechanics in Novosibirsk, the authors conclude with the note that the question  
1/2

USSR

UDC: 531.38

ISHTULOV, A. G., et al, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 16-22

of the existence of eddies for small attack angles of such bodies requires further research.

2/2

- 2 -

USSR

UDC 621.791.039

~~ISHTYKOV, YU. V.~~, Engineer, ~~KOSTENKO, I. F.~~, Engineer, ~~STEPANOV, N. A.~~, Technician, ~~DAVYDOV, A. A.~~, Technician

"Protective Chamber for Welding Circular Seams on Curvilinear Surfaces"

Moscow, Svarochnoye Proizvodstvo, No 3, Mar 72, p 43

Abstract: A protective telescopic chamber for welding circular seams on stationary objects is described. The chamber has passed prolonged tests and provides reliable protection in automatic welding circular seams, 50-200 mm in diameter, on objects of OT4 and VT20 steels with curvilinear surfaces. The chamber is equipped with two movable telescopically connected cylinders of diameters greater than the diameter of the seam to be welded. Stationary objects can be welded with this chamber by rotating the upper cylinder and welding head; rotating objects are welded by a stationary upper cylinder and torch. The use of the chamber for welding in an argon atmosphere with nonconsumable electrodes has proved to be economical and to provide high-quality circular welds on curved surfaces. 1 illustration  
1/1



USSR

UDC 621.791.856.3:546.821

ISHTYKOV, Yu. V., KAZAKOV, Yu. V., and AKSENOV, N. A. (Kuybushev)

"Tungsten-Arc Welding of Titanium at Reduced Gas Pressure in the Chamber"

Kiev, Avtomaticheskaya svarka, No 3, Mar 72, pp 42-43

Abstract: The extremely large amounts of argon consumed by arc welding in a controlled atmosphere can be reduced by lowering the pressure in the chamber. According to calculations, a decrease in pressure to 10-20 mm Hg reduces the argon rate to a fraction. This promotes degassing of the weldpool and removal of oxides and contaminants both from the surface and the inner layers of the metal, which eventually results in a higher quality of welds. Tungsten-arc welding entails certain difficulties related to arc-striking and arcing in a low-pressure chamber. Described here is an experiment involving tungsten-arc pulsed and continuous welding of OT4 titanium alloy in a controlled atmosphere at pressures of 760-1 mm Hg. The process is shown to be economically effective for automatic welding. Curves are shown to demonstrate the effect of the arc length on both welding current and arc voltage at various argon pressures in the chamber. (3 illustrations, 2 tables, 2 bibliographic references)

1/1

USSR

UDC 621.391.823(088.8)

FIRSENKOV, A. I., ISHUTKIN, V. M.

"Industrial Radio Noise Simulator"

USSR Author's Certificate No 251083, Filed 24 Nov 67, Published 26 Jan 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A119P)

Translation: This author's certificate introduces an industrial radio interference simulator in which the gaussian pulse generator is connected in series with an n-bit binary random number transmitter have  $2\sqrt{2^n} - 1$  outputs, an amplitude converter formed by a set of  $2\sqrt{2^n} - 1$  channels each of which contains series connected pulse shapers and voltage dividers, and with an output attenuator. The design of the simulator permits us to obtain a logarithmically normal probability distribution law for the output flux pulse amplitudes.

1/1

Instruments and Equipment

USSR

UDC 615.478.7:628.8

ISHUYEV, S. Kh. and SADYKOV, R. S., Medfizpribor Special Technological Design Bureau of Medical and Physiological Equipment, Kazan'

"Microclimate Chamber MK-1"

Moscow, Meditsinskaya Tekhnika, Vol 5, No 2, Mar/Apr 71, pp 36-38

Abstract: The ability of an environment to add or withdraw heat is determined by the temperature, humidity, and rate of movement of the air and by the surface temperature of solid and liquid bodies. To study the effects of these factors on the heat balance in man, a chamber, called MK-1, was built in which these factors can be controlled. The walls, floor, and ceiling of the chamber are made of specially insulated panels. Conditioned air is pumped in and out by a motor located outside the chamber. Inside, numerous heat coils are distributed in various locations. The environmental parameters are selected on a control desk located outside the chamber and are maintained by appropriate  
3/2

USSR

ISHUYEV, S. Kh. and SADYKOV, R. S., Meditsinskaya Tekhnika, Vol 5, No 2, Mar/Apr 71, pp 36-38

automatic mechanisms. The experimental subject walks on an electrically driven treadmill above which fans generating a breeze are located. A second control desk, located inside the chamber, enables the operator to make additional adjustments and to communicate with the outside. The operational range of the chamber is: temperature -- 22-40 +2°C; relative humidity -- 20-90 +10%; and air breeze onto the experimental subject -- 0-10 +0.5 m/sec. The operational space is 8.5 cubic meters, the external size of the chamber is 6.5 x 4.6 x 3 meters, and its total weight is about 10 tons.

2/2

- 39 -

Acc. Nr:

AP0053420

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

U R 0366

110853z Preparation of cyclopropane hydrocarbons by the catalytic decomposition of 2-pyrazolines. Isidorov, V. A.; Ioffe, B. V.; Stolyarov, B. V. (Leningrad, Gos. Univ., Leningrad, USSR). *Zh. Org. Khim.* 1970, 6(2), 398-9 (Russ). The pyrolysis of  $\Delta^2$ -pyrazolines (I), contg. 3,5,5-Me<sub>2</sub>, 4-Et, 3,5-Me<sub>2</sub>, 4,5-Me<sub>2</sub>, or 5,5-Me<sub>2</sub> substituents, at 400° gave  $\leq 68\%$  total products contg. cyclopropanes and  $\leq 56\%$  (based on product wt.) olefins. At 300°, the product distribution was the same, but the total yields were 10-25% lower. Heating I in diethylene glycol at 230-60° gave NH<sub>3</sub>(g), but no hydrocarbons. CPJR

sw

11

REEL/FRA  
19830444

7

USSR

UDC 576.895.7

SMATOV, Zh. S., and ISIMBEKOV, Zh. M., Institute of Zoology, Academy of Sciences Kazakh SSR, and Semipalatinsk Zooveterinary Institute

"New and Little-Known Species of Bloodsucking Midges (Diptera, Ceratopogonidae) in Kazakhstan"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, No 4, Jul/Aug 71, pp 61-65

Abstract: A detailed description of two entirely new species and two species new for Kazakhstan is presented: *Culicoides sublatifrontis* Smatov et Isimbekov sp. n. has no spots on wings. Females were collected in Semipalatinskaya Oblast, Kazakh SSR in May 1965 from horses. *Culicoides brevifrontis* Smatov et Isimbekov, sp. n. -- belongs to the *circumscriptus* group. Females were collected in Semipalatinskaya Oblast from horses in August 1969. *Culicoides gutsevichi* Sen et Das Gupta has no spots on wings. Females and males were collected in Semipalatinskaya Oblast in 1966, 1967, and 1968 from men, and from horses in 1969. Females of *Culicoides* homochrous Remm. were collected in Semipalatinskaya Oblast in 1965, 1966, and 1967 from men. The specimens are kept in the Zoological Institute of the Academy of Sciences USSR in Leningrad. The following changes in the nomenclature are proposed: the name *Culicoides turanicus* Gusevich et Smatov to replace *C. kasachstanicus*, and the name *Culicoides alatavicus* Gutsevich et Smatov to replace *C. fuscus*.

1/1

- 42 -

USSR

UDC 539.219.3,543.4

KRIVOGLAZ, M. A., and ISTINOVSKIY, N. YE., Institute of Metal Physics,  
Academy of Sciences UkrSSR

"The Diffusion Movement of Impurities and Atoms and the Curving of Pores  
in an Inhomogeneous Magnetic Field"

Kiev, Metallofizika, No 31, 1970, pp 45-47

Translation: The diffusion movement of ferromagnetic particles in a non-magnetic matrix, as well as of pores or nonmagnetic particles in a ferromagnet in the presence of an inhomogeneous magnetic field is examined. The force acting on a particle creates elastic stresses causing diffusion flows of atoms and leading to a transfer of impurities. Another reason for the emergence of diffusion flows is connected with the magnetic forces acting on individual matrix atoms. The order of the velocity of impurities is evaluated and it is shown that both mechanisms make contributions of one order to the velocity. It is shown that a pore in a ferromagnet can curve considerably. It is noted that a similar curving can occur during a diffusion transfer of pores in an inhomogeneous electric field. The directed diffusion transfer of atoms in an inhomogeneous magnetic field is discussed.

Bibliography: 3 entries.

1/1

USSR

UDC 541.183

DUBININ, M. M., ISIRIKYAN, A. A., RAKHMATKARIYEV, G. U., and SERPINSKIY, V. V.,  
Institute of Physical Chemistry, Academy of Sciences USSR

"Adsorption Energy of Gases and Vapors on Microporous Adsorbents. 3. Differential Heats of Water Adsorption on Crystalline Synthetic NaA Zeolite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1269-1276

Abstract: The article describes results of the measurement of the differential heats of water vapor adsorption on crystalline NaA zeolite. A Tian-Calvet microcalorimeter was used, as well as a newly built adsorption plant in which the lubricated cocks were replaced by mercury cutoffs. The results were found to be in agreement with analogous measurements previously made by the authors on preformed NaA zeolite. The adsorption equilibrium time obtained from thermokinetic curves is found to increase with coverage, passing through a maximum at  $Q = 2.3 \text{ mJ/g}$  and then sharply declining to several hours at  $Q > 4 \text{ mJ/g}$ . This corresponds to the blocking by adsorbed water molecules of all 8-membered oxygen openings into the large cavities. The formation of a minimum and second maximum is also noted in the thermokinetic curves. This is due to the nonequilibrium adsorption process and the specifics of the energy processes which take place therewith.

1/1 The authors thank S. P. ZHDANOV for providing the NaA zeolite specimen.



I  
Entomology

USSR

UDC 591.147:595.7

ISIZIN, Yu. S., DRABKINA, A. A., Institute of the Chemistry of Natural Compounds,  
Moscow, Academy of Sciences USSR

"Juvenile Hormone of Insects and Its Analogs"

Moscow, Uspekhi Khimii, Vol 39, No 6, 1970, pp 1074-1129

Abstract: The survey covers the chemistry of the juvenile hormone of insects and its analogs. Literature data are cited on the isolation, structure determination, and synthesis of the juvenile hormone and natural compounds mimicking its action. Synthetic compounds showing hormonal activity are described and the relationship between their structure and physiological activity is discussed.

1/1

1/2 028

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--HOW WE ELIMINATED FOOT AND MOUTH DISEASE -U-

AUTHOR--(02)-ISKAKOV, K.I., LI, V.I.

COUNTRY OF INFO--USSR

SOURCE--VETERINARIYA, 1970, NR 1, PP 51-52

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOT AND MOUTH DISEASE, VACCINATION, PROPHYLAXIS, DISEASE CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1251

STEP NO--UR/0346/70/000/001/0051/0052

CIRC ACCESSION NO--AP0136697

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136697

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHIEF AND MOST EFFECTIVE MEASURE IN ELIMINATING FOOT AND MOUTH DISEASE WAS VERY STRICT OBSERVANCE OF QUANTINE REGULATIONS. A COMPLEX PROGRAM OF PROPHYLACTIC MEASURES INCLUDED VACCINATION, WHICH CREATED AN IMMUNE RING AROUND UNSAFE FOCI AND PREVENTED SPREAD OF THE DISEASE. THE FIRST OUTBREAK OF FOOT AND MOUTH DISEASE AMONG CATTLE WAS REPORTED IN FEBRUARY, 1968, AMONG PRIVATELY OWNED CATTLE. QUARANTINE WAS IMMEDIATELY IMPOSED AND ANIMALS GIVEN A DOUBLE VACCINATION WITH STRAIN A SUB22. CALVES LESS THAN TWO MONTHS OLD WERE GIVEN CONVALESCENT SERUM. A MOBILE DISINFECTION STATION TREATED LOCATIONS ON A DAILY BASIS AND SPRAYED ANIMALS EVERY THREE DAYS. ALL CATTLE ON SURROUNDING FARMS WERE VACCINATED. THE SECOND OUTBREAK OCCURRED IN SEPTEMBER, 1968, IN ANOTHER AREA. A HERD OF 32 HEAD WAS SLAUGHTERED AND QUARANTINE IMPOSED FOR A MONTH; UNTIL THE DISEASE WAS ERADICATED. A THIRD FOCUS APPEARED IN AUGUST, 1968, AMONG PASTURED CATTLE AND WAS ELIMINATED IN THE SAME MANNER. IN THE THIRD FOCUS THE SOURCE OF INFECTION WAS UNDETERMINED. FACILITY: TALDY-KURGANSKOYE OBLSEL'KHOZUPRAVLENIYE.

UNCLASSIFIED

USSR

UDC 599-01

ISKANDAROV, D., Institute of Zoology and Parasitology imeni Academician Ye. N. Pavlovskiy, Academy of Sciences Tadzhik SSR

"Bioelectric Activity of the Skeletal Muscles of Rats During Adaptation of Low and High Temperatures"

Dushanbe, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 13, No 12, 1970, pp 68-71

Abstract: Rats of the species *Nesokia indica* Gray and *Rattus turkestanicus* Satunin were adapted for 50 days to 8-10°C or 33-35°C, while grey rats from Northern Tadzhikstan were kept for the same length of time at 8-10°C only. The bioelectric activity of the muscles of the neck and the thighs, a measure of heat production by thermo regulation, tone and cold shivering, was determined during the 50-day periods of adaptation, and also at 8°C and 35°C in the beginning and at the end of the experiment. The initial activity for *N. indica* was much higher at 8°C than 35°C. During adaptation to low temperatures, the activity of neck muscles for this species first increased to a maximum on the 5th day and then decreased to a level below the initial on the 20th day, whereupon it remained at a fairly constant low level. At 33-35°C the activity of neck muscles also passed through a maximum on the

1/3

USSR

ISKANDAROV, D., Doklady Akademii Nauk Tadzhikskoy SSR, Vol 13, No 12, 1970, pp 68-71

5th day and then dropped on the 15-20th day to a level above the initial, thereupon decreasing on the 34th day. For *R. turkestanicus*, there was no initial difference in activity at 8°C and 35°C. During adaptation at 8-10°C, the activity of neck muscles dropped to a minimum on the 27th day, which was much lower than the initial value, and then passed through a maximum on approximately the 40th day. During adaptation at 33-35°C of rats of this species, the activity of neck muscles changed in a manner resembling that established for *N. indica*, passing through a maximum on the 5th day, but the mean activity during the 50-day period was higher than that for the latter species. The initial level of activity at 8°C and the activities during adaptation at 8-10°C were lower for grey rats than for the other two species. The activity of neck muscles during adaptation at 8-10°C decreased for grey rats on the 5th day, remained low until the 20th day, and then passed through a maximum above the initial level on the 27-34th day. The activities of thigh muscles for all three species showed less pronounced shifts than those of neck muscles and were much lower. Variations of the bioelectric activity of muscles during the 50-day periods of adaptation are shown in graphs. The

2/3

USSR

ISKANDAROV, D., Doklady Akademii Nauk Tadzhikskoy SSR, Vol 13, No 12, 1970,  
pp 68-71

results indicated that there were significant differences in the bioelectric activity of skeletal muscles for the three species both initially and during adaptation to high or low temperatures, and that the neck muscles participated to a greater extent than the thigh muscles in heat production at low temperatures.

3/3

USSR

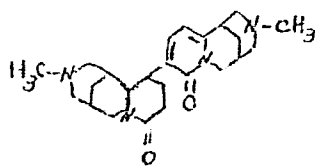
UDC 547.944/945

ISKANDROV, S., VINOGRADOVA, V. I., SHAYMARDANOV, R.A., Order of the Red Banner of Labor Institute of Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR

"Dimethamine -- a New Bimolecular Alkaloid Isolated from *Thermopsis Alterniflora*"

Tashkent, *Khimiya Prirodnikh Soyedineniy*, No 2, 1972, pp 218-222

Abstract: A new alkaloid, dimethamine, was isolated from the *Thermopsis alterniflora* by column chromatography on silica gel. The melting point of the new alkaloid is 216-217° C, accompanied by decomposition. The alkaloid is optically active and yields crystalline dihydrochloride, dipicrate and diiodomethylate. The composition and the nature of salts indicates that this substance has bimolecular structure. On the basis of IR, NMR and mass spectrometric data the following structure is proposed for the new compound.



1/1

USSR

UDC 621.317.361

IRTEGOV, YU. N., ISKANDAROV, F., PETRAKOVA, V. N., PURCHENOV, V. P.,  
SHAMIN, G. F., and ZYKOV, A. A.

"A Device for Determining and Recording the Spectral Characteristics of Complex Signals"

USSR Author's Certificate No 363930 kl G 01 r 23/18, filed 20 Jan 71, published  
7 Mar 73 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11,  
Nov 73, abstract No 11 A437P)

Translation: A device is proposed for determining and recording the spectral characteristics of complex signals, containing an input apparatus, a group of band-pass filters, a filter interrogation unit, a recording unit with electrodes, and a paper tape transport unit.

To improve the accuracy, the output of the filter interrogation unit is connected through an analog-code converter and recirculator in series, one of the inputs of which is connected to the control unit; the amplitude gradation decoder is connected to the inputs of an arbitrary symbol synthesizer.

In this approach, the control inputs of the synthesizer are connected to the <sup>1/2</sup> outputs of a vertical symbol scanning unit. The second input of this unit is



USSR

IRTEGOV, YU. N., et al., USSR Author's Certificate No 363930 Kl G 01 r 23/18

supplied with a signal from a cycle pulse generator. The control inputs of the synthesizer are also connected to the outputs of a horizontal symbol scanning unit, the input of which is connected through an electrode counter (whose input is supplied with a signal from the cycle pulse generator) to the inputs of the control unit. The control inputs of the synthesizer are also connected in parallel through the inputs of an "AND" gate to the decoder of the addresses of electrodes connected to the recording unit. One illustration.

2/2

- 22 -

USSR

UDC 547.944/945

VINOGRADOVA, V. I., ISKANDAROV, S., and YUNUSOV, S. YU., Order of the Labor  
Red Banner Institute of the Chemistry of Natural Products, Academy of Sciences  
UzSSR

"Ditermamine, a new Binolecular Alkaloid From *Thermopsis lanceolata*"

Tashkent, *Khimiya Prirodnikh Soyedineniy*, No 1, 1974, pp 87-92

Abstract: From the plant portion of *Thermopsis lanceolata*, a new binolecular alkaloid of the quinalizidine series was isolated, in addition to thermopsamine, thermopsine, citizine, N-methylcitizine, pachycarpine and rhombifoline. On the basis of NMR and mass-spectroscopic studies of this alkaloid and its hydrogenated derivatives, plus the fact that on vacuum distillation it yields thermopsine, this product was identified as  $\Delta$  5',6'-dehydro- $\alpha$ -isolupanyl-5'-thermopsin-3.

1/1