

L 12846-63

ACCESSION NR: AP3001467

15

It was shown that rare-earth elements used in metallurgy (up to 0.3%) do not change the concentration of hydrogen dissolved in molten steel. These elements formed stable nitrides and had a deoxidizing and desulfurizing effect on Armco-iron, on steel Kh23N18, and on steel 30KhGSA. The steel smelted with rare-earth elements was twice as tough as without them. The aftercharge of rare-earth elements improved the elasticity of stainless steel Kh23N18 and reduced the total amount of nonmetallic impurities. Moreover, 1% of Ni was saved, without any loss of elasticity, when rare-earths were added in making the steel 1Kh18N9T, while the addition of rare-earths to a number of structural alloy steels (30KhGSA, 12Kh1MF, 40Kh) improved their elasticity. An addition of up to 1.5 kg/t of rare-earths reduced but did not eliminate the formation of flakes in steel 37KhS, 36G2S, and 30KhSA. However, adding up to 2.7-2.8 kg/t the formation of flakes was completely eliminated. "The melts were made with the assistance of M. N. Kul'kova, B. S. Petrov, M. P. Lapshova, G. D. Shurygin, V. A. Grigor'yev, B. N. Okorkov, A. M. Yakushev, P. N. Balashev, G. R. Opaneovich, and others." Orig. art. has: 2 figures and 5 tables.

Cord 2/32

MATEVOSYAN, P.A.; DANILOV, V.I.; LAPSHOVA, M.P.; KISELEV, A.A.; LISOV, I.V.;  
VOLYANSKIY, V.M.

Improving the quality of blooming mill ingots. Stal' 23 no.12:1086-  
1087 D '63. (MIRA 17:2)

1. Volgogradskiy metallurgicheskiy zavod "Krasnyy Oktyabr'".

L 21136-65 EPA(s)-2/EWT(m)/EWP(b)/T/EWA(d)/EWP(e)/EWP(t) ASD(m)-3/AS(mp)-2  
WH/JD S/0133/64/000/009/0805/0808  
ACCESSION NR: AP4045655

AUTHOR: Oyks, G. N.; Matevosyan, P. A.; Ansheles, I. I.; Fatkullin, O. Kh.;  
Selivanov, V. M.; Shurygin, G. D.; Sivkov, S. S.; Fedan, A. T.

TITLE: Results of vacuum casting ball-bearing steel by different methods

SOURCE: Stal', no. 9, 1964, 805-808

TOPIC TAGS: vacuum casting, ball bearing steel, degassing alumina rich  
brick lining

ABSTRACT: A new method involving vacuum casting by gas circulation was developed by the authors in collaboration with B. S. Petrov, M. N. Kul'kova, Ye. N. Ponomarev, Yu. I. Ponomareva, P. M. Zimina, V. I. Fedorov and K. V. Belyakov. The new production process was compared to the method employed at Krasnyy Oktyabr' Plant comprising vacuum casting in the ladle which was found to be ineffective in the treatment of 20 to 30 ton charges. Therefore, the plant metallurgists tried out degassing of the steel in the jet as well as circulation vacuum casting. The specimens were adequately degassed with the

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steel giving up gas at a rate of 200 to 300 l/min. Hydrogen contents decreased from 43 to 54%. In the process of vacuum casting steel in the ladle, the specimens displayed greater amounts of oxide and sulfide inclusions than in circulation vacuum casting or vacuum casting during reladling. The greatest number of globular inclusion was identified in specimens produced by vacuum casting in the ladle. The appearance of this defect is attributed to the increased contact of lightweight melts with chamotte refractories. The authors give preference to circulation vacuum casting despite globule formation and suggest that the use of alumina-rich brick for the lining of the vacuum chamber through which argon is blown and for the sleeve coil lining would substantially improve this process. However, it still remains to be tested on a mass production scale and with heavy weight melts. Orig. art. has: 3 figures and 2 tables

ASSOCIATION: None  
SUBMITTED: 00  
NR REF SOV: 003

ENCL: 00  
OTHER: 002

SUB CODE: MM

Card 2/2

ADONT, G.T., doktor tekhn.rank, prof. (Yerevan); MAMUYAN, I.A., kand.tekhn.  
rank (Yerevan); AKOPYAN, S.G., inzh. (Yerevan)

Selection of a structural circuit for modeling the equations of  
a synchronous generator using an analog computer. Elektrichestvo  
no.11:19-21 N '64. (MIRA 1847)

MATEVOSYAN, P.A.; MURADYAN, S.G.

Investigating the operating precision of a condenser memory  
device used in continuous mathematical machines. Trudy Inst.  
mash., STMP no. 19:67-72 '65 (MIRA 19:1)

L 10452-67 EWT(m)/EWP(t)/ETI IJP(c) JD/DJ  
ACC NR: AP6022507 SOURCE CODE: UR/0133/66/000/004/0327/0328

AUTHORS: Oyke, G. N.; Matsvosyan, P. A.; Ansheles, I. I.; Fatkullin, O. Kh.;  
Selivanov, V. M.; Petrov, B. S.; Sivkov, S. S.; Fedorov, V. I.

41  
40

ORG: none

TITLE: Experimental smelting of ball-bearing steel by using a refusing method  
employing a new technology

SOURCE: Stal', no. 4, 1966, 327-328

TOPIC TAGS: alloy steel, ball bearing steel, metallurgic research / ShKh15 alloy  
steel

ABSTRACT: A new technology for smelting ball-bearing steel employing a refusing  
method was developed. This method is based on the results of an earlier investigation  
by G. N. Oyke, P. A. Matevosyan, I. I. Ansheles, i dr. (Novaya tekhnologiya vyplavki  
sharikopodshipnikovoy stali, Metallurgizdat, 1962). The salient points of the new  
technology are: 1) the furnace charge consists of 100% ball-bearing steel scrap; 2) to  
insure desulfonation, the slag is reduced with pulverized coke only; 3) the oxygen  
concentration is maintained by additions of red hot bauxite. After the above three  
steps, the steel is evacuated and poured in the usual way. A comparison of the new  
method with older ones is presented (see Fig. 1). It is concluded that the new method  
yields ball-bearing steel of higher quality.

UDC: 669.187.2

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L 10452-67

ACC NR: AP6022507

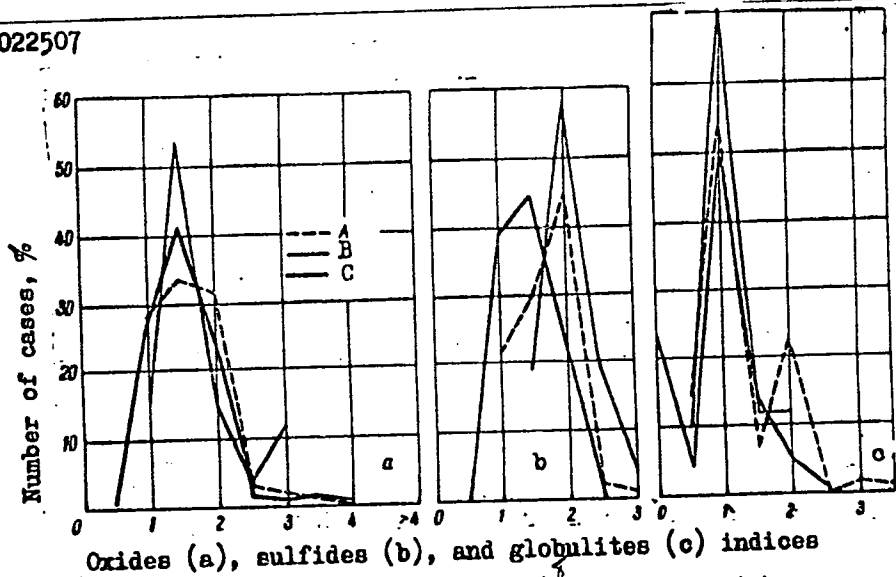


Fig. 1. Comparison of impurities in steel ShKh15: (a) oxides, (b) sulfides, and (c) globulites obtained by evacuation under usual slags (A) and slags of increased oxidative power (B - smelting with oxidation agent, C - smelting according to the new refusing method).

Orig. art. has: 2 tables and 2 graphs.

Card 2/2 *bp* SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001



MATEVOSYAN, PA.

28(2) p 4 PHASE I BOOK EXPLOITATION SOV/1394

Akademiya nauk SSSR. Institut mashinovedeniya

Voprosy sinteza i tochnosti slozhnykh ustroystv nepreryvnogo deystviya (Synthesis and Accuracy of Complex Mechanisms for Continuous Operation) Moscow, Izd-vo AN SSSR, 1958. 226 p. 3,500 copies printed.

Resp. Ed.: Bruyevich, N.G., Academician; Ed. of Publishing House: Ioffe, D.M.; Tech. Ed.: Golubeva, V.

PURPOSE: The book is intended for scientific research workers and engineers concerned with computers.

COVERAGE: This book is a collection of articles divided into two parts. The three articles of the first part deal with the synthesis and accuracy of complex mechanisms for computers, functional investigation, inputs and outputs, methods of synthesis in solving implicit functions and accuracy of the process of manufacturing parts. The second part of the book

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## Synthesis and Accuracy (Cont.)

SOV/1394

contains seven articles dealing with the accuracy of some particularly simple mechanisms: cams, gears, etc., and their design for accuracy. The articles are based on experimental material which shows that the theoretical premises and conclusions were confirmed by practical tests. The book is based on scientific work carried out by the authors in 1955-56. The authors thank the following for reviewing the book: N.Ye. Kobrinskiy, N.I. Pchel'nikov, and A.A. Fel'dbaum, Professors and Doctors of Technical Sciences; B.G. Dostupov, Docent, Doctor of Technical Sciences; T.A. Golinkevich, A.I. Ivantsov, Yu.V. Lubatov, and I.F. Seregin, Docents, Candidates of Technical Sciences; B.M. Tseytlin, Candidate of Technical Sciences. The author also thanks Professor, Doctor of Technical Sciences G.G. Baranov for assistance on problems of simple mechanisms, and N.P. Ivanikov for working on the second part of the book. There are 87 references, all Soviet.

## TABLE OF CONTENTS:

Foreword

3

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Synthesis and Accuracy (Cont.)

SOV/1394

PART I. PROBLEMS OF SYNTHESIS AND ACCURACY  
OF COMPLEX MECHANISMS FOR CONTINUOUS OPERATION

Brudevich, N.G. On the Problem of Inputs and Outputs  
in Complex Mechanisms for Continuous Operation 7

Klischov, N.A. Synthesis of Computers for Solving  
Implicit Functions by the Method of Successive  
Approximations 37

Sergeyev, V.I. Random Processes in the Problem of  
Accuracy of Mechanisms 52

PART II. ACCURACY OF SOME STANDARD COMPUTER MECHANISMS

Sergeyev, V.I. Investigation of the Effect of Servo-  
systems on the Operating Accuracy of Automated  
Differential Friction Mechanisms 65

Sergeyev, V.I. Investigation of the Accuracy of a  
Nonautomated Friction Mechanism 87

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Synthesis and Accuracy (Cont.)	SOV/1394	
<u>Matevosyan, P.A. Investigation of the Accuracy of a Universal Spindle</u>		101
Filkin, V.P. Investigation of the Accuracy of a Three-dimensional (Conoid) Cam Mechanism		121
Sergeyev, V.I. Calculation of Conoid Accuracy		156
Mikhaylov, Ye. A. On the Accuracy and Adjustment of Mechanisms With a Variable Ratio		166
Mikhaylov, Ye. A. On Spur Gearing Accuracy and Its Improvement by Means of Adjustment		202

AVAILABLE: Library of Congress

GO/rj  
5-11-59

Card 4/4

MATEVOSYAN, P.A.

25(2)

PHASE I BOOK EXPLOITATION

SOV/3438

Akademiya nauk SSSR. Institut mashinovedeniya

Trudy, tom 1: Vtoraya nauchno-tekhnicheskaya konferentsiya aspirantov i mladshikh nauchnykh sotrudnikov (Transactions of the Institute of Machine Science, Academy of Sciences, USSR, Vol 1: Second Scientific and Technical Conference of Aspirants and Junior Scientific Workers) Moscow, 1959. 182 p. Errata slip inserted. 1,000 copies printed.

Resp. Ed.: A.K. D'yachkov, Doctor of Technical Sciences, Professor;  
Tech. Ed.: B.K. Shorin.

**PURPOSE:** This book is intended for technical personnel engaged in the design of machines and mechanisms.

**COVERAGE:** This collection of scientific papers, presented at a conference held July 2-3, 1958, deals with the theory of machines and mechanisms, strength of machine parts, friction and wear in machines, and machine-building technology. No personalities

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Transactions of the Institute (Cont.)

SOV/3438

are mentioned. References follow each paper.

TABLE OF CONTENTS:

Introduction	3
Chebotareva, A.B. The Problem of Classifying Four-bar Linkages According to the Type of Kinematic Relationships	5
The author proposes the classification of four-bar linkages into three main classes. Diagrams of position functions for each class are presented.	
Grodzenskaya, L.S. The Design of Bar-linkages With a Dwell for Automatic Machines	23
The author describes methods of designing bar-linkages with dwells. These methods may also be applied in designing other types of mechanisms with dwells.	
<u>Matevosyan, P.A.</u> Some Problems in Analysis and Synthesis of Mechanical and Electronic Devices With Closed Circuits	41

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MATEVOSYAN, P.A.

25(2)

PHASE I BOOK EXPLOITATION SOV/2565

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po tochnosti v mashinostroyenii i priborostroyenii

Trudy, vyp. 12 (Transactions of the Institute of Mechanical Engineering, USSR Academy of Sciences. Seminar on Accuracy in Machine and Instrument Building, Nr 12) Moscow, Izd-vo AN SSSR, 1959. 70 p. Errata slip inserted. 2,500 copies printed.

Ed. of Publishing House: M.D. Dobshits; Tech. Ed.: N.F. Yegorova; Editorial Board: N.G. Bruyevich, Academician (Resp. Ed.); G.G. Baranov, Doctor of Technical Sciences; M.L. Bykhovskiy, Doctor of Technical Sciences; A.P. Vladziyevskiy, Doctor of Technical Sciences; and A.S. Shatalov, Doctor of Technical Sciences.

PURPOSE: This book is intended for engineers concerned with accuracy in machines and instruments.

COVERAGE: This is a collection of scientific papers dealing with the

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## Transactions (Cont.)

SOV/2565

accuracy and adjustment of various devices. The subjects discussed include calculating the accuracy of bearing subassemblies in precision mechanisms constructed in the form of shafts assembled on two radial bearings, calculating accuracy in computing devices with two degrees of freedom, design and adjustment of pneumatic gages, synchronizing the rotation of driving and driven shafts in universal joint drives, analysis of the process of forming parts by centerless grinding, and the effect of self-oscillations on the accuracy of computing devices such as resistance bridge-circuits with automatic drive for multiplying two scalar quantities.

## TABLE OF CONTENTS:

Sergeyev, V.I. On Calculating the Accuracy of Bearing Subassemblies in Mechanisms Constructed in the Form of Shafts Mounted on Two Rolling-Contact Radial Bearings 3

The author investigates errors resulting from the total axial displacement of rotating shafts of mechanisms used in precision

Card 2/5



Transactions (Cont.)

SOV/2565

instruments and discusses methods of adjustment for improving the accuracy of mechanisms. There are no references.

Lyubotov, Yu.V. On Calculating the Accuracy of Computing Mechanisms With Two Degrees of Freedom 13

The author discusses some problems concerning the effect of adjustment of computing mechanisms with two degrees of freedom on the accuracy of a computing device. He describes methods of establishing the origin of coordinate systems for driving links of such mechanisms and gives mathematical expressions for the errors of the output of a mechanism. There are 3 references, all Soviet.

Balakshin, G.B. On the Problem of Calculating the Range of Linearity and Sensitivity in Pneumatic Gages 24

The author discusses the design and adjustment of pneumatic gages which work on the principle of measuring the clearance between the gaging head and the surface of the measured part. Using a specific example, he demonstrates a graphical method of

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4

Transactions (Cont.)

SOV/2565

calculating various parameters of a gage. There are 2 references, both Soviet.

Matevosyan, P.A. On a Method of Reducing the Error in Movement of the Driven Link of a Universal Joint Drive 29

The author discusses causes of asynchronous rotation of the driving and driven shafts in universal joint drives. He describes methods for reducing error in transmitting the rotation from the driving to the driven shaft due to errors in manufacture of the drive parts and due to nonparallelism between the driving and driven shafts. There are 5 references, all Soviet.

Fil'kin, V.P. Analyzing the Forming Process of Parts by Centerless Grinding 36

The author presents an analytical investigation of the process of forming parts by centerless grinding. He derives formulas for calculating errors in the part shape and formulas for calculating the parameters of the grinder setup. There are 7 references: 4 Soviet, 2 German, and 1 English.

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MATEVOSYAN, K.A.

25(2); 9(7)

PHASE I BOOK EXPLOITATION

SOV/3128

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po tochnosti v mashinostroyeni i priborostroyeni

Trudy, vyp. 13 (Transactions of the Institute of Mechanical Engineering, USSR Academy of Sciences. Seminar on Precision in Machine Building and Instrument Construction, Nr 13) Moscow, 1959. 61 p. 2,500 copies printed.

Ed. of Publishing House: D.M. Ioffe; Tech. Ed.: I.N. Guseva; Editorial Commission: N.G. Bruyevich, Academician (Resp. Ed.), G.G. Baranov, Doctor of Technical Sciences, M.L. Bykhovskiy, Doctor of Technical Sciences, A.P. Vladziyevskiy, Doctor of Technical Sciences, B.G. Dostupov, Doctor of Technical Sciences; M.I. Kochenov, Candidate of Technical Sciences, Yu.V. Lyubotov, Candidate of Technical Sciences, D.N. Reshetov, Doctor of Technical Sciences, V.I. Sergeyev, Candidate of Technical Sciences, A.S. Shatalov, Doctor of Technical Sciences

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Transactions of the Institute (Cont.)

SOV/3128

**PURPOSE:** This collection of articles is intended for scientists working in the field of computers and electronics.

**COVERAGE:** This collection of articles was originally read at a seminar of the Academy of Sciences on the topic of accuracy in machine and instrument building. Individual articles treat measuring and computing devices. No personalities are mentioned. References follow each article.

**TABLE OF CONTENTS:**

**Chekhanadskiy, N.A.** On Some Problems of Theoretical Probability Analysis of Static Errors of Measuring Systems and 3  
The author discusses some questions of terminology, derives an expression for the total error of a measuring system, giving particular cases of application of the obtained formulas, namely, when the external excitations are absent, when the external excitations are stationary random functions of time, and when the external excitations are constant magnitudes.

**Matevosyan, P.A.** Determining Power and Direction of Energy Flow in Connections of Complex Devices  
The author gives methods for determining the number of degrees of freedom, and for determining forces and direction of energy flow in connection of complex systems.

Card 2/4

MATEVOSYAN, F. A., Cand Tech Sci (diss) -- "Investigation of the necessary conditions for building mechanical and electronic equipment with closed circuits".  
Moscow, 1960. 12 pp (Acad Sci USSR, Inst of Machine Science), 150 copies  
(KL, No 14, 1960, 132)

MATEVOSYAN, P. A.

PHASE I BOOK EXPLOITATION

SOV/4137

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po tochnosti v mashinostroyenii i priborostroyenii

Trudy, vyp. 14 (Transactions of the Institute of Machine Science, Academy of Sciences USSR. Seminar on Accuracy in Machinery and Instrument Manufacture, no. 14) Moscow, 1960. 84 p. Errata slip inserted. 2,200 copies printed.

Editorial Board: N.G. Bruyevich (Resp. Ed.), Academician; G.G. Baranov, Doctor of Technical Sciences; M.L. Bykhovskiy, Doctor of Technical Sciences; A.P. Vladziyevskiy, Doctor of Technical Sciences; B.G. Dostupov, Doctor of Technical Sciences; M.I. Kochenov, Candidate of Technical Sciences; Yu. V. Lyubotov, Candidate of Technical Sciences; D.N. Reshetov, Doctor of Technical Sciences; V.I. Sergeyev, Candidate of Technical Sciences; and A.S. Shatalov, Doctor of Technical Sciences; Ed. of Publishing House: P.F. Zolotov; Tech. Ed.: S.G. Markovich.

**PURPOSE:** This collection of articles is intended for scientific workers and design engineers.

Card 1/4

Transactions of the Institute (Cont.)

SOV/4137

**COVERAGE:** The book contains articles dealing with the accuracy of the rotating mechanism in a ten-position selector for the dial-telephone system, with bridge-type computing and measuring devices, with calculation of allowances for turbine blades, and with investigations of linear electric circuits and accuracy in automatic machining of bearing rings. No personalities are mentioned. References accompany each article.

**TABLE OF CONTENTS:**

Lebedev, P.A. Investigation of the Accuracy of the Mechanism for Revolving the Ratchet Cylinder of a Ten-Position Selector of the Dial-Telephone System	3
The author discusses the construction and operating principles of the ten-position selector used in the dial-telephone system and presents an approximate analytical method for determining kinematic parameters of the mechanism and errors in the ratchet-pawl engagement.	
Sergeyev, V.I. Effect of Inertia Loads, Dry Friction, and Backlash on Performance of Bridge-Type Computing and Measuring Instruments	20
The author presents an analytical method for determining control time and overshoot for a bridge-type multiplier with automatic actuation. The effect of inertia loading, dry friction, and backlash in gear-type speed reducer are taken into account.	

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Transactions of the Institute (Cont.)

SOV/4137

Matevosyan, P.A. Investigating the Accuracy of Complex Devices  
With Closed Circuits

The author investigates some problems of the accuracy of complex mechanical and electronic devices with closed circuits [kinematic chains of gear-cutting machines, mechanical and electronic computers of implicit functions, etc.]. The interrelation between input and output parameters of these circuits is described by algebraic equations. The accuracy and errors of the whole system are calculated from known accuracies and errors of component elements.

Fridlender, I.G. Methods of Check Calculations of Tolerances for Turbine-  
Rotor Blades

44

A method is presented for calculating dimensional tolerances and for determining physical-mechanical properties for turbine-rotor blades in order to insure the natural dynamic frequency of the blades in a speed range far enough from the operating speed to avoid resonance. Analytical and experimental methods for determining the values of partial derivatives of basic equations and vibration intensification coefficients (showing the effect of dimensional and physical-mechanical changes of blades on their natural frequency) are discussed.

Card 3/4



Transactions of the Institute (Cont.)

SOV/4137

Lyubotov, Yu. V. On a Method of Determining Errors in Linear Electric Circuits With Resistance Elements

The term errors here means the difference between nominal and actual values of parameters. The author presents an analytical method for determining coefficients showing the influence of errors and inaccuracies in assembling (parasitic parameters) on the functioning of linear resistance circuits.

Likhacheva, Ye. A., and V.I. Sergeyev. Investigation of Some Accuracy Problems in Machining Bearing Rings on Transfer Machines

The authors examine (by means of mathematical statistics) the interrelation between errors of the following and preceding operations in centerless grinding of tracks of external rings of rolling-contact bearings. It is claimed to be the first attempt to describe certain statistical regularity patterns for the operation of a group of automatic grinders used for the machining of rings.

AVAILABLE: Library of Congress

Card 4/4

VK/pw/mas  
10-25-60

S/194/61/000/011/021/070  
D209/D302

9,7000

AUTHOR:

Matevosyan, P.A.

TITLE:

Some problems in constructing electronic devices for solving algebraic equations

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika, no. 11, 1961, 9, abstract 11 B58 (Tr. In-ta mashinoved. AN SSSR. Seminar po tochnosti v mashinostr. i priborostr., 1961, no. 15, 34-44)

TEXT:

Examined are the necessary conditions for constructing complex electronic devices with closed circuits which are made by the method of direct calculation of unknowns. Experiments were carried out on the **MH-7** (MN-7), **MITT -9** (MPT-9) and **ML -2** (ML-2) machines. Devices for solving systems of two, three, four, five and six equations were built. An example of the construction of a coupled electronic device for solving a system of three linear algebraic

Card 1/2

Some problems in constructing...

S/194/61/000/011/021/070  
D209/D302

equations with three unknowns is studied. 5 figures. 8 references.  
[Abstracter's note: Complete translation]

✓  
B

Card 2/2

MA 111 V. 111111

PHASE I BOOK EXPLOITATION SOV/5617

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po tochnosti v mashinostroyenii i priborostroyenii.

Trudy. vyp. 15 (Transactions of the USSR Academy of Sciences. Institute of Machine Science. Seminar on Accuracy in Machine and Instrument Manufacture. no. 15) Moscow, Izd-vo AN SSSR, 1961. 93 p. Errata printed on the inside of back cover. 2,300 copies printed.

Editorial Board: Resp. Ed.: N. G. Bruyevich, Academician, G. G. Baranov, Doctor of Technical Sciences, M. L. Bykhovskiy, Doctor of Technical Sciences, A. P. Vladziyevskiy, Doctor of Technical Sciences, B. G. Dostupov, Doctor of Technical Sciences, M. I. Kochenov, Candidate of Technical Sciences, Yu. V. Lyubotov, Candidate of Technical Sciences, D. N. Reshetov, Doctor of Technical Sciences, V. I. Sergeyev, Candidate of Technical Sciences, and A. S. Shatalov, Doctor of Technical Sciences; Ed. of Publishing House: Yu. G. Drobyshev; Tech. Ed.: Yu. V. Rylina.

Card 1/4

Transactions of the USSR (Cont.)

SOV/5617

**PURPOSE :** This collection of articles is intended for engineers, designers, and research workers interested in the improvement of accuracy in machine and instrument manufacturing.

**COVERAGE:** The dynamic properties of centrifugal drum- and cone-type governors for electric motors are discussed. Problems are reviewed concerning accuracy in automatic dimensional control, computer adjustment, parts machining, and the distribution of dimensional errors along turbine blades. The practicability of automating computer adjustments and certain problems in constructing electronic-computer adjusting elements are considered. Conclusions concerning the results of the investigations are presented in some of the articles. No personalities are mentioned. References accompany each article. There are 42 references: 41 Soviet and 1 English.

**TABLE OF CONTENTS:**

Sergeyev, V. I. The Dynamics of a Centrifugal Drum-Type Governor  
[Reported Feb. 24, 1958]  
Card 2/4

3

Transactions of the USSR (Cont.)

SOV/5617

- Balakshin, O. B. The Development and Investigation of Methods for Increasing the Accuracy of Pneumatic Devices for Automatic Dimensional Control [ Reported March 3, 1959] 13
- Matevosyan, P. A. Certain Problems in the Construction of Electronic-Computer Devices for Algebraic Equations [ Reported April 14, 1959] 34
- Pinsker, I. Sh., and A. Ye. Dorogov. Proper Selection of the Adjusting Element and the Effect of Measurement Errors on Adjustment Accuracy [ Reported April 5, 1960] 45
- Dorogov, A. Ye. On Possibilities for the Improvement and Automation of Computer Adjustment Processes [Reported April 5, 1960] 56
- Fridlender, I. G. Criteria and Methods for Evaluating the Accuracy of Parts Machining [ Reported April 26, 1960] 68
- Fridlender, I. G. Laws of Distribution of Dimensional Errors for Gas-Turbine Blades [Reported April 26, 1960] 76  
Card 3/4

Transactions of the USSR (Cont.)

SOV/5617

Sergeyev, V. I. The Dynamics of a Centrifugal Cone-Type  
Governor [ Reported May 19, 1960]

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AVAILABLE: Library of Congress

Card 4/4

VK/wrc/jw  
11-1-61

**MATEVOSYAN, P.A.**

Solution of matrix equations of electric networks by a continuous action computer. Izv.AN Arm.SSR. Ser.tekh.nauk 15 no.2:3-10 '62. (MIRA 15:6)

1. Institut energetiki AN Armyanskoy SSR.  
(Electric networks)  
(Electronic analog computers)



MATEVOSYAN, P.A.

Multiplying devices using varistors. Izv. AN Arm. SSR. Ser.  
tekh. nauk 16 no.5:3-9 '63. (MIRA 16:12)

1. Institut energetiki AN Armyanskoy SSR.

OYKS, G.N.; MATEVOSYAN, P.A.; ANSHELES, I.I.; FATKULLIN, O.Kh.; SELIVANOV, V.M.;  
SHURYGIN, G.D.; SIVKOV, S.S.; FEDAN, A.T.; Primali uchastiye: PETROV,  
B.S.; KUL'KOVA, M.H.; PONOMAREV, Ye.N.; PONOMAREVA, Yu.I.; ZIMINA, B.M.;  
FEDOROV, V.I.; BELYAKOVA, K.V.

Results of vacuuming ball-bearing steel by various methods. Stat'  
24 no.9:805-808 S '64. (MIRA 19:10)

ADONTS, C.T., Doktor tekhn. nauk (Yerevan); MATEVOSYAN, I.A., kand. tekhn.  
nauk (Yerevan); AROPYAN, S.G., inzh. (Yerevan)

Effect of the resistance and transient processes in the stator  
winding on changes in the rotor angle of a synchronous machine.  
Elektrichestvo no.1:58-62 Ja 1965. (1965:1)

L 1942-66 EWT(m)/EWP(w)/EWA(d)/I/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) MJW/JD/IBH  
ACCESSION NR: AP5025133 UR/0133/65/000/010/0913/0914 73  
669.187.2 40 B

AUTHOR: <sup>44,55</sup> Matevosyan, P. A. (Engineer); <sup>44,55</sup> Salivanov, V. M. (Engineer); Petrov, B. S. (Engineer); <sup>44,55</sup> Andreyev, V. A. (Engineer); Tarashchenko, P. Ya. (Engineer) 44,55

TITLE: Ways of combating cracks in Kh25T steel slabs

SOURCE: <sup>25</sup> Stal', no. 10, 1965, 913-914 16

TOPIC TAGS: Kh25T steel, metal surface, annealing, metal rolling

ABSTRACT: Cracks and fractures in Kh25T steel slabs are caused by internal strain arising during the cooling of slabs after blooming. Changing of the methods of melting of this steel in open arc furnaces does not have any substantial effect on the elimination of this defect. The use of sheet ingots is also ineffective. Rolling of the slabs on a sheet mill in the hot state immediately after blooming or after a special heat treatment (annealing) eliminates the cracks, but cannot be recommended because of the poor quality of the surface of the sheets obtained. A complete prevention of the defect (for any chemical composition within the standard requirements and with the allowed content of nonmetallic inclusions) is achieved by annealing the slabs and preheating them before they are placed in the holding

Card 1/2

I 1942-66

ACCESSION NR: AP5025133

furnace for heating prior to sheet rolling. Engineers K. I. Antipov, S. A. Borodina, K. V. Balyakova, L. Ye. Vatnik, V. I. Danilin, M. N. Kul'kova, A. P. Okenko, P. Ya. Tarashchenko, and G. D. Shurygin took part in the work. Orig. art. has: 1 figure, 2 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: NN

NO REF SOV: 003

OTHER: 000

Card 2/2

L 07122-67 EWT(d)/EWP(1) LJP(c) BB/GG/JXT(CZ)

ACC NR: AT6017083

SOURCE CODE: UR/2916/65/000/019/0067/0072

AUTHOR: Matevosyan, P. A.; Muradyan, S. G.

ORG: none \*

43

TITLE: Investigating the accuracy of capacitor-type storage used in analog computers

16C

B+1

SOURCE: \*AN SSSR. Institut mashinovedeniya. Trudy. Seminar po tochnosti v mashinostroyeni i priborostroyeni, no. 19, 1965, 67-72

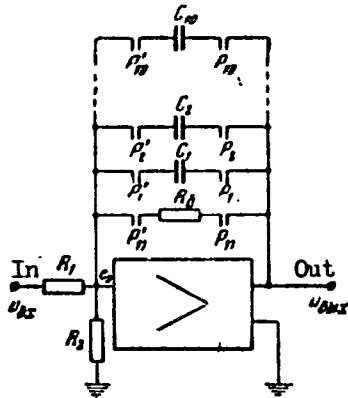
TOPIC TAGS: analog computer, computer storage, computer storage device

ABSTRACT: The results are reported of an experimental investigation of the accuracy of operation of the capacitors connected to the feedback loop of a d-c amplifier which is simultaneously used as an integration unit. Ten 1- $\mu$ F ( $\pm 0.5\%$ ) capacitors connected individually by relays were used for information storage; it was noticed that their stored voltages suffered, after switching, up to 10-13% loss. As a result of studying the causes of leaks, an improved circuit (see figure) with

Card 1/2

L 07122-67

ACC NR: AT6017083



two relays per capacitor (and resistor) was worked out. The capacitors in this circuit held their charges within  $\pm 0.5$  v after 20 switchings. Orig. art. has: 4 figures, 5 formulas, and 2 tables.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 006

Card 2/2 *eq/k*

S/133/60/000/004/004/000  
A054/A026

AUTHORS: Oyks, G.N., Professor; Matevosyan, P.P., Engineer. Sokolov  
G.A., Engineer; Ansheles, I.I., Docent; Danilin V.I. Engi-  
neer; Koncnov, B.Z., Engineer

TITLE: New Process for Melting Ball-Bearing Steel

PERIODICAL: Stal', 1960, No. 4, pp. 308 - 313

TEXT: The melting of the metal in vacuum furnaces in order to ensure an adequate degree of degasification and deoxidation is not suitable for mass production, because the capacity of these furnaces is small, the equipment complicated and expensive. It was considered more effective to melt the metal in a conventional furnace and apply vacuum treatment subsequently in the ladle. However, this method did not yield satisfactory results and tests were carried out to incorporate the vacuum treatment in the technology of steel production. In the tests a unit was employed as that used in electro-steel foundries including the two PBH-60 (RVN-60) type plate-rotor type pumps connected in series with a capacity of 60 - 48 m<sup>3</sup>/min. at a vacuum of 70 - 90% and a maximum vacuum of 15 mm Hg. In the range of residual pres

Card 1/4



New Process for Melting Ball-Bearing Steel

S/133/60/000/004,03./010  
A054/A026

tures of 5 - 10 mm the pump capacity was 25 - 40 m<sup>3</sup>/min. In order to raise the output of the pump system, steam jet ejectors were mounted at the outlet, producing a vacuum of 350 - 400 mm Hg. During the tests the vacuum treatment in the ladle was carried out: a) partly in accordance with the conventional technology, and b) partly according to a modified process. In the conventional melting process vacuum treatment in the ladle had only a little effect on deoxidation and in order to obtain a satisfactory deoxidation of the metal it was necessary that the oxygen contained in the metal before the vacuum treatment be present in the form of a solution or in the structure of inclusions easily reducible. This, however, was only possible if effective deoxidizing agents, such as silicon and aluminum (Ref. 6) were present from the solution. Therefore the reduction was carried out without ferro-silicon and aluminum which were only added to the ladle in the final stage of the vacuum treatment, mainly for the purpose of alloying. According to the new technology the ball-bearing steel was melted in a 12-ton basic arc furnace with at least 1.05% C in the metal when fusing. The bath temperature was maintained at 1,580 - 1,620°C before skimming off the oxidizing slag, i.e., somewhat higher than the usual temperature allowing sufficient reserve for the subsequent vacuum treatment. After removing the slag fer

Card 2/4

New Process for Melting Ball-Bearing Steel

S/133/60/000/004/002/C10  
A054/A026

ro-chrome was added in a quantity corresponding to the type of steel with a slag mixture containing lime, fluorite, some chippings of fireclay and dinas, amounting to 3% of the weight of the metal (a little less than the amount thus far used). Then 25 kg forge-coke was added and the furnace was hermetically closed for 20 - 25 min. Evidently at a higher temperature of reduction a thoroughly oxidized slag could be obtained also without the addition of ferrosilicon. As in the new technology one of the most important purposes of the reduction was the desulfurization of the bath, the duration was determined by the initial sulfur content of the metal and the rate of desulfurization which could be somewhat lower than in the conventional process, where slag was additionally deoxidized by ferrosilicon. The analysis showed that for identical amounts of sulfur the rate of desulfurization was even higher in the new process due to the higher temperature during reduction. The ladle was put in the vacuum chamber when the sulfur content of the metal was about 0.15 - 0.18%. The vacuum treatment of the steel containing in the solution only carbon, chrome and manganese was accompanied by violent boiling, indicating the intensity of the deoxidation under the influence of the carbon absorbed. After 5 - 6 min the boiling intensity decreased, and, while vacuum was maintained, 75%-ferrosilicon (in an amount

Card 3/4

New Process for Melting Ball-Bearing Steel

S/133/60/000/004/002/010  
A054/A026

corresponding to the average silicon content of the steel produced) and aluminum (160 g/t) were added. Then the metal was boiled for a second time for 1.5 - 2 min. The complete vacuum treatment took only 8 - 10 min. The oxidizing agents added into the ladle were assimilated to a higher degree in the new than in the conventional process (ferrosilicon to 90% as compared to 65% and aluminum to 56% instead of 30.4%). The non-metallic contaminations were analysed quantitatively according to ГОСТ 801-47 (GOST 801-47) and the globular inclusions according to the scale of TsNIIPP. The chemical and metallographical tests on non-metallic inclusions also proved the greater purity of the steel. The new method is economical: melting was shortened, reduction took 20 min less, the consumption of deoxidizing agents and the quantity of waste products decreased. The saving was 5 roubles per ton. There are 4 figures, 3 tables and 7 Soviet references.

Card 4/4

L 16749-63

EWT(1)/EWP(q)/EWT(m)/BDS AFFTC/ASD JD

S/124/63/000/004/045/064 56

AUTHOR: Matevosyan, P. P.

TITLE: Certain premises of the qualitative theory of the oscillations of elastic columnar systems with infinitely large numbers of degrees of freedom

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1963, 19, abstract 4V148 (Sb. Issled. po teorii sooruzh. vyp. 11. M., Gosstroyizdat, 1962, 127-145)

TEXT: On the basis of his earlier algebraic demonstrations (Tr. Tsentr. n.-i. in-ta stroit. konstruksii. Akad. str-va i arkhitekt. SSSR, 1961, No. 3, 252 p.-RZhMekh, 1961, 11V318) relating to the theory of quadratic forms, the author derives new qualitative results which enable one to delineate approximately, for any desired degree of accuracy, the spectrum of natural frequencies of complex linear columnar systems with an infinitely large degree of freedom. He analyzes the example of determining the spectrum of eigenfrequencies of a solid column with step by a variation, along the length, of the moment of inertia of the cross-section and the distributed masses. In his final remark, the author maintains that all of the theorems formulated in the article remain in force in those cases where the elements of the columnar constructions (systems) are prepared from nonlinearly elastic material. A. I. Oseled'ko.

Card 1/1 [Abstracter's note: Complete translation.] 18

MATEVOSYAN, A. G.

Dissertation: "The Chemistry of Para-Aminobenzaldehyde." Cand Chem Sci, Ural'  
Polytechnic Inst, Sverdlovsk, 1953. Referativnyy Zhurnal--Khimiya, Moscow, No 2,  
Apr 54.

SO: SUM 284, 26 Nov 1954

MATEVOSYAN, R.O.

USSR/Organic Chemistry. Synthetic Organic Chemistry.

E-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19127

Author : Postovskiy I. Ya. Matevosyan R.O., Sheynker Yu. N.

Inst :

Title : Structure of the Product Obtained by the Interaction of Aniline with Propargylaldehyde.

Orig Pub: Zh. Obshch. Khimiyi, 1956, 26 No 5, 1443-1448

Abstract: Structure (II)  $C_6H_5N-CH=CH-O$  is ascribed to the product obtained by the interaction of aniline with  $CH_3CCHO(I)$  (Claisen, Ber., 1903, 36, 3664) based on the study of its chemical properties and of the IR-spectrum. Analogical products are obtained with o-anizidine, m.p. 112-114° (from benzene), and  $\beta$ -naphthylamine, m.p. 124-125° (from benzene). At dehydration II yields Quinoline, and by the action of acid it is transformed into  $CH_2(CH=NC_6H_5)_2$  (III). 0.1 mole I in 10cc  $C_6H_6$  at 0° is added to 0.1

Card : 1/2

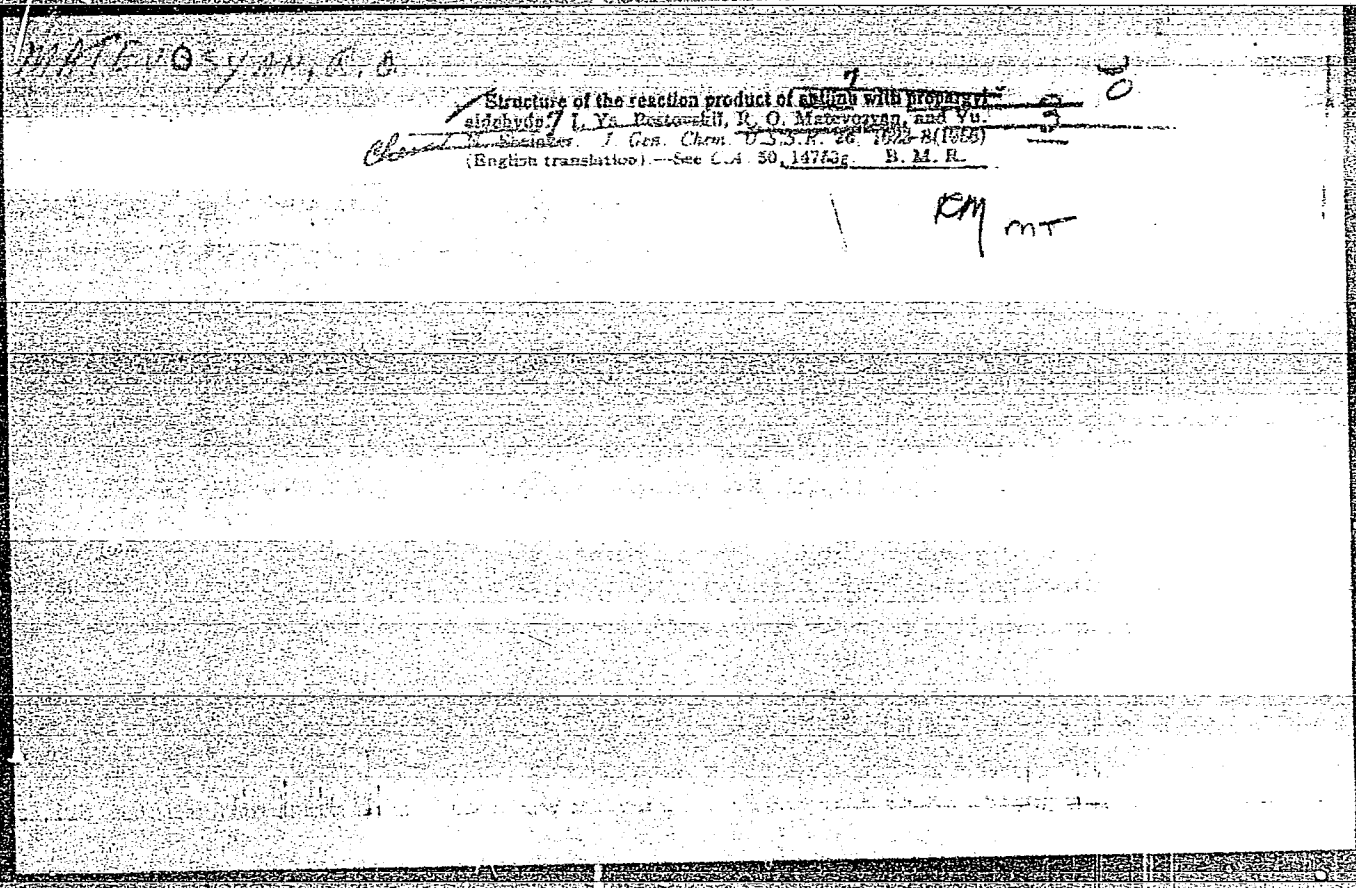
USSR/Organic Chemistry. Synthetic Organic Chemistry.

E-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19127

mole I of aniline in 20 cc C<sub>6</sub>H<sub>6</sub>, II is separated, yield is 77%, m.p. 122-123° (from benzene). By heating 2 g. of II with 20 cc of 30% alcohol and 5 cc 2 n.HCl III is obtained; yield 82%. 60 g. of II is heated for 3 hours at 55-60° with 160 cc of conc. H<sub>2</sub>SO<sub>4</sub>, poured in water, alkalisied with NaOH and distilled with steam quinoline; yield 9%. Curves of the IR-spectra of I and II, are given.

Card : 2/2





MATEVOSYAN, R O

56-4-38/54

AUTHORS: Chirkov, A.K., Matevosyan, R.O.

TITLE: Paramagnetic Resonance in New Organic Radicals  
(Paramagnitnyy rezonans v novykh organicheskikh radikalakh)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 4,  
pp. 1053 - 1054 (USSR) (Letter to the Editor)

ABSTRACT: The influence of the exchanger X in the para-position of the  $\alpha$ -phenyl ring on the exchange interaction in organic radicals is investigated. The shape of the paramagnetic resonance absorption represented by the ratio  $M_4/M_2$  serves as measure for the exchange interaction. The measurement of the paramagnetic resonance absorption was made according to the grid current method by Zavoyiskiy. The following measurement results were obtained:

Card 1/2

56-4-38/54

## Paramagnetic Resonance in New Organic Radicals

exchanger X	g-factor	$M_4/M_2$	$\Delta H$	A
H	$2,0042 \pm 0,0004$	$1,43 \pm 0,02$	$1,00 \pm 0,15$	300
Cl	$2,001 \pm 0,001$	$1,42 \pm 0,02$	$1,20 \pm 0,15$	290
Br	$2,002 \pm 0,002$	$1,40 \pm 0,02$	$2,20 \pm 0,15$	170
OCH <sub>3</sub>	$2,000 \pm 0,002$	$1,30 \pm 0,02$	$2,6 \pm 0,2$	120
F	$2,000 \pm 0,004$	weak	$4,1 \pm 0,5$	20

There are 1 table and 1 Slavic reference.

ASSOCIATION: Ural Polytechnical Institute  
(Ural'skiy politekhnicheskiy institut)

SUBMITTED: July 1, 1957

AVAILABLE: Library of Congress

Card 2/2

5 (3)

SOV/79-29-3-23/61

AUTHORS:

Matevosyan, R. O., Postovskiy, I. Ya., Chirkov, A. K.

TITLE:

Investigations in the Field of Chemistry of Free Radicals in the Hydrazine Series (Issledovaniya v oblasti khimii svobodnykh radikalov gidrazinovogo ryada). I. Some Derivatives of  $\alpha, \alpha$ -Diphenyl- $\beta$ -Picryl Hydrazyl (I. Nekotoryye proizvodnyye  $\alpha, \alpha$ -difeniil- $\beta$ -pikrilgidrazila)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 858-864 (USSR)

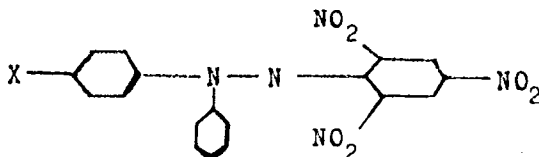
ABSTRACT:

One of the physical methods of detecting the presence of the unpaired valence electron in free radicals is the method of electron paramagnetic resonance (Ref 1). In this way a number of stable hydrazine derivatives was investigated such as the  $\alpha, \alpha$ -diphenyl- $\beta$ -picryl hydrazyl and similar hydrazyls (Refs 2-6). The application of this method permitted the investigations of the influence of various substituents in the free radical upon the unpaired electron. As initial product served the polyhalogen derivatives of  $\alpha, \alpha$ -diphenyl- $\beta$ -picryl hydrazyl (I), with substituents X in the para position of the phenyl ring (II-IV):

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SOV/79-29-3-23/61

Investigations in the Field of Chemistry of Free Radicals in the Hydrazine Series. I. Some Derivatives of  $\alpha,\alpha$ -Diphenyl- $\beta$ -Picryl Hydrazyl



where X = H(I); F(II); Cl(III); Br(IV). Two of these hydrazyls (II,III) are novel. The synthesis of these compounds was carried out according to the reaction scheme 1. The radical (IV) containing bromine, as well as the unsubstituted one were obtained according to Goldschmidt (Ref 7). The hydrazyls yield permanganate-colored chloroform solutions and readily crystallize as stable crystals of dark-violet color. By means of the above-mentioned method in the radicals obtained the exchange reactions of the unpaired electron, in dependence on the presence of one or another halogen in the para position of the phenyl radical were investigated. The determination was performed according to Zavoyskiy (Ref 8). It was found in this investigation that the highest exchange transpositions were shown by the unsubstituted hydrazyl (I), the lowest by the fluorine

Card 2/3

SOV/79-29-3-23/61

Investigations in the Field of Chemistry of Free Radicals in the Hydrazine Series. I. Some Derivatives of  $\alpha,\alpha$ -Diphenyl- $\beta$ -Picryl Hydrazyl

derivative (II). The latter is indicative of a more considerable localization of the unpaired electron in this radical as compared with the unsubstituted radical. There are 2 figures, 6 tables, and 16 references, 4 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut imeni S. M. Kirova  
(Ural Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: January 23, 1958

Card 3/3

5(3)

SOV/79-29-9-64/76

AUTHORS: Postovskiy, I. Ya., Matevosyan, R. O., Chirkov, A. K.

TITLE: Investigation in the Field of the Chemistry of the Free Radicals of the Hydrazine Series. II. Synthesis and Properties of  $\alpha$ -Biphenyl- $\alpha$ -phenyl- $\beta$ -picryl-hydrazyl and Its Halogen Derivatives

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3106-3113 (USSR)

ABSTRACT: In continuation of the papers of references 1, 2 the authors try to explain the possible influence of the chlorine- and bromine atoms on the exchange interaction of the unpaired electron of the nitrogen atom if the halogen atom is in position 4 of the biphenyl ester of the radical (II). Compounds (IIa), (IIb), (IIv) were synthesized for this purpose. These free radicals hitherto not described in publications were obtained according to the above scheme. The new radicals are very stable compounds which do not change for months even in air. They crystallize from chloroform ether in the form of almost black prisms, they are, however, dark violet, in aromatic hydrocarbons and in chloroform. The radical (IIa) is obtained in two forms by the oxidation of the nonsubstituted picryl hydrazine (VIII). After the end of the oxidation first the

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SOV/79-29-9-64/76

Investigation in the Field of the Chemistry of the Free Radicals of the Hydrazine Series. II. Synthesis and Properties of  $\alpha$ -Biphenyl- $\alpha$ -phenyl- $\beta$ -picryl-hydrazyl and Its Halogen Derivatives

radical (IIa) separates from the chloroform ether solution in prisms of almost black color (melting point  $90-91^{\circ}$ , yield 10-15%); after some hours a finely crystalline precipitate of brown color separates from the filtrate on standing at a low temperature (melting point  $160-161^{\circ}$ , yield 25-30%); it dissolves in chloroform ether with dark violet color. When vaporizing the solution, crystals of the radical with a melting point  $90-91^{\circ}$  are separated first; on standing at a low temperature the product with the melting point  $160-161^{\circ}$  again precipitates from the mother liquor. The black and brown product have the same empirical formulas. It was found by the method of paramagnetic resonance of electrons that the exchange interactions of the unpaired electron in the biphenyl radicals which are in crystalline state increase to a lesser degree in the transition from the nonsubstituted radical to the substituted one, than is the case with the corresponding phenyl radicals. It may be concluded therefrom that the biphenyl residue in the radicals (II) investigated

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SOV/79-29-9-64/76

Investigation in the Field of the Chemistry of the Free Radicals of the Hydrazine Series. II. Synthesis and Properties of  $\alpha$ -Biphenyl- $\alpha$ -phenyl- $\beta$ -picryl-hydrazyl and Its Halogen Derivatives

transfers the influence of the halogen atoms to a lesser degree in the crystalline state than the phenyl in the radicals (I). On the basis of this method it was thus found that both products are free radicals; however, they have a different structure in the crystalline state since their  $\Delta H$  are different. The measurement of paramagnetic resonance was made by A. K. Chirkov. There are 3 tables and 6 references, 4 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut  
(Urals Polytechnic Institute)

SUBMITTED: August 11, 1958

Card 3/3



04868

S/079/60/030/010/004/030  
B001/B075

112122

AUTHORS:

Matevosyan, R. O., Postovskiy, I. Ya., and Chirkov, A. K.

TITLE:

Investigation in the Field of the Chemistry of Free Radicals<sup>7</sup>  
of the Hydrazine Series. III. Synthesis and Properties of  
N-Carbazyl Picryl Nitrogen and Its Halogen Derivatives

PERIODICAL:

Zhurnal obshchey khimii, 1960<sup>7</sup>, Vol. 30, No. 10,  
pp. 3186-3193

TEXT: The spectrum of the hyperfine structure of electron paramagnetic resonance of the stable radical  $\alpha, \alpha$ -diphenyl- $\beta$ -picryl hydrazyl<sup>7</sup> (DPPH) (I) indicates that the unpaired electron on N<sup>P</sup> does not react with the  $\pi$ -electrons of the picryl- and diphenyl amine residues (Ref. 1). According to Refs. 1-3, a substitution of the diphenyl amine residue in DPPH by the coplanar carbazyl residue leads to a considerable change of the spectrum of the hyperfine structure of e. p. r. . According to the data of Ref. 4, the electron cloud of the unpaired electron in this radical is also distributed among two nitrogen atoms. However, it is not uniformly distributed but shifted toward one of the nitrogen atoms. This highly interesting

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84868

Investigation in the Field of the Chemistry of Free Radicals of the Hydrazine Series. III. Synthesis and Properties of N-Carbazyl Picryl Nitrogen and Its Halogen Derivatives S/079/60/030/010/004/030  
B001/B075

and rather stable radical has hitherto been investigated only little. The authors did not know its synthesis, and only its paramagnetic properties have been mentioned in publications. In order to determine the dependence of the free hydrazyl radicals upon their structure, the properties of the carbazyl radical and of its 3-chlorine and 3-bromine derivatives were investigated and compared with those of the corresponding diphenyl radicals (Refs. 5 and 6) (Table 1). The authors synthesized the following free radicals of the carbazyl series, which had hitherto not been described: N-(3-carbazyl chloride)-picryl nitrogen and N-(3-carbazyl bromide)-picryl nitrogen. By means of electron paramagnetic resonance it was found that in weak fields ( $\Delta H_0 = 20$  oe), N-carbazyl-picryl nitrogen and its 3-chlorine and 3-bromine derivatives contained in crystalline samples interact less than  $\alpha, \alpha$ -diphenyl- $\beta$ -picryl hydrazyl and its halogen derivatives. The authors discuss the constituting and spatial factors affecting the properties of carbazyl radicals. A reaction formula is given for the synthesis of N-carbazyl picryl nitrogen and its halogen derivatives. Two figures illustrate the results obtained, and Table 2 gives the constants of the compounds synthesized. There are 2 figures, 2 tables, and

Card-2/3

84868

Investigation in the Field of the Chemistry of Free Radicals of the Hydrazine Series. III. Synthesis and Properties of N-Carbazyl Picryl Nitrogen and Its Halogen Derivatives

S/079/60/030/010/004/030  
B001/B075

11 references: 4 Soviet, 5 US, 1 Swiss, and 1 German.

ASSOCIATION: Ural'skiy politekhnicheskiy institut  
(Ural Polytechnic Institute)

SUBMITTED: August 13, 1959

X

Card 3/3

30184

5.3610

S/079/61/031/011/004/015  
D202/D305

**AUTHORS:** Matevosyan, R. O., Ikrina, M. A. and Chirkov, A. K.

**TITLE:** A study of the free radicals in the hydrazine series  
V. Synthesis of  $\alpha, \alpha$ -diphenyl- $\beta$ -2,6-dinitro-phenyl-  
hydrazine and  $\alpha, \alpha$ -diphenyl- $\beta$ -2,4-dinitro-phenyl-  
hydrazyl, and an investigation of their chemical and  
physical properties

**PERIODICAL:** Zhurnal obshchey khimii, v. 31, no. 11, 1961, 3539-3544

**TEXT:** A continuation of previous investigation aimed at synthesizing  
2 new free radicals and investigating their properties. The starting  
products  $\alpha, \alpha$ -diphenyl-hydrazine (cpd. VII) and 2,6-dinitro-chloroben-  
zene were obtained by known methods, but in 60 - 70% yields. (Cpd. VIII) X  
 $\alpha, \alpha$ -diphenyl- $\beta$ -2,6-dinitrophenyl-hydrazine was obtained from 0.05 g mol  
of compound VII, 0.025 g mol of 2,6-dinitro-chlorobenzene and 0.01 g mol  
of calcined  $\text{NaHCO}_3$  by grinding, moistening with alcohol and fusion at  
105 - 110°C for 2 hours; after digesting with concentrated HCl, the produ  
Card 1/3

30184

S/079/61/031/011/004/015  
D202/D305

A study of the...

was extracted with ether. Recrystallization from alcohol produced orange-red crystal, m.p.  $140 - 141^{\circ}\text{C}$ ; yield— 30 ~ 35%. (Cpd. IX)  $\alpha, \alpha'$ -diphenyl- $\beta$ -2,4-dinitro phenyl-hydrazine was obtained by the same method in 30 ~ 35% yield; the m.p. was  $120 - 121^{\circ}\text{C}$ . (Cpd. V)  $\alpha, \alpha'$ -diphenyl-2,6-dinitro-phenyl-hydrazyl was obtained from a solution of 0.005 g mol of hydrazine VIII in dry  $\text{CHCl}_3$ , 0.004 g mol of anhydrous  $\text{Na}_2\text{S}_2\text{O}_4$  and an excess of  $\text{PbO}_2$ . The mixture was shaken for 2 hours and the resulting deep violet liquid was separated from the residue, and chromatographed on  $\text{Al}_2\text{O}_3$ .  $\text{CHCl}_3$  was distilled off in vacuo, the precipitate filtered and dried in vacuo for 4 ~ 5 hours. The free radical formed black crystals, m.p.  $169 - 170^{\circ}$  (with decomp), the yield being 65 ~ 70%. (Cpd. VI)  $\alpha, \alpha'$ -diphenyl- $\beta$ -2,4-dinitrophenyl-hydrazyl was obtained by the same method, but could not be crystallized. The results prove that radical V is much more stable than radical VI which is thought to be due to the screening of the  $\beta$ -nitrogen atom by  $-\text{NO}_2$  groups in the 2,6-positions of the  $\beta$ -phenyl ring. In order to compare physico-chemical properties

Card 2/3

30.34

S/079/61/031/011/004/0 5  
D202/D305

A study of the...

of radical V with those of previously obtained radical 1--diphenyl-  
picryl-hydrazyl--the authors studied the dehydration reaction of  
diphenylamine with radical V. It was found that, while the radical  
markedly reacted with diphenylamine, the radical V was completely inas-  
sive. The authors express their gratitude to Professor I. Ya. Postovskiy  
for his attention to the present work. There are 1 table and 13 refer-  
ences: 7 Soviet-bloc and 6 non-Soviet-bloc. The reference to the  
English-language publication reads as follows: C. Kikuchi, V. W. Cohea,  
Phys. Revs. 93, 394 (1954).

SUBMITTED: December 27, 1960

X

Card 3/3

MATEVOSIAN, R.A.; GABRIELIAN, No. 7.; G. B. COV, ...; ... I.Ya.

Comparative dehydrogenating capacity of some diaryl, isopropylidene  
radicals. Dokl. Akad. Nauk SSSR 197 c. 1:99-101 Nr-4p '61.  
(CIA 14:2)

1. Ural'skiy politekhicheskiy institut im. S.M. Kirova.  
Predstavleno akademikom N. . . Shemyakinym.  
(Dehydrogenation) (radicals (Chemists))

33928

S/079/62/C32/001/005/016  
D226/D302

11.1270  
11.1510

AUTHORS: Matevosyan, R.O., and Chirkhov, A F.

TITLE: Investigating properties of free radical hydrazine derivatives. VI. Synthesis and properties of  $\alpha$ -phenyl- $\alpha$ -fluorenyl- $\beta$ -picrylhydrazyl

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 1, 1962, 245-250

TEXT: The authors described in previous publications (Ref. 1: ZhOKh, 30, 1960, 3186; Ref. 2: ZhOKh, 29, 1960, 3106) the synthesis of  $\alpha, \alpha$ -diphenyl- $\beta$ -picrylhydrazyl (I), N-carbazylopicrylaminy (II) and  $\alpha$ -diphenyl- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl (III). These radicals and have shown that in its crystalline form (III) exhibits the greatest extent electron-exchange reactions and (II) exhibits then least probably because of the coplanar structure of the carbonyl group in (II) as opposed to the non-coplanar structure of the diphenyl group in (III). In order to study the effect of spatial arrangement on the exchange reactions of free radicals the authors prepared a coplanar analogue of (III), not previously described in the literature.

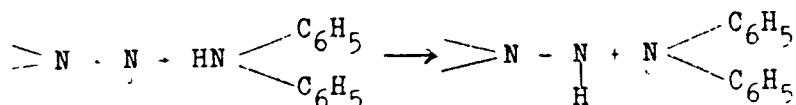
Card 1/3



33928  
S/079/62/032/001/005/016  
D226/D302

Investigating properties of free ...

re viz., 2-fluorenyl- $\alpha$ -phenyl- $\beta$ -picryl-hydrazyl (IV). The details of synthesis are given. From the line widths obtained from paramagnetic electron resonance spectra for all these radicals, it was found that IV exhibits electron exchange reactions to the least extent. The authors conclude that exchange reactions in crystalline free radicals depend on their spatial configuration. Electron exchange reactions are of two kinds: Intra- and intermolecular. The more localized the free valency electron cloud, the less stable is the free radical, the lesser is the extent of intra-molecular electron exchange reactions and the greater the extent of inter-molecular electron exchange reactions. The reactivity of radicals (I) (IV) was assessed on the basis of their reactions with diphenylamine which can be represented as follows:



Their reactivity was found to be in the order (II) > (I) > (III) > (IV). The instability of the carbazyl radicals (II) and their  
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33928

S/079/62/032/001/005/016  
D226/D302

Investigating properties of free ...

considerable electron exchange reactions are related to the localization of the free electron cloud on the  $\beta$ -nitrogen atom which in turn depends on electron density on the  $\alpha$ -nitrogen atom. The more closely bound is the electron cloud on the  $\alpha$ -nitrogen atom to the  $\pi$ -electrons of the benzene rings, the more localized becomes the unpaired electron cloud on the  $\beta$ -nitrogen and, as a result, the more unstable is the free radical and the greater the extent of electron exchange reactions. In the experimental part of the paper the authors describe methods of preparation and the properties of various amino derivatives of fluorene. There are 2 figures, 2 tables and 4 Soviet-bloc references. ✓

ASSOCIATION: Ural'skiy poltekhnicheskii institut imeni S M. Kirova  
(Ural Polytechnic Institute im. S.M. Kirov)

SUBMITTED: January 13, 1961

Card 3/3

MATEVOSYAN R.O.

33929

S/079/62/032/001/006/016  
D213/D302

11.1510  
11.1270  
AUTHORS:

Matveosyan, R.O., and Chirkov, A.K.

TITLE:

Investigating free radicals derived from hydrazine VII. Synthesis of  $\alpha$ -(4-methoxyphenyl)- $\alpha$ -phenyl- $\beta$ -picryl-hydrazyl and  $\alpha$ -(4-methoxydiphenyl)- $\alpha$ -phenyl- $\beta$ -picryl hydrazyl and the study of their chemical and physical properties

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 1, 1962, 251-256

TEXT: The authors describe the preparation of the above-mentioned radicals, whose stability was measured by chemical and physical means. The relationship between structure and reactivity of hydrazyl radicals is explained by the degree of interaction between the unpaired electron of  $N_{\beta}$  and the lone pair of  $N_{\alpha}$  which, in turn, depends on the density of the electron cloud on  $N_{\alpha}$ , i.e. on the electron attracting or repelling properties of the substituents on  $N_{\alpha}$ . The greater the electron density on  $N_{\alpha}$ , the greater the delocaliza-

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S/079/62/032/001/00E/016

D213/D302

Investigating free radicals derived ...

tion of the unpaired electron and the greater is the stability of the radical. This paper is a continuation of a previous one, where the substituents on  $N_\alpha$  were phenyl and diphenyl. This time, to increase electron density on  $N_\alpha$ , p-methoxy groups are introduced. The synthesized hydrazyls were blue in solution, and on conversion to hydrazines turned red. This property was utilized in measuring their stability by a study of the kinetics of their reaction with diphenylamine giving the corresponding hydrazines and a diphenylamine radical. The rate of reaction was measured colorimetrically, in a benzene solution, with free radical concentrations being  $6 \times 10^{-2}$  mole/l and that of diphenylamine ten times greater. To eliminate the possibility of interaction between free radicals and the solvent, a blank was made without adding diphenylamine, showing the absence of interaction with the solvent. The kinetic measurements indicated that the methoxylated compounds were more stable than the unmethoxylated ones, since their reactivity was much lower. This proved the postulated relationship between structure and reactivity to be valid. Electron paramagnetic resonance data are presented supporting the kinetic evidences. There are 1 figure, 2 tables and 2

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Investigating free radicals derived ...

S/079/62/032/001/006/016

D213/D302

Soviet-bloc references.

ASSOCIATION: Ural'skiy politekhnicheskii institut (Urals Polytechnic Institute)

SUBMITTED: January 26, 1961

X

Card 3/3

IKRINA, M. A.; MATEVOSIAN, R. O.

Chemistry of free radicals of the hydrazine series. Part 7:  
Synthesis of  $\alpha, \alpha'$ -diphenyl- $\beta$ -2,6-dinitro-4-sulfophenylhy-  
drazyl and  $\alpha, \alpha'$ -diphenyl- $\beta$ -2,4-dinitro-6-sulfophenylhy-  
drazyl. Zhur. ob. khim. 32 no.12:3952-3957 D '62.  
(MIRA 16:1)

1. Ural'skiy politekhnicheskiy institut imeni S. M. Kirova.

(Hydrazine) (Radicals(Chemistry))

13218

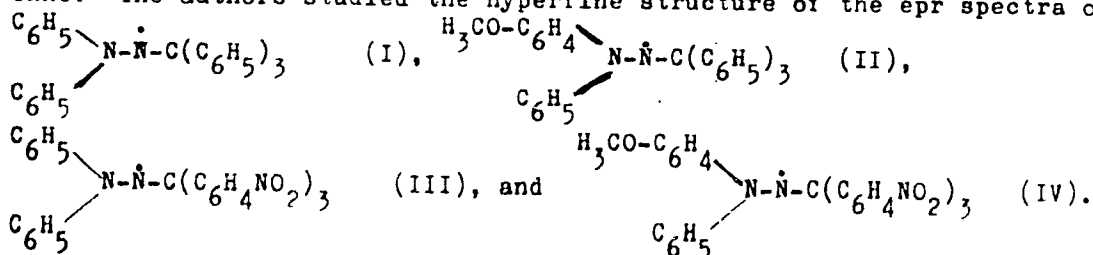
S/020/62/147/003/022/027  
B101/B186

AUTHORS: Ikrina, M. A., Il'yasov, A. V., Kozyrev, B. M., Matevosyan, R. O., Ryzhmanov, Yu. M., Yablokov, Yu. V.

TITLE: Hyperfine structure of the e.p.r. spectra of  $\alpha, \alpha$ -diphenyl- $\beta$ -triphenyl methyl hydrazyl and its derivatives

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 3, 1962, 618-621

TEXT: The authors studied the hyperfine structure of the epr spectra of



As these radicals were unstable in air, the reaction mixture of hydrazines  
Card 1/4

Hyperfine structure of ...

S/020/62/147/003/022/027  
B101/B186

(< 0.001 moles/l) dissolved in benzene or chloroform, was evacuated at 77°K, and the e.p.r. spectrum was recorded in vacuo at 9330 Mcps. Each spectrum contains seven completely resolved components of hyperfine structure. Each component was restructured owing to an effect caused by protons at the periphery. This additional structure, however, is not discussed, as the data are insufficient for identifying these protons. The experimental data were analyzed by constructing a theoretical nine-component spectrum, for which the values for  $A_1$ ,  $A_2$ , and  $\Delta H$  were so chosen as to make the position and shape of the lines consistent with the experimental spectrum. A computer was used to calculate the data for  $A_1/A_2$ ,  $A_1 + A_2$  (oe),  $A_1 (\pm 0.20 \text{ oe})$  and  $A_2 (\pm 0.20 \text{ oe})$  : for I 0.472, 17.70, 5.68, 12.02; for II 0.502, 17.80, 5.95, 11.85; for III 0.582, 18.20, 6.70, 11.50, and for IV 0.604, 18.33, 6.91, and 11.42, respectively. As compared with the results for diphenyl picryl hydrazyl obtained by M. M. Chen, K. V. Sane et al. (J. Phys. Chem. 65, 713 (1961)), the shift of the unpaired electron in  $\alpha, \alpha$ -diphenyl- $\beta$ -triphenyl methyl hydrazyl and its derivatives is mainly restricted to the two N atoms and  $\alpha$ -phenyl groups. This explains the low stability of these radicals. The presence of the acceptor phenyl groups of triphenyl methyl

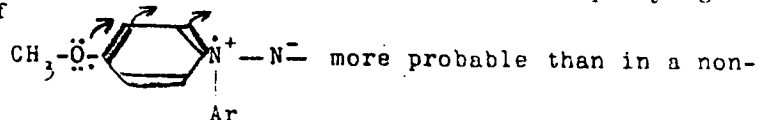
Card 2/4

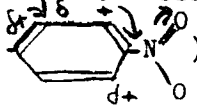


Hyperfine structure of ...

S/O20/62/147/005/022/027  
B101/B186

increases the electron density of the unpaired electron on the N atom. Substitution of one methoxy group for one p-H atom of the  $\gamma$ -phenyl group makes the existence of



substituted radical. Substitution of  $\text{NO}_2$  for one p-H in the phenyl group of triphenyl methyl causes polarization of the electron clouds of the  $\text{-C-C-}$ ,  $\text{-}\ddot{\text{N}}\text{-C-}$ , and  $\text{-}\ddot{\text{N}}\text{-}\ddot{\text{N}}\text{-}$  bonds. Polarization decreases in the following sequence:  $\text{-}\ddot{\text{N}}_{\alpha}\text{-}\ddot{\text{N}}_{\beta}\text{-C} \rightarrow$ 

 $\text{-}\ddot{\text{N}}_{\alpha}\text{-}\ddot{\text{N}}_{\beta}\text{-C} \rightarrow$  This explains that the density

of the unpaired electron on the  $\text{N}_{\alpha}$  atom revealed by the high  $A_1/A_2$  values, is higher than in nonsubstituted radicals. There are 1 figure and 2 tables. The most important English-language references are: R. M. Deal, W. S. Koski, J. Chem. Phys., 31, 1138 (1959); N. W. Lord, S. M. Blinder, J. Chem. Phys., 34, 1693 (1961); Y. Deguchi, J. Chem. Phys., 32, 1584 (1960).  
Card 3/4

Hyperfine structure of ...

S/020/62/127/003/022/017  
B101/3186

ASSOCIATION: Fiziko-tekhnicheskii institut Kazanskogo filiala Akademii nauk SSSR (Physicotechnical Institute of the Kazan' Branch of Academy of Sciences USSR); Ural'skiy politekhnicheskii institut im. S. M. Kirova (Ural Polytechnic Institute imeni S. M. Kirov)

PRESENTED: June 29, 1962, by B. A. Arbuzov, Academician

SUBMITTED: June 22, 1962

Card 4/4

KOZYREV, B.M.; YABLOKOV, Yu.V.; MATEVOSYAN, R.O.; IKRINA, M.A.;  
IL'YASOV, A.V.; RYZHMANOV, Yu.M.; STASHKOV, L.I.; SHATRUKOV, L.F.

Electron paramagnetic resonance in substituted diphenylpicrylhydrazyls.  
Opt. i spektr. 15 no.5:625-635 N '63. (MIRA 16:12)

S/079/63/033/002/005/009  
D204/D307

**AUTHORS:**

Matavosyan, R.O. and Ikrina, M.A.

**TITLE:**

Studies of the chemistry of the free radicals of the hydrazine type. IX. Synthesis of  $\alpha$ ,  $\alpha$ -diphenyl- $\beta$ -2,6-dinitro-4-carboxyphenylhydrazyl (A) and  $\alpha$ ,  $\alpha$ -diphenyl- $\beta$ -2,6-dinitro-4-bromophenylhydrazyl (B)

**PERIODICAL:**

Zhurnal obshchey khimii, v. 33, no. 2, 1963, 499 - 503

**TEXT:**

The present paper is a continuation of earlier work (ZhOKh, 31, 11, 3539 (1961); ZhOKh, 32, 3952 (1962)). Compounds A and B were prepared for the first time by reacting  $\alpha$ ,  $\alpha$ -diphenylhydrazine with 3,3-dinitro-4-bromobenzoic acid and with 2,6-dinitro-*p*-dibromobenzene respectively, and oxidizing the resultant hydrazines to hydrazyls with excess  $PbO_2$  in  $CHCl_3$ . The m.p.'s of A and B were respectively 186 - 188°C and 150 - 152°C. Both A and B dissolved readily in the usual organic solvents, to give deep violet solutions; in  $CHCl_3$

Card 1/2

Studies of the chemistry ...

S/079/63/033/002/005/009  
D204/D307

solutions, they could be reduced back to the hydrazines with hydroquinone. There is 1 table.

ASSOCIATION: Ural'skiy politekhnicheskij institut imeni S.M.Kirova  
(Urals Polytechnic Institute imeni S.M. Kirov)

SUBMITTED: January 2, 1962

Card 2/2

IKRINA, M.A.; MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 10: Synthesis of  $\alpha,\alpha$ -diphenyl- $\beta$ -2,4-dinitro-6-methoxyphenylhydrazine,  $\alpha$ -phenyl- $\alpha$ -(4-methoxyphenyl)- $\beta$ -2,4-dinitro-6-methoxyphenylhydrazine and study of their properties. Zhur.ob.khim. 33 no.12:3897-3902 D '63.

Chemistry of free radicals of the hydrazine series. Part 11: Interaction of  $\alpha,\alpha$ -diphenyl- and  $\alpha$ -phenyl- $\alpha$ -(4-methoxyphenyl)hydrazine with trinitroboronmethane and tetranitromethane. Ibid.:3903-3906

Chemistry of free radicals of the hydrazine series. Part 12: Synthesis of  $\alpha$ -( $\alpha$ -naphthyl)- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl and  $\alpha$ -( $\beta$ -naphthyl)- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl. Ibid.:3907-3911 (MIRA 17:3)

L. Ural'skiy politekhnicheskii institut imeni Kirova.

MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 13: Synthesis of phenylbenzyl-, phenylbenzoyl-, and phenylcyclohexylpicrylhydrazines and study of their properties. Zhur.ob.khim. 34 no.1:133-137 Ja '64.  
(MIRA 17:3)

1. Ural'skiy politekhnicheskii institut imeni S.M.Kirova.

STASHKOV, L.I.; MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 14: Synthesis of  $\alpha, \alpha$ -( $\alpha$ -dinaphthyl)- $\beta$ -picrylhydrazine and  $\alpha, \alpha$ -( $\beta$ -dinaphthyl)- $\beta$ -picrylhydrazyl. Zhur.ob.khim. 34 no.1:137-141 Ja 64.  
(MIRA 17:3)

1. Ural'skiy politekhnicheskiy institut imeni S.M.Kirova.



IKRINA, M.A.; MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 15: Synthesis of  $\alpha, \alpha$ -diphenyl- $\beta$ -triphenylmethylhydrazyl,  $\alpha, \alpha$ -diphenyl- $\beta$ -tri(p-nitrophenyl)methylhydrazyl and study of their properties. Zhur.ob. khim. 34 no.1:142-145 Ja '64. (MIRA 17:3)

1. Ural'skiy politekhnicheskii institut imeni S.M.Kirova.

MATEVOSYAN, R.O.; IKRINA, M.A.

Chemistry of free radicals of the hydrazine series. Part 16:  $\alpha, \alpha$ -Di-phenyl- $\beta$ -2,4,6-trimethylphenylhydrazine and its properties. Zhur. ob.khim. 34 no.2:664-668 F '64.

Chemistry of free radicals of the hydrazine series Part 17: Synthesis of  $\alpha$ -phenyl- $\alpha$ -(4-methoxyphenyl)- $\beta$ -triphenylmethylhydrazyl,  $\alpha$ -phenyl- $\alpha$ -(4-methoxyphenyl)- $\beta$ -tri(p-nitrophenyl)methylhydrazyl and the study of their properties. Zhur. ob.khim. 34 no.2:668-671 F '64. (MIRA 17:3)

1. Ural'skiy politekhnicheskii institut, imeni S.M.Kirova.

L 16629-65 EWT(m)

ACCESSION NR: AP4044453

S/0076/64/038/008/2102/2104

AUTHOR: Toporkov, V. N.; Matevosyan, R. O.; Stashkov, L. I.; Dariyenko, Ye. P. B

TITLE: An instrument for studying the kinetics of chemical reactions

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 8, 1964, 2102-2104

TOPIC TAGS: recording spectrophotometer, slidewire, constant-temperature cell

ABSTRACT: The purpose of this work was to modify the existing spectrophotometer SF-2M in such a way as to enable thermostating of the cell and to equip it with a recorder. For this purpose a Wobser thermostat and a linear 10 mv full scale recording potentiometer were used. In addition the modification included a slidewire, mounted on the case of the recording mechanism of the spectrophotometer and a cover for the chamber with the investigated samples. The exploded view

and a cover for the chamber with the investigated samples. The exploded view of the slidewire is shown in fig. 1 of the enclosure. The article describes in detail the connection of the slidewire to the spectrophotometer and its operation. The cover to the sample chamber has two walls which form a jacket through which

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L 16629-65  
ACCESSION NR: AP4044453

flows a liquid thermostatted to the desired temperature. The inner wall of the cover has copper fins attached to it, which facilitate more rapid establishment of temperature. The temperature is set according to the thermometer, the bulb of which is located just above the investigated sample. This thermometer is insulated from the tube, which passes through the cover by a cloth gasket. In order to establish the same temperature in the rest of the compartment its inner surface are covered with an insulator. The constant temperature in the compartment is established 20-30 min. after the cover is closed. Using this apparatus it was possible to obtain more detailed data on the reaction mechanism of hydrozyl radicals and aromatic amines. It is noted that by means of this set-up it is possible to investigate the kinetics of any chemical reactions which are accompanied by color change. Orig. art. has: 2 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)

SUBMITTED: 06Sep63  
SUB CODE: G2

ENCL: 01  
NO REF SOV: 000  
OTHER: 000

Card 2/3

L 16629-65  
ACCESSION NR: AP4044453

ENCLOSURE: 01

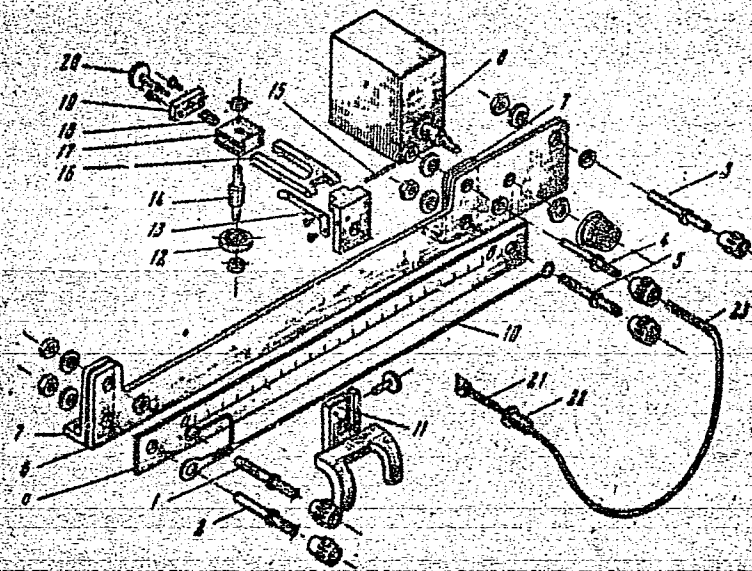


fig. 1  
Exploded view of slidewire  
1, 2, 3, 4, 5-clamps; 6-  
slidewire base; 7-angles;  
8. rheostat; 9-scale; 10-  
wire; 11-clamp for SF-2M  
recorder pen; 12-ball bear-  
ing; 13-leaf spring; 14-axis  
15-fork axis; 16 fork; 17-  
guide; 18-spring; 19-plate  
with tapped hole for adjust-  
ment screw; 20-adjustment  
screw; 21-contace rod;  
22-insular insert; 23-con-  
necting cable with end piece

Card 3/3

STASHKOV, L.I.; MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 20:  
Synthesis of  $\alpha$ - $\alpha$ -diphenyl- $\beta$ -2,4,6-trinitro-3-methylphenyl-  
hydrazyl and  $\alpha$ -(1-naphthyl)- $\beta$ -phenyl- $\beta$ -2,4,6-trinitro-3-  
methylphenylhydrazyl. Zhur. ob.khim. 34 no.12:4057-4059 D '64  
(MIRA 18:1)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova.

RYZHMANOV, Yu., M.; YABLOKOV, Yu. V.; KOZYREV, B. M.; MATEVOSYAN, R. O.  
STASHKOV, L. I.

Electron magnetic resonance of meta-substituted  
 $\alpha, \omega$ -diphenyl- $\beta$ -picrylhydrazyl. Dokl. AN SSSR 156 no. 1:  
106-109 My '64. (MIRA 17:5)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i  
Ural'skiy politekhnicheskiy institut im. S. M. Kirova.  
Predstavleno akademikom A. Ye. Arbuzovym.



STASHKOV, L.I.; MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 21:  
Mechanism of the reaction of *o,o'*-diphenyl- $\beta$ -picrylhydrazyl  
with phenyl- $\beta$ -naphthylamine. *Zhur.org.khim.* 1 no.3:554-556  
Mr '65.

Chemistry of free radicals of the hydrazine series. Part 22:  
Synthesis of *o,o'*-diphenyl- $\beta$ -2,4,6-trinitro-3-chloro, piperidyl,  
morpholinyl, and methoxyphenylhydrazyls. *Ibid.*:556-559  
(MIRA 18:4)

1. Ural'skiy politekhnicheskii institut im. S.M.Kirova, g.  
Sverdlovsk.

STASHKOV, L.I.; MATEVOSYAN, R.O.

Chemistry of free radicals of the hydrazine series. Part 23:  
Synthesis of N,N'-[bis-( $\alpha$ , $\alpha$ -diphenylhydrazyl)- $\beta$ -picryl-  
3-yl]-piperazine. Zhur. org. khim. 1 no.4:624-626 Ap 65.  
(MIRA 18:11)

1. Ural'skiy politekhnicheskii institut imeni Kirova,  
Sverdlovsk.

MATEVOSYAN, R.O.; PETROV, L.A.

Chemistry of free radicals in the hydrazine series. Part 19:

Synthesis of

$\alpha$ -(N-methyl-1-benzotriazolyl)- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl and

the study of its properties. Dokl. Akad. Nauk SSSR, no. 7:1299-1303

1965.

(MIRA 18:11)

1. Ural'skiy politekhnicheskii Institut imeni S.M.Kirova.

MATEVOSYAN, R.O.; STASHKOV, L.I.

Chemistry of free radicals of the hydrazine series. Part 24:  
Synthesis and properties of 1,3-di[ $\beta$ -(diphenylhydrazinyl)]-2,  
4,6-trinitrobenzene and 1,3-di[ $\beta$ -( $\beta$ , $\beta$ -dinaphthylhydrazinyl)]-  
2,4,6-trinitrobenzene. Zhur. org. khim. 1 no.9:1677-1679 S '65.  
(MIRA 18:12)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova,  
Sverdlovsk. Submitted May 28, 1964.

PETROV, L.A.; MATEVOSYAN, R.O.; GALYAMINSKIKH, V.D.

Chemistry of free radicals of the hydrazine series. Part 25:  
Synthesis of  $\alpha$ -(2-benzothiazolyl)- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl.  
Zhur. org. khim. 1 no.9:1679-1682 S '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskii institut imeni S.M. Kirova.  
Submitted May 28, 1964.

MATEVOSYAN, R.O.; PETROV, L.A.; ABRAMOVA, N.I.

Chemistry of free radicals of the hydrazine series. Part 26:  
 $\alpha$ -(2-benzoxazolyl)- $\alpha$ -phenyl- $\beta$ -picerylhydrazinyl,  $\alpha$ -(2-naphth-  
oxazolyl)- $\alpha$ -phenyl- $\beta$ -picerylhydrazyl and their properties.  
Zhur. org. khim. 1 no.9:1682-1685 S '65.

(MIRA 18:12)

1. Ural'skiy politekhnicheskii institut imeni S.M. Kirova.  
Submitted May 28, 1964.

MATEVOSYAN, R.O.; KHOLEVINSKAYA, L.V.; CHIRKOV, A.K.

Studies in the chemistry of free radicals of the hydrazine series.  
Interaction of  $\alpha$ - $\alpha$ -diphenyl- $\beta$ -picrylhydrazyl with trichloroacetic  
acid and a series of organic bases. Zhur. org. khim. 1 no.9:  
1703-1704 S '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskii institut imeni S.M. Kirova.  
Submitted May 28, 1964.

MATEVCSYAN, R.O.; PETROV, L.A.; GALYAMINSKIKH, V.D.

Synthesis of N,N-[bis( $\alpha$ -benzo-2-thiazolyl)- $\alpha$ ,-phenyl- $\beta$ -  
picryl-3-hydrazily] piperazine. Zhur. org. khim. 1 no.9:1710  
S '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskikh institut S.M. Kirova.  
Submitted April 19, 1965.



MATEVOSYAN, R.O.; YEL'CHINOV, D.P.

Chemistry of free radicals of the hydrazine series. Part 29:  
 $\alpha$ -2-thiazolyl- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl,  $\alpha$ -(4-phenyl-2-  
thiazolyl)- $\alpha$ -phenyl- $\beta$ -picrylhydrazyl,  $\alpha$ -(4,5-diphenyl-2-thiazolyl)-  
 $\lambda$ -phenyl- $\beta$ -picrylhydrazyl and their properties. Zhur. org.  
khim. 1 no.11:1914-1917 N '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova.  
Submitted November 5, 1964.

MATEVOSYAN, R.O.; STASHKOV, I.I.

Chemistry of free radicals of the hydrazine series. Part 30.  
Relative stability of hydrazyl radicals. Zhur. org. khim. 1  
no.11:1918-1922 N '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskii institut imeni S.M. Kirova.  
Sverdlovsk. Submitted November 6, 1964.

MATEVOSYAN, R.O.; STEPANOV, A.P.; STASHKOV, L.I.; RUDAYA, M.N.

Chemistry of free radicals of the hydrazine series. Part 31:  
Relative stability of some hydrazyl radicals in dioxane.  
Zhur. org. khim. 1 no.11:1922-1927 N '65. (MIRA 18:12)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova,  
Sverdlovsk. Submitted November 27, 1964.

I 34887-66 EWT(m)/EWP(j) JW/RM

SOURCE CODE: UR/0366/65/001/012/2087/2089

ACC NR: AP6026577

AUTHOR: Matevosyan, R. O.; Stashkov, L. I.

ORG: none

TITLE: Investigations in the chemistry of free radicals of the hydrazine series. XXXII. Synthesis of N-carbazyl-2,4,6-trinitro-3-chloro-, piperidyl-, and morpholylphenylazotes

SOURCE: Zhurnal organicheskoy khimii, v. 1, no. 12, 1965, 2087-2089

TOPIC TAGS: chemical synthesis, hydrazine, organic azo compound, electron spin, substituent, amine, organic nitrogen compound, molecular structure

ABSTRACT: Studies have shown that introducing piperidyl, morpholyl, or methyl moieties in the meta-position of the picryl group of certain hydrazyl radicals leads not only to equalizing of the spin densities of the unpaired electron at the alpha- and beta-nitrogen atoms, but also to appreciable stabilization of hydrazyls. Therefore, it was of interest to investigate the effect of meta-substituents in the trinitrophenyl group on the physicochemical properties of the highly reactive carbazylpicrylazote. A series of compounds was synthesized: N-carbazyl-2,4,6-trinitro-3-chlorophenylamine, N-carbazyl-2,4,6-trinitro-3-piperidylphenylamine; N-carbazyl-2,4,6-trinitro-3-morpholylphenylamine, N-carbazyl-2,4,6-trinitro-chlorophenylnitrogen, N-carbazyl-2,4,6-trinitro-3-piperidylphenylnitrogen, and N-carbazyl-2,4,6-trinitro-3-morpholylphenylnitrogen. It was found that the special characteristics of the structure of hydrazyl radicals have a definite role in the stabilization of isomeric forms of hydrazine free radicals. [JPRS: 36,455]

SUB CODE: 07 / SUBM DATE: 04Dec64 / ORIG REF: 004 / OTH REF: 001

Card 1/1

UDC: 541.515:547.759.32