

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SCREW PROPELLERS FOR LAUNCHES -U-
AUTHOR--KHEZFETS, L.L. K
COUNTRY OF INFO--USSR
SOURCE--(GREBNIYE VINTY DLYA KATEROV) LENINGRAD, SUDOSTROYENIYE, 1970, 179
PP
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SHIP PROPELLER, SHIPBUILDING ENGINEERING, HYDROFOIL,
CAVITATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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UNCLASSIFIED

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PROCESSING DATE--13NOV70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: FROM THE AUTHOR 3. CHAPTER I CHARACTERISTICS OF OPERATING CONDITIONS OF LAUNCH SCREW PROPELLERS 5. II BASIC CONCEPTS AND DEFINITIONS 11. III COEFFICIENTS OF INTERACTION OF THE PROPELLER WITH THE HULL 17. IV DIAGRAMS FOR CALCULATION OF SCREW PROPELLERS 22. V THE CONCEPT OF CAVITATION 30. VI DESIGN OF A SCREW PROPELLER 41. VII CALCULATION OF HYDRODYNAMIC CHARACTERISTICS OF THE SCREW PROPELLER AND PLOTTING OF RATING DIAGRAMS 74. VIII DESIGN OF CAVITATING SCREW PROPELLERS BY EXPERIMENTAL DIAGRAMS 99. IX DETERMINATION OF STRUCTURAL ELEMENTS OF SCREW PROPELLERS 113. X OPERATION DRAWINGS OF THE SCREW PROPELLER 123. XI FULL SCALE TESTS AND FINAL ADJUSTMENT OF SCREW PROPELLERS 147. BIBLIOGRAPHY 177.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SCREW PROPELLERS FOR LAUNCHES -U-
AUTHOR--KHEYFETS, L.L.
COUNTRY OF INFO--USSR
SOURCE--(GROBNIYE VINTY DLYA KATEROV) Leningrad, SUDOSTROYENIYE, 1970, 179
PP
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SHIP PROPELLER, MARINE PROPULSION, HYDROSOIL, CAVITATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0245

STEP NO--UR/0000/70/000/000/0001/0179

CIRC ACCESSION NO--AM0132509

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0132509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM THE AUTHOR 3. CHAPTER I CHARACTERISTICS OF OPERATING CONDITIONS OF LAUNCH SCREW PROPELLERS 5. II BASIC CONCEPTS AND DEFINITIONS 11. III COEFFICIENTS OF INTERACTION OF THE PROPELLER WITH THE HULL 17. IV DIAGRAMS FOR CALCULATION OF SCREW PROPELLERS 22. V THE CONCEPT OF CAVITATION 30. VI DESIGN OF A SCREW PROPELLER 41. VII CALCULATION OF HYDRODYNAMIC CHARACTERISTICS OF THE SCREW PROPELLER AND PLOTTING OF RATING DIAGRAMS 74. VIII DESIGN OF CAVITATING SCREW PROPELLERS BY EXPERIMENTAL DIAGRAMS 99. IX DETERMINATION OF STRUCTURAL ELEMENTS OF SCREW PROPELLERS 113. X OPERATION DRAWINGS OF THE SCREW PROPELLER 123. XI FULL SCALE SPEED TESTS AND FINAL ADJUSTMENT OF SCREW PROPELLERS 147. BIBLIOGRAPHY 177. APPENDIX: DIAGRAMS FOR CALCULATION OF SCREW PROPELLERS THE BOOK DEALS WITH SCREW PROPELLERS FOR LAUNCHES OF VARIOUS SPEEDS, INCLUDING GLIDING AND HYDROFOIL LAUNCHES.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--PROBLEMS OF MATERIAL STIMULATION IN INDUSTRY -U-
AUTHOR--(C2)-YEGIAZARYAN, G.A., KHEYFETS, L.S.
COUNTRY OF INFO--USSR
SOURCE--PROBLEMS OF MATERIAL STIMULATION IN INDUSTRY (PROBLEMY
MATERIAL'NOGO STIMULIROVANIYA V PROMYSHLENNOSTI) MOSCOW, EKONOMIKA,
DATE PUBLISHED-----70
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--INDUSTRIAL PERSONNEL, ENGINEERING PERSONNEL, BO JS, ECONOMIC
SYSTEM, LABOR POLICY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2C00/0049 STEP NO--UR/0000/70/000/000/0001/0164
CIRC ACCESSION NO--AM0123831
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AM0123831

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: CHAPTER I
BASIC TRENDS IN FURTHER IMPROVEMENT OF THE SYSTEM OF MATERIAL
STIMULATION FUNDS 3. II PROBLEMS IN DISTRIBUTION OF MATERIAL
STIMULATION FUNDS 65. III ECONOMIC CONTENT OF THE BONUS SYSTEM 83.
IV MAIN ELEMENTS OF THE BONUS SYSTEM FOR ENGINEERING TECHNICAL PERSONNEL
AND WORKERS 102. V ECONOMIC LIMITS OF INDIVIDUAL PAYMENTS FROM THE
MATERIAL STIMULATION FUND 135. GENERALIZED DATA FROM PRACTICAL
EXPERIENCE ARE USED AS THE BASIS FOR DISCUSSION OF THEORETICAL PROBLEMS
IN STIMULATION OF MATERIAL INTERESTS OF INDUSTRIAL EMPLOYEES; GIVEN ARE
ALSO RECOMMENDATIONS ON FURTHER IMPROVEMENTS OF THE NEW MATERIAL
STIMULATION SYSTEM. THE BOOK WAS WRITTEN FOR EMPLOYEES OF THE
INDUSTRY, PARTY AND TRADE UNION MEMBERS, SCIENTISTS, PROFESSORS, ETC.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CHARACTERISTICS OF THE ALLOYING OF METAL WHEN BUILDING UP WITH A
FLUX CORED WELDING STRIP -U-
AUTHOR-(02)-PATSKEVICH, I.R., KHEYFETS, L.YA.
COUNTRY OF INFO--USSR
SOURCE--AVTOMAT. SVARKA, FEB. 1970, (2), 13-15
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--WELD SURFACING, WELD FACING, WELDING ELECTRODE, METAL POWDER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0313 STEP NO--UR/0125/70/000/002/0013/0015
CIRC ACCESSION NO--AP0124072
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124072

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOR OF THE CONTENTS OF A FLUX CORED POWDER ELECTRODE STRIP USED FOR BUILDING UP THE SURFACE OF A METAL PART BY WELDING IS DISCUSSED. A CERTAIN PROPORTION OF THE CONTENTS FILTERS THROUGH THE WEAK PART AT THE END OF THE STRIP AND PASSES STRAIGHT INTO THE WELDING BATH, BY PASSING THE MOLTEN DROPS ON THE END OF THE ELECTRODE, AND THUS ENTERING DIRECTLY INTO THE METAL. THE EXTENT TO WHICH THIS HAPPENS DEPENDS ON THE METHOD OF MANUFACTURING THE POWDER STRIP.

UNCLASSIFIED

Microbiology

USSR

UDC: 576.8.095.162

KHEYFETS, M. A., Central Laboratory, Leningrad Meat Combine

"Conditions Assuring Survival of Bacteria After Desiccation"

Moscow, Laboratornoye Delo, No 5, 1970, pp 313-314

Translation: Recently a number of works have been published indicating that it is possible to send material (feces) in a dry state to laboratories for examination. In this connection it is interesting to investigate factors ensuring survival of microbes after drying.

We studied the effect of two factors: concentration of cells and presence of protein in the suspension medium. An 18-hour subculture from slant agar was washed off with 2 ml of water, and ten-fold dilutions were prepared from this initial suspension, up to 1:100,000,000. One ml from each dilution was applied in drops around the border of filter paper in Petri dishes. The dishes were kept open at 37°C for two hours, after which the paper was folded and put into test tubes with selective and optimum medium for each species (broth cannot be used since bacteria from the air can grow in the broth). Muller medium was used for *S. dublin*, *S. typhimurium* and *Proteus*; Killian medium was used for *S. cholerae suis*, and Heifetz medium for *E. coli*. All of the strains tested had been freshly isolated from meat. Concurrently with application of drops to the paper, one ml from the last dilution was inoculated in agar to count the colonies (agar with 3% bile was used to count

1/3

USSR

KHEYFETS, M. A., Laboratornoye Delo, No 5, 1970, pp 313-314

Proteus).

Bacteria differ in their sensitivity to desiccation: Salmonella survive with a concentration of thousands and even hundreds of cells per milliliter; Proteus survives in the presence of hundreds of thousands to tens of millions, and Escherichia occupy an intermediate position.

The protective effect of protein substrates (suspension media) was studied with Proteus, since it is the most sensitive to drying. Tests with all 8 strains yielded comparable results. Table 1 shows the results of one of the tests.

The table indicates that the well-known fact of the protective effect of proteins with respect to chemical treatment also retains its importance with respect to drying. In the presence of a sufficient amount of protein substrate, the cells survive, even when applied in small quantity.

2/3

USSR

KHEZFETS, M. A., *Laboratornoye Delo*, No 5, 1970, pp 313-314

Table 1

The Effect of Protein in the Suspension Medium on Survival of Proteus During Desiccation

Концентрация клеток I (a)	(b) Среда суспендирования					
	(c) вода	(d) пептон		(e) мясной сок	молоко обезжиренное (f)	
		1%	10%		g) неразбавленное	h) разбавленное 1:2
250 000 000	+	+	+	+	+	+
25 000 000	+	+	+	+	+	+
2 500 000	-	+	+	+	+	+
250 000	-	+	+	+	+	+
25 000	-	-	+	+	+	-
2 500	-	-	+	+	+	-
250	-	-	-	-	-	-

Legend: a) cell concentration, b) suspension medium, c) water, d) peptone, e) meat juice, f) skim milk, g) undiluted, h) diluted, 1:2

3/3

USSR

UDC 621.791.76:621.7.044.2:669-419.4:621.643.4.065

LISUKHA, G. P., Engineer, KHEYFETS, M. Ye., Engineer (Volgograd Ship Building Plant), KAZAK, N. N., Engineer, OVCHINNIKOV, A. P., Engineer, SAKHNOVSKAYA, Ye. B., Engineer, and TRYKOV, Yu. P., Candidate of Technical Sciences (Volgograd Polytechnical Institute)

"Efficiency of Bimetallic Steel-Aluminum Adapters Produced by Explosive Welding"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 20-22

Abstract: Tests were made of a composite material produced by explosive welding of St.4S and Kh18N10T steels 8 mm thick to a cladding layer of AMg6 aluminum alloy 6 mm thick with a sublayer of AD1 technical aluminum 1.5 mm thick acting as a plasticity buffer. The tests showed that the bimetal AMg6 + St.4S has an average layer-separation resistance of 9.9 kg/mm² and a shear strength of 7.6 kg/mm², while AMg6 + Kh18N10T has strengths of 7.0 and 6.8 kg/mm², respectively. The AMg6 + steel produced can be used for the manufacture of adapters of various shapes for the production of steel-aluminum welded structures. The proper sequence for welding of a steel-aluminum structure to avoid overheating of the bimetal
1/2

USSR

LISUKHA, G. P., et al, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 20-22

over a broad range of welding currents was determined. If the optimal welding current values determined are exceeded, a sharp decrease in strength of the welded joints involving Kh18N10T steel occurs, as a result of its higher tendency toward overheating than St.4S.

2/2

- 74 -

USSR

UDC 617.741-057:621.37/.39.029.64]-076.4

KHEYFETS, N. S., Fryazino Central Hospital, Moscovskaya Oblast

"Biomicroscopic Characteristics of the Crystalline Lens in Persons Exposed to Ultrahigh Frequency Electromagnetic Fields"

Moscow, Vestnik Oftal'mologii, No 6, Nov/Dec 70, pp 70-71

Abstract: Investigations were conducted to determine the incidence of cataract development in persons exposed to ultrahigh frequency electromagnetic fields. Ophthalmological examinations, including ophthalmoscopy were conducted with 600 workers regularly exposed to UHF electromagnetic fields and to 300 controls. The study continued over a period of 4 years; emphasis was placed in biomicroscopic examination of the crystalline lens, using the SECHL-56 alkaline lamp with maximum dilation of the pupils and application of indirect lighting. It was found that the biomicroscopic picture of the crystalline lens in persons exposed to the action of UHF fields does not differ essentially from that of persons not exposed to such fields. Specific cataracts were discovered in only 1 percent of those exposed to the UHF fields, and most of these cases were the result of violations of established safety measures. In the early stages of their development, the cataracts were characterized by biomicroscopic symptoms such as turbidity of the lens and changes in form and color.

1/1

USSR

UDC 629.7.018.2

BORODIN, Yu. P., KLYUKIN, S. M., KHEYFETS, V. A.

"A Device for Measuring the Aerodynamic Loads Acting on a Helicopter Rotor Model"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 2, Jan 73, Author's Certificate No 362216, Division G, filed 5 Apr 71, published 13 Dec 72, p 89

Translation: This Author's Certificate introduces a device for measuring the aerodynamic loads acting on a model of the lift rotor of a helicopter. The device contains amplifiers, low-frequency filters and a commutator which are connected in series, and also a control unit with its outputs connected to the commutator inputs and to the inputs of an analog-digital converter and a keypunch machine. The device also contains data transmitter units for the azimuthal position of the shaft of the helicopter rotor model. As a distinguishing feature of the patent, the accuracy of measurement of aerodynamic loads is improved by locating the data units for the azimuthal position of the shaft diametrically opposed, and connecting them to the input of the control unit through a pulse shaper which is incorporated into the device.

1/1

USSR

UDC 616.216-073.75-057:626.02

KHEIFETS-TETEL'BAUM, B. A. and ROZOV, Ye. Ye (Tallin)

"Change of the Roentgenographic Picture of the Nasal Accessory Sinuses in Divers During Work"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1972, pp 48-51

Abstract: It is difficult to overevaluate the importance of the condition of the nasal accessory sinuses in divers. However, roentgenological examinations of the sinuses are not always conducted during the selection of these specialists. At the same time, some authors point out the rather high percentage of "symptomless" diseases of the nasal accessory sinuses found in different contingents of people during roentgenographic and fluorographic examinations -- up to 35 percent and even up to 77 percent (I. L. Litmanov and coauthors; Ye. B. Vishnevskiy; N. S. Chesnokov and others). As a rule, these people do not complain during ear, nose and throat examinations and deviations from the norm are not detected during endoscopic examinations, in most cases.

In 1964, we made roentgenographic examinations of the condition of the nasal accessory sinuses of 42 divers who had worked in this specialty from 2 to 4 years. They had all passed, preliminarily, the medical-diving commission and were certified fit for diving operations. No complaints were registered at 1/5

USSR

KHEIFETS-TETEL'BAUM, B. A. and ROZOV, Ye. Ye., *Gigiyena Truda i Professional'nyye Zabolevaniya*, No 7, 1972, pp 48-51

ear, nose and throat examinations. These divers registered no kind of complaints after dives at various levels -- from 3-10 meters up to deep dives (within limits). At the same time, ten of them manifested different changes of the roentgenographic picture of the nasal accessory sinuses which some authors considered to be either catarrhal sinusitis or sinusitis (I. L. Litmanov and coauthors; Ye. M. Kagan and A. I. Bukhman; N. S. Chesnokov and others). Naturally, we faced the problem concerning the connection between these changes and the work of the persons who were examined. It was necessary, in addition, to evaluate these changes and to explain whether they are of a pathological nature or may be considered as a physiological reaction of the mucous membrane of the sinuses to some unfavorable effects of a dive (including deep water dives).

For this purpose, we examined, in 1964-1970, 72 divers and deep-sea divers, actively engaged in diving operations at different depths both in shallow water equipment and in deep water equipment with the use of special gas mixtures. Since participation in diving operations involves systematic sea voyages, we, in order to exclude (or to show) the effect of maritime conditions on the condition of the upper respiratory tract, examined a group of

2/5

- 63 -

USSR

KHEIFETS-TETEL'BAUM, B. A. and ROZOV, Ye. Ye., Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1972, pp 48-51

non-diving specialists including 40 persons who worked in maintenance during diving operations and systematically went to sea with the divers. We examined both groups twice -- before the beginning of their professional work (immediately after coming aboard ship) and after 2-3 years of service aboard ship according to their specialties. This permitted us to explain the effect of professional factors on the condition of the nasal accessory sinuses in these persons.

All of those examined before roentgenography of the nasal accessory sinuses underwent ear, nose and throat examinations and made no complaints. Of 72 divers undergoing roentgenography before the beginning of professional activity, changes in the sinuses were detected in five (7 percent) and they were associated with a decrease of pneumatization. Three of these persons had participated actively in aqualung diving before working as divers. In the group of persons of non-diving specialty, before the beginning of service, we noted changes in seven persons (14.5 percent) which agrees with data from the literature. During examination of these same persons after 2-3 years, attention is drawn to the significant increase of the number of roentgenographic changes in the nasal accessory sinuses among divers. At the same time, the number of changes

3/5

USSR

KHEIFETS-TETEL'BAUM, B. A. and ROZOV, Ye. Ye., Gigiyena Truda i Professional' - nyye Zabolevaniya, No 7, 1972, pp 48-51

detected in the sinuses among persons in non-diving specialties were not changed significantly. These data indicate an association of changes in the nasal accessory sinuses with the work of the divers. All of these persons, as before, did not complain after a stay under high pressures, they displayed barofunction. Diagnostic probes made by us for eight divers with reduced pneumatization of the sinuses did not reveal any foreign matter. At the same time, analogous probes in persons of a non-diving specialty (eight persons) led to the detection of purulent matter in four persons and serous matter in two persons and only two of the persons examined did not reveal foreign matter.

Dives are accompanied by the constant effects of some unfavorable factors on the organism, the most significant of which is high pressure and pressure drops, high partial pressure of oxygen, nitrogen, helium, low water temperature and inhaled gas mixtures. The mucus membrane of the upper respiratory tract (including the nasal accessory sinuses) is subjected to all of these unfavorable factors. The mechanical stimulation of the mucus membrane of the sinuses by air, oxygen and gas mixtures, entering the sinuses under increased pressure and leaving them after decrease of pressure are of great importance.

We are inclined to assume that the indicated changes in the nasal accessory sinuses in divers are not of a pathological nature but are response reactions

4/5

USSR

KHEIFETS-TETEL'BAUM, B. A. and ROZOV, Ye. Ye., Gigiyena Truda i Professional'-nyye Zabolevaniya, No 7, 1972, pp 48-51

of the mucous membrane to the effect of the factors enumerated. This opinion is supported by the absence of complaints of sensations of illness during dives (including deep sea dives) and also the absence of foreign matter during diagnostic punctures and the association of the changes observed with the work of the persons who were examined.

5/5

USSR

2

UDC 631.32

MALAKHOVA, M. M., PLYASHKEVICH, YU. N., GRAJEVA, V. M., LOZIERNIK, I. M.,
BAYUASHVILI, SH. A., and KHEYZEN, V. I.

"Updating the Minsk-22 Computer"

Tr. N.-i. i proyekt. in-ta mekhaniz. i avtomatiz. upr. proiz-vom v avtomob.
prom-sti (Works of Scientific-Research and Planning Institute for the Mechani-
zation and Automation of Production Control in the Automobile Industry),
1971, vyp. 1, pp 132-141 (from R2n-Avtomatika, Telemekhanika i Vychislitel'-
naya Tekhnika, No 5, May 72, Abstract no 52/5 by V. F.)

Translation: The article describes a number of modernizations in the Minsk-22
computer and gives circuits and descriptions of changes affecting the card and
magnetic tape input units, the start-stop input mechanism, etc. Eight
illustrations. Bibliography with two titles.

1/1

USSR

MALAKHOVA, M. M., PLYASHKEVICH, Yu. N., GRANEVA, V., LOZDERNIK, I. M.,
BATUASHVILI, Sh. A., KHEFFETS, V. I.

"Modernization of the Minsk-22 Computer"

Tr. N.-i. i Proekt. In-ta Mekhaniz. i. Avtomatiz. upr Proiz-vom v Avtomob.
Prom-sti. [Works of Scientific Research and Planning Institute for Mechan-
ization and Automation of Production Control in the Motor Vehicle Industry],
No 1, 1971, pp 132-141, (Translated from Referativnyy Zhurnal, Kibernetika,
No 3, 1972, Abstract No 3 V482 by the author's).

Translation: A number of modernizations of the Minsk-22 computer are des-
cribed. Diagrams and descriptions are presented of changes concerning the
punch card input device, magnetic tape reader, input start stop mechanism
card puncher and matching of magnetic drum to computer.

1/1

RHEVETS, V.S.

SPRS 59208
6-72

III-4. THERMAL AND DIFFUSION SUPERCOOLING OF A MELT AND ITS RELATION TO THE GROWTH PROCESSES

Article by G. V. Khlebnik, N. V. Orskina, V. N. Romanenko, V. S. Rheyets, I. I. Smirnov, III Sibirskiy na Professora Boeva i Sirova Poliprovodimivnykh Kristallov i Plavok, Novosibirsk, 12-17 June, 1972, p 201

Directional crystallization is accompanied by the occurrence of a temperature gradient and a concentration gradient in front of the growth front. The magnitude of both gradients is connected with the growth rate of the crystal and the magnitude of the external temperature gradient in the device. At high concentrations of the substrate, the exceeding of a critical value of the growth rate leads to the occurrence of diffusion or concentration supercooling of the melt in the crystal. In the solid phase concentration inhomogeneities are observed in this case. It was demonstrated previously [1] that the value of R_c essentially depends on the concentration. Experimental data are presented on the growth of the crystals of the bismuth-antimony system containing chalcogenide impurities. However, for low concentrations of the substrate, the usual theory of diffusion supercooling gives an increase in the value of the critical growth rate. In this paper it was demonstrated that in this case it is necessary to consider two new factors: diffusion supercooling which occurs on crystallization of complex compounds as a result of deviation of the composition from stoichiometry (in this case the excess component plays the role of the substrate) and the occurrence of thermal supercooling of the melt. It occurs as a result of the fact that at increased growth rates, the amount of heat which must be removed deep in the melt increases sharply. On occurrence of this effect, structural defects appear in the growing solid phase. The theoretical principles of this effect are developed. They permit calculation of the magnitude of the critical growth rate for the effect of thermal supercooling. A comparison was made with the experiment. It confirmed the correctness of the calculations.

BIBLIOGRAPHY

1. G. V. Khlebnik, V. N. Romanenko, TRNR [Expansion Unknown], Vol 4, No 6, 639, 1970.

USSR

UDC 534.612

SMIRNOV, YE. M., KHEYFETS, YE. I., and SHENDEROV, YE. L.

"Quantitative Analysis of Sound Fields, With the Use of a Shadow Visualization Technique"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 2, Mar-Apr 73, pp 240-250

Abstract: A method is described for measuring the pressure distribution in sound fields, with the use of a shadow visualization technique. A measurement technique is proposed, which takes into account the nonlinear relationship between the pressure in the sound field and the illuminance of its image, as well as the nonlinearity of the characteristic curve of the photographic film. The measurement errors are evaluated. Photographs of sound fields scattered on elastic plates and shells are presented. Distributions of sound pressure in the scattered fields are measured. It is shown that the potentialities of a shadow realization technique are substantially expanded by the use of quantitative analysis. The proposed technique is sufficiently exact for conducting sound-scattering research on models. 12 figures, 2 tables, 12 references.

1/1

USSR

UDC: 534.26

KHEYFETS, Ye. I., SHENDEROV, Ye. L., Leningrad

"FORMATION OF CAUSTIC CURVES WHEN SOUND INTERACTS WITH SHELLS"

Moscow, Akusticheskiy Zhurnal, Vol 18, No 3, pp 456-462

Abstract: The authors consider lines of sound amplification (caustic curves) which arise upon interaction between acoustic waves and shells. Photographs of acoustic fields with caustics of three types are presented. The first type comprises curves due to sound radiation as a consequence of propagation of flexural and longitudinal waves over the shell, the second category is geometric-optic caustics, and the third involves caustic curves of the "whispering gallery" type. The field amplitude close to a caustic is calculated. It is found that the amplitude distribution of acoustic pressure close to the curve is described by an Airy integral. The authors thank Ye. P. Smirnov for assistance in conducting the experiment.

1/1

USSR

UDC 620.179.18

KHEYFETS, YU. I., PETRIK, A. A.

"Nondestructive Control of the Depth of the Nitrated Layer in Nonmagnetic Steels"

Sverdlovsk, Defektoskopiya, No 1, 1972, pp 130-132

Abstract: A newly developed method for the nondestructive control of a nitrated layer of nonmagnetic steels was investigated on valve stems (14 mm in diameter) of 4Kh14N14V2M steel. The control device consists of a modified IE-1 electric conductivity meter. A diagram shows the control of valves for 40-150 AA indicator readings as a function of 0.04-0.15 mm nitrated layer depths. A great number of control checkings revealed that the error did not exceed 0.01 mm of the nitrated layer depth values determined metallographically. 3 illustrations, 7 bibliographic references

1/1

- 1 -

PHYSICS
Crystals & Semiconductors

UDC 548.736.6

USSR

PONOMAREV, V. I., KHEYKER, D. M., and BELOV, N. V., Moscow State University imeni M. V. Lomonosov, Institute of Crystallography of the Academy of Sciences USSR

"Crystal Structure of $4\text{CaO}\cdot 3\text{Al}_2\text{O}_3$ -- Aluminate Analog of Sodalite"

Moscow, Kristallografiya, Vol 15, No 5, Sep-Oct 70, pp 918-921

Abstract: Single crystals of cubic $4\text{CaO}\cdot 3\text{Al}_2\text{O}_3$, obtained by dehydration of rhombic $4\text{CaO}\cdot 3\text{Al}_2\text{O}_3\cdot 3\text{H}_2\text{O}$ crystals, were subjected to x-ray analysis in a DRON-1 diffractometer. Fedorov group $I\bar{4}3m$, $Z = 2$, $a = 8.86 \pm 0.01 \text{ \AA}$. The structure was found to be $4\text{CaO}\cdot 3\text{Al}_2\text{O}_3 = 2[\text{Ca}_4(\text{Al}_2\text{O}_4)_3\text{O}]$, which is an ideal, purely aluminate analog of sodalite. Formally the isostructural isomorphism can be represented by the following scheme:

1/2

USSR

PONOMAREV, V. I., et al., Kristallografiya, Vol 15, No 5, Sep-Oct 70, pp 918-921

$8\text{Na}^{+1} + 6\text{Si}^{+4} + 2\text{Cl}^{-1} \rightarrow 8\text{Ca}^{+2} + 6\text{Al}^{+3} + 2\text{O}^{-2}$. The decipherment of the structure of $4\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ confirms the existence of a new compound in the $\text{CaO}-\text{Al}_2\text{O}_3$ system.

2/2

- 21 -

UDC 550.343.62 4

USSR

GEL'FAND, I. M., Corresponding Member of the USSR Academy of Sciences, GUBERMAN, SH. A., IZVEKOVA, M. A., ~~KEYLIS-BOROK, V. I.~~, RANTSMAN, YE. YA.

"High Seismicity Criteria"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 6, 1972, pp 1317-1320

Abstract: A study was made of the problem of finding points in the eastern part of Central Asia where earthquakes with a magnitude of $M > 6.5$ are possible. A figure is presented showing that all the epicenters of the 22 such earthquakes occurring since 1885 lie at disjunctive nodes with active movements in modern times (the last ~25 million years, beginning with the Neogene). It is proposed that earthquakes with $M > 6.5$ can occur only at such nodes, in particular, at the 16 nodes where they have already occurred. The problem then reduces to finding at which of the remaining 25 nodes earthquakes with $M > 6.5$ are possible. The problem was solved by means of the KORA-3 recognition program [M. M. Bongart, et al., *Geologiya i geofizika*, No 6, 1966; "Complex Interpretation of Geophysical Data on Computers," *Tr. Moskovsk. inst. neftekhimich. i gazovoy prom. in. I. M. Gubkina*, No 62, 1965]. A table is presented showing the variation of the recognition results during the course of seismic history. The conclusion is drawn that earthquakes with $M > 6.5$ are possible at fixed nodes: Fayzabad, Alayskiy, Zaalayskiy, Obi-Khingou-Surkhob, Sarydzhaz and Kun'lu'. The

1/2

USSR

GEL'FAND, I. M., et al., Doklady Akademii Nauk SSSR, Vol 202, No 6, 1972, pp 1317-1320

reliability of this conclusion was evaluated experimentally. The six nodes have one common feature -- they are all located in the zones of latest contrast movements at the boundaries of mountainous areas.

2/2

- 31 -

KEYLIS-BOROK, V. I.

JPRS 54784

23 December 1971

UDC 550.340.96

STATISTICAL MODEL OF SEISMICITY AND EVALUATION OF MAJOR SEISMIC EFFECTS

Article by L. V. Knorovich, G. M. Molchan, V. I. Keylis-Borok, and Ye. V. Vityayevich; Moscow, *Izvestiya Akademii Nauk SSSR, Fizika Zemli, Russian*, No 5, 1970, pp 85-102

The authors suggest a procedure for evaluating the confidence intervals and statistical distribution functions for the basic effects of a succession of earthquakes on a given object. The evaluations are formalized for a Poisson model of the sequence of earthquakes. Calculations are made of the frequency of earthquakes and parameters of the frequency law for world earthquakes (according to the catalog of B. Gutenberg and C. Richter), Central Asia and Eastern Siberia. For Eastern Siberia, an estimation is made of the total length of sectors of a linear object experiencing shocks of 8 and 9 force values, and also of the economic effect of earthquakes (expressed in conventional units).

INTRODUCTION

In the present report, we consider the questions of a statistical evaluation of various effects from earthquakes on a given object in a seismic zone through a given time span. The object can be a point, line or an area. The main attention is focussed on a study of the following effects.

- 1. Average number of earthquakes of a given force occurring in a given area (frequency of earthquakes).

UDC 591.145.3

USSR

GAR, K. A., ~~KHEYMAN, V. A.~~, and POPOVA, N. A., All Union Scientific Research Institute of Chemical Means of Plant Protection

"Biochemical Mechanisms of the Resistance of Insects to DDT at Elevated Temperatures"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 5, 1971, pp 1241-1244

Abstract: DDT is toxic to insects because it inhibits oxidative phosphorylation and the formation of ATP. However, DDT toxicity decreases when temperature rises above 31.4°C. Some investigators believe that at higher temperatures DDT is metabolized and detoxified at a faster rate. This study was performed to determine the degree of oxidative phosphorylation inhibition after addition of DDT and other insecticides. The tests were done in the Warburg apparatus on the mitochondria of weevils (*B. punctiventris*) after the insects had been incubated, without insecticides, at +17°C (cold) and +27°C (warm) for various

1/2

USSR

GAR, K. A., KHEYMAN, V. A. and POPOVA, N. A., Doklady Akademii Nauk SSSR, Vol 196, No 5, 1971, pp 1241-1244

periods. After addition of DDT, phosphorylation was inhibited 20% in "warm" weevils and 90% in "cold" weevils. Oxidation was accelerated by a factor of 1.5 in both preparations. Chromatography revealed that all DDT was absorbed by the mitochondria and that there were no DDT metabolites in either group. In the presence of other insecticides, the differences were less pronounced or absent. It was concluded that the preceding incubation at different temperatures changed the susceptibility of mitochondria to DDT.

2/2

USSR

UDC 581.132.1

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

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

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

Abstract: The activity of the photosynthetic apparatus of leaves of *Vicia fava* plants grown at two light intensities, 10^5 and 4×10^3 erg/cm²sec, was studied. Determination of light photo-synthesis curves by the radiometric method (as described by KheyN and Nichiporovich in Fiziologiya Rasteniy 17, 1284, 1970) showed the difference in the photosynthetic capacity of "shadow" and "light" leaves at both low and saturating light intensities. The rate of the Hill reaction determined on the basis of the reduction of $K_3Fe(CN)_6$ in chloroplasts isolated from "shadow" leaves was somewhat higher than for chloroplasts from "light" leaves.

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USSR

UDC 576.8.097.22:615.33]:576.8.098

TALLMEYSTER, E. T., KHEYNARU, A. L., and ILOMETS, T. Ya., Tartu State University

"Multiplicity of Mechanisms Controlling Episomal Resistance to Antibiotics"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 11, 1971,
pp 23-27

Abstract: R-factors of 10 wild polyresistant strains of Shigella and Escherichia coli were investigated after they were transferred to an auxotrophic E. coli K12 W1845 F⁻ strain through conjugation. Serial tests, performed to study the behavior of genetic determinants of resistance to streptomycin, levomycetin, and benzylpenicillin, yielded diverse results. Seven R-factors displayed either low-level (50-100 mcg/mg) or high-level (200-1000 mcg/mg) resistance to streptomycin after conjugation. One R-factor controlling resistance to benzylpenicillin lacked beta-lactam activity, while absence of enzymatic inactivation of levomycetin was demonstrated by Bouanchaud color tests in the case of two R-factors resistant to that antibiotic. The results indicate that R-factors with an identical antibiotic resistance spectrum may have genetic resistance determinants with different mechanisms of action.
1/1

USSR

UDC 532.596+551.46.06.8

KHEYSIN, D. YE., CHEREPANOV, N. V.

"Variation of the Ice Structure in the Zone of Impact of a Solid Body Against the Ice Cover Surface"

V Sb. Probl. Arktiki i Antarktiki. Vyp. 34 (Problems of the Arctic and Antarctic. Vyp. 34 - Collection of Works), Leningrad, Gidrometizdat Press, 1970, pp 79-84 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B484)

Translation: This article contains the results of an experimental study of the structure of ice before and after a solid body in the form of a spherical steel casting weighing 300 kg dropped from different altitudes by means of a portable drop hammer strikes against it. The experiments were performed both at low temperatures (-20, -30°) and at high temperatures (+2, +5°). As a result, it was discovered that before impact it is possible to isolate three characteristic layers with respect to the thickness of the ice depending on the shape and magnitude of the ice bubbles and the air bubbles. After impact three layers are also distinguished. The upper layer is characterized by solid crushing and melting
1/2

USSR

KHEYSIN, D. YE., et al., Probl. Arktiki i Antarktiki. Vyp. 34, Leningrad, Gidrometoizdat Press, 1970, pp 79-84

of the ice, the middle layer is characterized by a large number of cracks having different directions, and the lower layer, by the presence of cracks only in the radial direction. In the opinion of the authors, the most significant change in structure of the ice on impact is the formation of a zone of finely dispersed ice separated from the basic mass by a clearly expressed rupture surface.

2/2

- 71 -

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYTIC SYSTEM FOR HYDROGENATION OF UNSATURATED ALDEHYDES -U-

AUTHOR--(05)-KHIDEKEL, M.L., BAKHANOVA, E.N., ASTAKHOVA, A.S.,
BRIKENSHEYN, KH.A., SAVCHENKO, V.I.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 164,352.
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(9)
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METAL CATALYST, ORGANIC PHOSPHORUS COMPOUND, CHEMICAL PATENT,
HYDROGENATION, ALDEHYDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0829

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136263

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 014

CIRC ACCESSION NO--AA0136263

ABSTRACT/EXTRACT--!U) GP-0-

ABSTRACT. THE TITLE CATALYTIC SYSTEM CONTAINS A CATALYST, AN VIII GROUP METAL, AND AN ACTIVATING ADDITIVE.

PHOSPHINES OF FORMULA R_1PR_2 SUBN R_1PR_2 SUMMNEGATIVE P, WHERE N EQUALS 0-3, M EQUALS 0-3, AND R_1 AND R_2 ARE ALKYL OR ARYL RADICALS, ARE USED AS THE ACTIVATING ADDITIVE.

ORDENA LENINA INSTITUTA KHIMICHESKOY FIZIKA AN SSSR.

FACILITY: FILIAL

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV76
TITLE--CARBONYL COMPLEXES OF RHODIUM (I) WITH ALIPHATIC AND AROMATIC
BIFUNCTIONAL LIGANDS -U-
AUTHOR-(02)-KARYAKINA, G.I., KHIDELKEL, M.L.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 940-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CARBONYL-COMPOUND, RHODIUM COMPOUND, COMPLEX COMPOUND,
HEXAMETHYLENEDIAMINE, QUINOLINE, DIAMINE, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1025

STEP NO--UR/0062/70/000/004/0940/0942

CIRC ACCESSION NO--AP0134737

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134737

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COLORED BIDENTATE COMPLEXES OF RH(I) WITH (CH SUB2) SUB6 (NH SUB2) SUB2, (CH SUB2) SUB10 (NH SUB2) SUB2, (O,H SUB2 NC SUB6 H SUB4) SUB2, O,PHENANTHROLINE, AND 8,8 PRIME,DIHYDROXY,5 PRIME,BIQUINOLINE (I) WERE PREPD. AND ANALYZED. MONODNETATE COMPLEXES WERE ALSO FORMED WITH O,PHENANTHROLINE AND (I,H SUB2 NC SUB6 H SUB4) SUB2. THE LATTER WERE EVIDENTLY FORMED FROM THE FORMER BY CLEAVAGE OF THE RH,N BOND BY EXCESS LIGAND AIDED BY THE TRANS EFFECT OF THE CO GROUP. THE GENERAL FORMULAS OF THE COMPLEXES WERE RH SUB2 (CO) SUB4 CL SUB2.L WHERE L IS THE LIGAND MOL, OR RH SUB2(CO) SUB4 L, WHERE L EQUALS I. THE PRODUCTS WERE ACTIVE IN OXIDN. REDN. REACTIONS AND THEIR IR SPECTRA SHOWED THE BANDS OF BOUND NH SUB2 GROUP AND 2 INTENSE BANDS OF THE CO GROUPS IN CIS POSITION. THE RH ATOM IS CLEARLY BONDED TO THE N ATOMS OF THE DIAMINES. HEATING 8,QUINOLINOLATORRHODIUM DICARBONYL WITH 4,4 PRIME,BIPYRIDINE ALSO GAVE A RED COMPLEX (II) WHICH WAS STABLE IN AIR. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--LOW TEMPERATURE RADIOLYSIS OF ALIPHATIC SULFIDES -U-

AUTHOR--(04)-NANOBASHVILI, YE.M., PANCHVIDZE, M.V., DAPKVIASHVILI, A.G.,
~~KHIDESHILI, G.I.~~
COUNTRY OF INFO--USSR K

SOURCE--SOBESHCH. AKAD. NAUK GRUZ. SSR 1970, 57(1), 81-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOLYSIS, SULFIDE, FREE RADICAL, ALPHA RADIATION, BETA
RADIATION, ORGANIC SULFUR COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1233

STEP NO--UR/0251/70/057/001/0081/0084

CIRC ACCESSION NO--AP0128649

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128649

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RADIOLYSIS AT 77DEGREEK. OF (C
SUBN H SUB2N PLUS 1) SUB2 S (N EQUALS 1, 2, 3, 4, 5, 7, 10, AND 12,
RESP.) RESULTS IN ABSTRACTION OF ALPHA OR BETA-H ATOMS. THE RADICAL
YIELD INCREASES CURVILINEARLY WITH N. FACILITY: INST. NEORG.
KHM. ELEKTROKHM., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC 632.95

KAMILOVA, R. M., KHIKMATOV, A., RAKHIMOV, A. A., MAKHSUMOV, A. G., SAFAYEV, A., MIRZABAYEV, E. A.

"Herbicide"

USSR Author's Certificate No 336006, filed 7 Oct 69, published 22 May 72
(from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N653)

Translation: A compound 2,5-diphenylthiophene (I) is proposed to control weeds in planted fields. In a dosage of 2-3 kg/hectare, I exhibits a herbicidal activity with respect to Shiritsa, Japanese barnyard millet, datura and partulak without damaging cotton.

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- 51 -

USSR

UDC 543.426.541.49.546.831

TASHKHODZHAYEV, A. T., ZEL'TSER, L. YE., KHIKMATOV, KH., Tashkent Order of the Red Banner of Labor State University imeni V. I. Lenin

"Study of the Luminescent Reaction of Complex Formation of Salicylal-4-aminoantipyrine with Zirconium"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 3, 1972, pp 22-24

Abstract: Results are presented of a study of the luminescent reaction of complex formation of zirconium with azomethyne salicylal-4-aminoantipyrine (SAAN). The azomethyne compound of SAAN forms a luminescent complex compound with zirconium at a pH of 1-2. The maximum fluorescence of the complex is observed for $\lambda = 554$ nm. The components interact in the molar ratio of 1:2. The complex is electroneutral. The objective criterion of sensitivity (the product of the molar coefficient of the light absorption times the quantum yield of the fluorescence) increases by comparison with the reagent by 53 times. The sensitivity with respect to 38 criteria is 0.04 micrograms/5 ml. SAAN is the most sensitive and selective reagent to zirconium of the azomethyne compounds. Therefore, the investigated reaction can be used as a basis for a method of luminescent quantitative analysis of zirconium.

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- 36 -

UDC 632.95

USSR

TULYAGANOV, S. R., ALIMOV, E., KHASANOV, S. A., KEIKMATOV, A., KAMILOVA, R. M., and RAKHIMOV, A. A., Institute of the Chemistry of Plant Materials, Academy of Sciences Uzbek SSR; and Institute of Experimental Biology of Plants, Academy of Sciences Uzbek SSR

"Herbicides"

USSR Author's Certificate kl. [expansion unknown] A 01 n 9/02, No 338, 207, Filed 14 Oct 70, Published 12 June 72 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7N695 by T. A. Belyayeva)

Translation: To control weeds during the planting of cotton, it was suggested to use phenyl compounds such as $\text{PhN}(\text{COme})\text{CH}_2\text{CH}_2\text{OC}_6\text{H}_4\text{Cl}-4$ (I) which have the active groups β -acetoxyethylaceanilide and $p\text{-ClC}_6\text{H}_4\text{OH}$. Compound (I) is almost completely lethal to amaranth and purslane in doses of 10 Kg/Lectare but is not toxic to the cotton.

1/1

USSR

UDC 632.96

KAMILOVA, R. M., ~~XHUKMATOVA, A.~~, MAYOROV, S. A., MAKHSUKOV, A. G., SAFAYEV, A., and MIRZABAYEV, E. A.

"A Herbicide"

USSR Author's Certificate No 324025, filed 7 Oct 69, published 18 Feb 72
(from RZh-Khimiya, No 22, Nov 72, Abstract No 22N489 P)

Translation: It is proposed that 2,5-bis-(2,4,6-triiodophenoxyethyl) thiophene (I) be used as a high-quality herbicide. Pregermination treatment with compound I in a dose of 10 kilograms per hectare killed 100% of the weeds, (purslane, barnyard millet) without damage to cotton. T. A. Belyayeva.

1/1

- 64 -

USSR

UDC 576.858.8:582.264.45.7.094

KOSKOVETS, S. N., MENDZHUL, M. I., ZHIGIR, V. V., NESTEROVA, N. V., and KHIL', O. S., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR, Kiev

"Morphology of the Lytic Agent of *Chlorella pyrenoidosa* Pringh"

Moscow, Voprosy Virusologii, No 1, Jan/Feb 71, pp 98-100

Abstract: The morphology of the virus producing breakdown of a laboratory culture of *Chlorella pyrenoidosa* strain 82 was studied. Purified lysate products of *C. pyrenoidosa* were found to contain phage-like particles which were uniform in shape and size. They consisted of an isometric capsid 480 Å and a short, tail-like appendage of 110 Å length and 94 Å width. The appendage had a transverse striation, and the shape appeared to be a clearly defined octahedral structure. On a solid medium, the algophage produced negative colonies typical for phage-type viruses. Within 5-7 days, these colonies had a diameter of 2-3 mm.

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Acc. Nr.: AM0046211

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Ref. Code: 24P0000

Preface		3
<u>Gridyushko, V. I.</u>	Investigation of Reliability of Freight Cars and Effectiveness of Their Maintenance	
I	Connection Between Reliability of Cars and Maintenance of the Railroad Stock	4
II	Results of Experimental Investigations of Reliability and Analysis of Car Maintenance	30
III	Restoration of Useful Life of Cars and Substantiation of the Possibility of Increasing Train Runs Without Technical Inspection and Repairs	47
<u>Khil'chenko, V. P.; Nezzovorova, G. G.</u>	Rational Distribution and Improvement of Operation of Stations for Preparation of Cars for Loading	66
<u>Linchenko, V. K.</u>	Selection of Rational Mechanization Means and Improvement of Efficiency of Their Utilization in Preparation of Cars for Loading	99

Real/Frame

18

19781320

AM0046211

Moscow Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Zheleznodorozhnogo Trans-
porta.

Trudy Nr 390. Improvement of Organization of Maintenance of Freight Cars
(Sovershenstvovaniye organizatsii tekushchego soderzhaniya gruzovykh vagonov)
Moscow, Transport, 1970, 117 pp (SL:TF4 M85.9t)

TABLE OF CONTENTS:

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USSR

UDC 669.245'26'293'27'28:620.18:620.17

BELINSKAYA, L. A., BRAUN, M. P., IONKINA, Ye. M., LEBEDEV, K. P., and
KHIL'CHEVSKAYA, T. V.

"Structure, Phase Composition, and Certain Properties of Cast Complex Nickel-Base Alloys With Niobium"

Metallofizika. Resp. mezhved. sb. (The Physics of Metals. Republic Inter-departmental Collection of Works), 1971, vyp. 33, pp 102-107 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11791 by authors)

Translation of Abstract: A study was made of structural changes and certain properties of Ni-Cr-base alloys with a large Nb content (7.5-8%) when alloyed with tungsten (3%) and molybdenum (5.10%). The alloys were smelted in open induction furnaces, and specimens were made according to smelted models. Phase composition was studied after isolation of precipitates in specially selected electrolytes. The investigation of microstructure was made on as-cast specimens after heat treatment consisting in hardening from 1200° with subsequent tempering at 900° for 16 hours. Four illustrations. Three tables. Bibliography with seven titles.

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Miscellaneous

USSR

UDC 669.15'26-194:621.787.7

VINOKUR, B. B., GRAUN, M. P., KHIL'CHEVSKAYA, T. V., GELLER, A. L., KULICHENKO, V. P., and SHIYANOVSKIY, V. I., Institute of Casting Problems, Academy of Sciences, Ukrainian SSR

"Carbide Transformations in Complexly Alloyed Steel Containing One Percent Chromium"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 10, 1973, pp 104-108

Abstract: On the basis of studying carbide deposition by chemical and x-ray structural methods the authors concluded that a special chromium carbide Me_7C_3 is formed. The methods used include microdiffraction of carbides extracted into a replica, distortions of the second and third type, modifications in the electrical resistance, coercive forces, micro-hardness, expanding the steel in the state of quenching and annealing at temperatures of 400-650° C. Under ordinary an-

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USSR

VINOKUR, B. B., et al., *Izvestiya VUZ, Chernaya Metallurgiya*, No 10, 1973, pp 104-108

nealing conditions this carbide is formed by a gradual restructuring of the iron carbide in proportion to how much it is doped with chromium, manganese, and tungsten. A coherent bond is retained between the lattices. Lengthy annealing at 650° C will result in a separation of trigonal chromium carbide.

Table 1 compares the chemical composition of the carbide phase as a function of annealing temperature; Table 2 identifies the carbide phases after different annealing conditions. Figure 1 shows the influence of annealing temperature on change in the fine crystal structure and certain physical characteristics of a steel. Figure 2 is an electron diffraction pattern of the carbides and an identification of the carbide phases following annealing at 650° C for a period of four hours.

The article contains 2 illustrations, 2 tables, and 9 bibliographic references.

2/2

USSR

UUC 621.791.756:621.763

BRAUN, M. P., ABRAMOVA, B. P., VINOKUR, L. B., NATANSON, M. E., IVANOVA, R. K.,
KHIL'CHEVSKAYA, T. V., and MALAY, A. Ye., Institute of Casting Problems, Academy
of Sciences UkrSSR

"Seam Zone Phase Composition of Complex Alloyed Steel"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 1-5

Abstract: A description is given of experiments performed to clarify the nature of the processes responsible for the embrittlement of the material near a welding seam. These experiments involved quantitative chemical analysis of the carbide deposit precipitated after welding, as well as other products of thermal treatment. Specimens 10 mm in diameter and 160 mm in length were dissolved in the course of an hour in an electrolyte made up of 50 g of glucose and 100 g of ammonium chloride in 800 ml of water. The current density for the electrolysis was 0.03 a/cm². The composition of the precipitate was determined by x-ray diffraction with direct photography in cobalt or chromium radiation, checked by the microdiffraction method, and subjected to chemical analysis. For the detection of titanium carbide, the precipitate was boiled in a 0.05% solution of hydrochloric acid for five hours. Other details are given. It is concluded that the titanium and molybdenum carbides are not responsible for the embrittlement of the steel.

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1/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DAMPING OF INDEPENDENT FLEXURAL TORSIONAL VIBRATIONS OF RODS -U-
AUTHOR--KHILCHEVSKIY, V.V. *K*
COUNTRY OF INFO--USSR
SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 39-41
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS
TOPIC TAGS--VIBRATION DAMPING, SHEAR STRESS, POTENTIAL ENERGY, METAL ROD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0198 STEP NO--UR/3663/70/002/000/0039/0041
CIRC ACCESSION NO--AP0123967
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--13NOV70

GIRC ACCESSION NO--AP0123967

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF ENERGY DISSIPATION DURING UNCORRELATED FLEXURAL TORSIONAL VIBRATIONS. IT IS SHOWN THAT THE SUPERPOSITION OF ALTERNATING SHEAR STRESSES, ON ALTERNATING, NORMAL STRESS RESULTS, IN CONTRAST TO STATIC STRESS, IN AN INCREASE OF ENERGY DISSIPATION. FACILITY: KIEVSKII POLITEKHNICHESKII INSTITUT, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC: 621.317.77

SUP'YAN, V. Ya., KHILIN, N. S., TASHCHENKO, S. P., SIMON, S. Kh.

"A High Precision Digital Phase Meter for the 5-1000 MHz Frequency Band"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp110-112 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A331)

Translation: In developing a phase meter, the authors utilize the principle of increasing the multiplicity of frequency conversion. The fundamental instrument range of 5-140 MHz is extended to 1000 MHz by means of an attachment consisting of a vacuum-tube frequency converter. Thanks to the use of a single conversion stage, the accuracy of measuring phase displacements in the 0-360° range is no worse than $\pm 0.2^\circ$ for equal levels of the input signals from 0.4 mV to 0.4 V. With a change in the level of the input signals by 60 DB, the dynamic amplitude-phase error is no greater than $\pm 4^\circ$, with a corresponding figure of $\pm 2\%$ for changes by 40 DB. In the expanded range on a frequency of 500 MHz and on the first intermediate frequency of 50 MHz, the drift in readings is no more than $\pm 1\%$ per hour. It was possible to reduce amplitude-phase errors by using limiter-amplifiers on the intermediate frequency with small dynamic errors. Some data are given on these limiter amplifiers. E. L.

1/1

Pathology

USSR

UDC 616.9-022.38-039:616.3-008.1001.33

BANKHANEN, V. D., DENISOV, K. A., ARTEMOV, A. A., SITNIKOVA, G. M., SHAPATA, V. A., and KHILINSKIY, V. P., Chair of Nutritional Hygiene and Epidemiology, Donetsk Medical Institute imeni A. M. Gor'kiy, and Department of Nutritional Hygiene, Donetsk Municipal Sanitary Epidemiological Station

"Classification of Food Poisoning and Principles Underlying Its Compilation"

Moscow, Voprosy Pitaniya, No 6, Nov/Dec 71, pp 54-58

Abstract: Problems concerning classification of food poisoning and criteria to be considered are discussed, including the evolution of concepts of etiology, mechanisms of transmission, pathology and symptomatology, treatment and prevention, and data on international classification. A classification is proposed in which food poisonings are divided into four etiological categories: bacterial, nonbacterial, fungal, and of unclassified nature. According to the pathogenesis, the bacterial category is subdivided into two groups: toxininfections and bacterial toxicoses; while the nonbacterial category is subdivided into three groups specifying the pathogenic agents: additives, products inedible by man, and products which become temporarily or partly toxic

USSR

UDC 669.1:548.53

KHOMENKO, O. A., TSEYTLIN, A. M., and KHIL'KEVICH, I. F., Ural Scientific Research Institute of Ferrous Metallurgy

"Effect of Recovery and Recrystallization on Young's Modulus and Its Temperature Function in Invar-Type Fe-Ni Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 309-317

Abstract: The effect of plastic deformation and tempering (annealing) temperature on the modulus of elasticity and its components was studied for alloys N36T and N45T which do have a tendency to be precipitation hardened. The nickel content in these two alloys was 36.4 and 45.5% respectively. Along with the effect of plastic deformation, recovery, and recrystallization on the temperature function of magnetized and unmagnetized samples, the invar anomaly of elasticity and E-effect were also examined. Results of this study showed that in the deformed and low-tempered states the anomaly of the temperature function of Young's modulus is mainly determined by the invar effect of elasticity. The contribution of the E-effect and invar anomaly in E(T) for alloy N36T is practically the same in the recrystallized state (annealed at 1100°C), while for alloy N45T the chief component is the E-effect. Stable elinvar properties are realized for specified compositions of invars with the 1/2

USSR

KHOMENKO, O. A., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2,
Feb 73, pp 309-317

aid of deformation and incomplete annealing. 6 figures, 3 tables, 14
bibliographic references.

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- 57 -

USSR

K
MADIYEVSKYY, YU. M., and KHIL'KO, A. S., Chair of Anatomy and Physiology, Kharkov Pedagogical Institute

"Significance of the Adrenalin Test in Estimating Individual Sensitivity of Animals to Ionizing Radiation"

Kiev, Fiziologichnyy Zhurnal, Vol 16, No 1, Jan/Feb 70, pp 96-102

Abstract: One of the early symptoms of radiation sickness is leucopenia. It is possible that the degree of leucopenia and the recovery of peripheral blood depend to some extent on the individual radiosensitivity of animals. Experiments were carried out to discover whether a relationship exists between the individual reactivity of the hematopoietic system and changes in leucocytes at various times after irradiation of rats with doses ranging from 50 to 1200 r. The adrenalin test (change in blood leucocytes two hours after injection of 0.25 mg/kg adrenalin) was used as the indicator of reactivity. A statistically valid, direct correlation was found between the adrenalin test value before irradiation, and the leucocyte content at all periods of examination after irradiation with doses from 50 to 300 r. The higher the adrenalin leucocytosis, the less
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USSR

MADIYEVSKIY, YU. M., et al., Kiev, Fiziologichnyy Zhurnal, Vol 16, No 1, Jan/Feb 70, pp 96-102

depression of the initial blood composition is noted, and the faster is the recovery. With radiation levels of 500-700 r, such a correlation appears only after about 14 days in surviving animals (during the recovery period). No relationship was found for the 1200 r dose. At 500 r, the day of death of the animals was closely related to the adrenalin test.

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- 34 -

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--SIGNIFICANCE OF -ADRENALINE TEST- FOR ESTIMATION OF INDIVIDUAL SENSITIVENESS OF ANIMALS TO X IRRADIATION -U-

AUTHOR--MADIYEVSKIY, YU.M., KELIKO, A.S.

COUNTRY OF INFO--USSR

SOURCE--FIZICLGICHNIY ZHURNAL, 1970, VOL 16, NR 1, PP 96-102

DATE PUBLISHED-----70

29
5
34

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TEST, ADRENALINE, RADIATION SENSITIVITY, X RAY IRRADIATION, LEUKOCYTE, RAT, X RAY RADIATION BIOLOGIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1982/0903

STEP NO--UR/C238/70/016/001/C096/0102

CIRC ACCESSION NO--APOC52321

UNCLASSIFIED

Acc. Nr: AP0052321

Ref. Code: UR0238

PRIMARY SOURCE: *Fiziologichniy Zhurnal*, 1970, Vol 16, Nr 1, pp 96-102

SIGNIFICANCE OF "ADRENALINE TEST" FOR ESTIMATION OF INDIVIDUAL SENSITIVENESS OF ANIMALS TO X-IRRADIATION

Yu. M. Madievskiy A. S. Khilko

Department of Anatomy and Physiology, Pedagogical Institute, Kharkov

Summary

The alterations were studied of peripheral blood leucocyte content in rats after injecting 0.25 mg of adrenaline per kg of body-weight ("adrenaline test") in connection with the dependence between its value and the leucopenia level after X-irradiation.

There was a real correlation between an increase in the amount of leucocytes in "adrenaline test" and the rapidity of recovery leucocyte content in rats exposed to 50-700 r total irradiation. After exposing to 1200 r all the animals died and the above-mentioned correlation did not take place. The mean lifetime of irradiated by 500-700 r rats was also closely connected with previous "adrenaline test" values of the same animals.

REEL/FRAME
19820903

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1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--USE OF "ADRENALINE TEST" FOR ESTIMATION OF THE INDIVIDUAL
SENSITIVENESS OF ANIMALS TO ANTI NEOPLASM REMEDIES -U-
AUTHOR--(02)--KHILKO, A.S., MADLEVSKIY, YU.M.
COUNTRY OF INFO--USSR *K*
SOURCE--FIZIOLOGICHNIY ZHURNAL, 1970, VOL 16, NR 3, PP 351-356
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ADRENALINE, TEST, ANTINEOPLASTIC DRUG, DRUG SENSITIVITY,
LEUKOCYTE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1118 STEP NO--UR/0238/70/016/003/0351/0356
CIRC ACCESSION NO--AP0115137
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115137

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DEPENDENCE WAS STUDIED BETWEEN THE VALUE OF "ADRENALINE TEST" (AT) BEFORE INJECTION OF THIO TEPA (T) AND LEUCOCYTE'S CONTENT (L) IN RAT PERIPHERAL BLOOD AFTER INJECTION OF T IN DOSES OF 3 MG-KG EVERY DAY, IN TOTAL DOSES OF 9 AND 15 MG-KG AND IN SINGLE ONE OF 20 MG-KG. THE NUMBER L TWO HOURS AFTER INJECTION OF 0.25 MG ADRENALINE PER KG OF BODYWEINGT WAS A AT INDEX. ADMINISTRATION OF T CAUSES THE DROP IN THE NUMBER L WHICH IS NORMALIZED AT DOSES 9 AND 15 MG-KG, RESPECTIVELY BY THE 9TH AND 16TH DAY. WITH A DOSE OF 20 MG-KG THE NUMBER L LOWERS RIGHT UP TO THE ANIMALS' DEATH. THERE IS A REAL CORRELATION BETWEEN THE VALUE OF AT AND NUMBER L AFTER ADMINISTRATION OF T (9-15 MG-KG). THE HIGHER AT THE LOWER THE NUMBER L AND THE SOONER COMES RECOVERY OF THE LEUCOCYTE'S CONTENT. WITH A DOSE OF 20 MG-KG THE MENTIONED CORRELATION WAS NOT FOUND. FACILITY: DEPARTMETN OF ANATOMY AND PHYSIOLOGY, THE KHARKOV PEDAGOGICAL INSTITUTE.

UNCLASSIFIED

USSR

UDC 547.26'118

NIKTIMIN, V. M., KHIL'KO, M. YA., and TROGIMOV, B. A., Irkut Institute of Organic Chemistry and the Siberian Branch of the Academy of Sciences, USSR

"Vinyl Esters Containing Trivalent Phosphorus. VI. Ester Interchange of Trialkyl Phosphites and Diethyl Phosphites by the Vinyl Monoethers of Diols"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 825-829

Abstract: Trialkyl phosphites, in the presence of metallic sodium, react according to the title react to give the mixed dialkyl (ω -vinyloxyalkyl) phosphites and an alcohol. This reaction was used to prepare ten new compounds of this general type from the vinyl monoethers of 1,3- and 1,4-butanediols. The ester interchange of the trialkyl phosphites in 1,3-dioxanaphthene is accompanied by isomerization.

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USSR

UDC 547.26'118+547.371

TROFIMOV, B. A., NIKITIN, V. M., ATAVIN, A. S., and KHIL'KO, M. Ya.

"Vinyl Esters Containing Trivalent Phosphorus. IV. Hydrolysis of Dialkyl (ω -Vinylhydroxyalkyl) Phosphites. Effect of the Vicinal Hydroxyl Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 342-346

Abstract: It is shown that uncatalyzed hydrolysis of dialkyl(ω -vinylhydroxy-alkyl) phosphites goes through a stage of formation of dialkyl- and alkyl (ω -vinylhydroxyalkyl) phosphites in a ratio determined both by the structure of the initial triorganophosphite and by the conditions of the reaction. It is proved that further hydrolysis of alkyl (β -vinylhydroxyalkyl) phosphites is limited by the decomposition of the vinylhydroxy group. It is shown that the vicinal hydroxy radical is a specific accelerator of hydrolysis of alkyl (β -hydroxyalkyl) phosphites.

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- 50 -

USSR

UDC 629.76/.78.015:533.6

KHILLER, M., SAGIROV, P.

"Damping of Satellite Vibrations by a Change in the Mass Distribution"

V sb. Upravleniye v kosmose. T. 1 (Control in Space. Vol 1 -- Collection of Works), Moscow, "Nauka", 1972, pp 126-136 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B370)

Translation: The possibility of damping vibrations of a gravitationally stabilized satellite by a consecutive triple change in its major moments of inertia is shown. A program for changing the moments of inertia is described and its shortcomings are noted. Authors' abstract.

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1/3 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--GAMMA RAY SPECTRA FROM THE, N, GAMMA, REACTION FOR THERMAL NEUTRONS
IN GERMANIUM 70, GERMANIUM 72, AND GERMANIUM 73 NUCLEI -U-
AUTHOR--(03)-RUDAK, E.A., FIRSAY, YA.I., KHILMANOVICH, A.M.

COUNTRY OF INFO--USSR

SOURCE--VESTI AKAD. NAVUK BELARUS. SSR, SER. FIZ.-MAT. NAVUK 1970, (1),
95-100
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GAMMA SPECTRUM, NEUTRON ABSORPTION, RADIATIVE CAPTURE,
GERMANIUM ISOTOPE, GAMMA TRANSITION, ELECTRON STRUCTURE, NUCLEAR SPIN,
NUCLEAR ENERGY LEVEL, LINE INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/1963

STEP NO--UR/0428/70/000/001/0095/0100

CIRC ACCESSION NO--AP0114377

UNCLASSIFIED

2/3 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0114377

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRA OF GAMMA RAY EMISSION IN THE REACTIONS ${}^{70}\text{Ge}(n, \gamma)$, ${}^{71}\text{Ge}$, ${}^{72}\text{Ge}(n, \gamma)$, ${}^{73}\text{Ge}$, AND ${}^{73}\text{Ge}(n, \gamma)$ ${}^{74}\text{Ge}$ FOR THE ACTION OF THERMAL N ON THE SEPD. ISOTOPES ${}^{70}\text{Ge}$, ${}^{72}\text{Ge}$, AND ${}^{73}\text{Ge}$ WERE DETD. BY USING A MAGNETIC COMPTON SPECTROMETER. AN EXPTL. TECHNIQUE DESCRIBED IN EARLIER WORK BY RUDAK AND FIRSOV WAS APPLIED. SCHEMES OF GAMMA TRANSITIONS IN THE NUCLEI OF THE 3 GE ISOTOPES UPON CAPTURING A N ARE GIVEN. IN THE TRANSITION FROM ZN ISOTOPES TO GE AND SE ISOTOPES, THE 2P SUBONE HALF N SUBSHELL BECOMES COMPLETELY FILLED AND FILLING OF THE 1G SUBNINE HALVES SUBSHELL BEGINS. THIS IS REFLECTED IN THE SYSTEM OF ENERGY LEVELS ON NUCLEI AND THE SCHEMES OF ENERGY RELEASE BY NUCLEI ACTIVATED IN THE (N, GAMMA) REACTION AND DECAYING FROM THE INITIAL STATE. IN ADDN. TO LEVELS WITH LOW SPIN VALUES, LEVELS WITH HIGH VALUES OF THE SPIN APPEAR. THUS, THE GROUND STATE OF ${}^{73}\text{Ge}$ HAS THE CHARACTERISITC (NINE HALVES) PRIME POSITIVE AND THE INITIAL STATE ON CAPTURING A N BY ${}^{72}\text{Ge}$ THAT OF (ONE HALF) PRIME POSITIVE. SIMILARLY, ON CAPTURE OF A THERMAL N BY THE ${}^{73}\text{Ge}$ NUCLEUS AND INITIAL STATE WITH THE SPIN 4 PRIME POSITIVE, 5 PRIME POSITIVE, IS FORMED. THE GREAT DIFFERENCE BETWEEN THE SPIN VALUES OF THE GROUND AND INITIAL STATE INCREASES THE MEAN AMT. OF GAMMA QUANTA PER CAPTURED N (4.0 AND 4.6 FOR ${}^{73}\text{Ge}$ AND ${}^{74}\text{Ge}$, RESP.). IN THE RANGE OF MASS NOS. A CONGRUENT TO 70, THE N FORCE FUNCTION DECREASES.

UNCLASSIFIED

3/3 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0114377

ABSTRACT/EXTRACT--ALTHOUGH THE GAMMA TRANSITIONS OF NUCLEI TAKE PLACE ESSENTIALLY AFTER CAPTURE OF THERMAL N ON P LEVELS, THE PART PLAYED BY THE DIRECT CAPTURE OF N IS CONSIDERABLY REDUCED VS. NUCLEI WITH A CONGRUENT TO 50. THIS IS INDICATED BY A DECREASE IN THE INTENSITIES OF GAMMA LINES WITH HIGH ENERGIES. FACILITY: INST. FIZ., MINSK, USSR.

UNCLASSIFIED

Nuclear Physics K

USSR

RUDAK, E. A., FIRSOV, YE. I., KHIL'MANOVICH, A. M., Institute of Physics, Academy of Sciences, Belorussian SSR

"The γ -Ray Spectrum From the Reaction of Se^{74} (n, γ) Se^{75} on Thermal Neutrons

Moscow, Yadernaya Fizika, Vol 11, No 6, 1970, pp 1129-1132

Abstract: The Se^{75} nucleus is one of the least studied nuclei. Some information concerning level decay with an energy of less than 1.2 Mev has been obtained from data concerning the radioactive decay of Br^{75} . Only one study is known that deals with research on the (d,p)-reaction on a specimen with poor enrichment with respect to the Se^{74} isotope. Data concerning energies and quantum characteristics of levels with an energy greater than 1.2 Mev are virtually absent. In this connection, research on the Se^{74} (n, γ) Se^{75} reaction is of definite interest, since it permits information to be obtained concerning the little-studied levels of the Se^{75} nucleus. In the present study, the γ -ray
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USSR

RUDAK, E. A., et al, Yadernaya Fizika, Vol 11, No 6, 1970,
pp 1129-1132

spectrum from the reaction of Se^{74} (n, γ) Se^{75} on thermal neutrons was studied by means of a magnetic Compton spectrometer with a resolution of 2% on the IRT reactor of the Academy of Sciences, Belorussian SSR. A diagram of γ -transitions of the Se^{75} nucleus from the initial state in the (n, γ) reaction is proposed.

2/2

- 113 -

1/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--GAMMA RAY SPECTRUM FROM THE γ , N, GAMMA, REACTION BASED ON THERMAL

NEUTRONS IN A NATURAL MISTURE OF MAGNESIUM ISOTOPES -U-

AUTHOR--(03)--RUDAK, E.A., FIRSOV, YE.I., KHILMANOVICH, A.N.

CCUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. FIZ.-MAT. NAVUK 1970, (1),
125-6

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIATIVE CAPTURE, GAMMA SPECTRUM, THERMAL NEUTRON, NEUTRON
ABSORPTION, MAGNESIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0064

STEP NO--UR/0428/70/000/001/0125/0126

CIRC ACCESSION NO--AP0111258

UNCLASSIFIED

... of Medical Sciences, USSR, Kiev

The chromatographic profile was studied on polymeric and fragmented DNA of
 mucousa of small intestine and liver of albino rats of three age groups.
 It is shown that the polymeric DNA of mucousa of one and six-months rats
 and fractions are found in it which are washed out by buffer of high
 concentrations, whereas DNA of old animals possesses a higher heterogeneity due to
 the appearance of a definite number of low-molecular fractions. The polymeric DNA
 of the liver does not manifest age differences in the chromatographic profile.
 The fragmented DNA of mucousa manifest the same...

272 019

UNCLASSIFIED

PROCESSING DATE-- 30 OCT 70

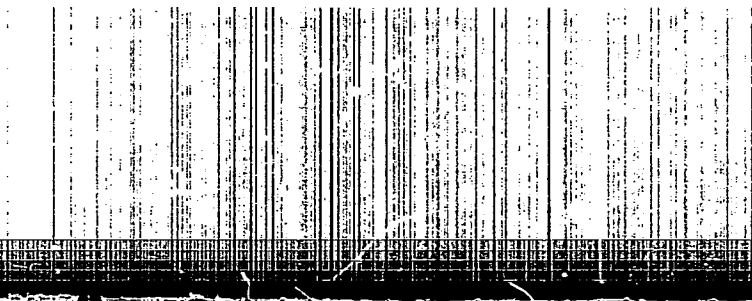
CIRC ACCESSION NO--AP0111258

ABSTRACT/EXTRACT--(U) G7-0- ABSTRACT. THE GAMMA RAY SPECTRUM OF A MG RDD
 WAS STUDIED (DIAM. 5 CM, AND WEIGHT 1700 G) BY THE METHOD DESCRIBED
 PREVIOUSLY (RUDAK, ET AL., 1969). FACILITY: INST. FIZ., MINSK,
 USSR.

UNCLASSIFIED

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201310015-6



APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201310015-6"

1/3 .019
 TITLE--GAMMA RAY SPECTRA FROM THE, N, GAMMA, REACTION FOR THERMAL NEUTRONS
 IN GERMANIUM 70, GERMANIUM 72, AND GERMANIUM 73 NUCLEI -U-
 AUTHOR--(03)-RUDAK, E.A., FIRSAY, YA.I., KHILMANOVICH, A.M.
 UNCLASSIFIED
 PROCESSING DATE--300170

COUNTRY OF INFO--USSR

SOURCE--VESTI AKAD. NAVUK BELARUS. SSR, SER. FIZ.--MAT. NAVUK 1970, (1),
 95-100
 DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
 TOPIC TAGS--GAMMA SPECTRUM, NEUTRON ABSORPTION, RADIATIVE CAPTURE,
 GERMANIUM ISOTOPE, GAMMA TRANSITION, ELECTRON STRUCTURE, NUCLEAR SPIN,
 NUCLEAR ENERGY LEVEL, LINE INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 REEL/FRAME--1993/1963

STEP NO--UR/0428/70/000/001/0095/0100

2/3 .019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0114377

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRA OF GAMMA RAY EMISSION IN THE REACTIONS ${}^{70}\text{Ge}(n, \gamma)$, ${}^{71}\text{Ge}$, ${}^{72}\text{Ge}(n, \gamma)$, ${}^{73}\text{Ge}$, AND ${}^{73}\text{Ge}(n, \gamma)$ ${}^{74}\text{Ge}$ FOR THE ACTION OF THERMAL N ON THE SEPD. ISOTOPES ${}^{70}\text{Ge}$, ${}^{72}\text{Ge}$, AND ${}^{73}\text{Ge}$ WERE DETD. BY USING A MAGNETIC COMPTON SPECTROMETER. AN EXPTL. TECHNIQUE DESCRIBED IN EARLIER WORK BY RUDAK AND FIRSOV WAS APPLIED. SCHEMES OF GAMMA TRANSITIONS IN THE NUCLEI OF THE 3 ${}^{70}\text{Ge}$ ISOTOPES UPON CAPTURING A N ARE GIVEN. IN THE TRANSITION FROM ZN ISOTOPES TO ${}^{70}\text{Ge}$ AND ${}^{72}\text{Ge}$ ISOTOPES, THE 2P SUBONE HALF N SUBSHELL BECOMES COMPLETELY FILLED AND FILLING OF THE 1G SUBNINE HALVES SUBSHELL BEGINS. THIS IS REFLECTED IN THE SYSTEM OF ENERGY LEVELS ON NUCLEI AND THE SCHEMES OF ENERGY RELEASE BY NUCLEI ACTIVATED IN THE (N, GAMMA) REACTION AND DECAYING FROM THE INITIAL STATE. IN ADDN. TO LEVELS WITH LOW SPIN VALUES, LEVELS WITH HIGH VALUES OF THE SPIN APPEAR. THUS, THE GROUND STATE OF ${}^{73}\text{Ge}$ HAS THE CHARACTERISITC (NINE HALVES) PRIME POSITIVE AND THE INITIAL STATE ON CAPTURING A N BY ${}^{72}\text{Ge}$ THAT OF (ONE HALF) PRIME POSITIVE. SIMILARLY, ON CAPTURE OF A THERMAL N BY THE ${}^{73}\text{Ge}$ NUCLEUS AND INITIAL STATE WITH THE SPIN 4 PRIME POSITIVE, 5 PRIME POSITIVE, IS FORMED. THE GREAT DIFFERENCE BETWEEN THE SPIN VALUES OF THE GROUND AND INITIAL STATE INCREASES THE MEAN AMT. OF GAMMA QUANTA PER CAPTURED N (4.0 AND 4.6 FOR ${}^{73}\text{Ge}$ AND ${}^{74}\text{Ge}$, RESP.). IN THE RANGE OF MASS NOS. A CONGRUENT TO 70, THE N FORCE FUNCTION DECREASES.

UNCLASSIFIED

PROCESSING DATE--5000

UNCLASSIFIED

373 019 CIRC ACCESSION NO--AP0114377

ABSTRACT/EXTRACT--ALTHOUGH THE GAMMA TRANSITIONS OF NUCLEI TAKE PLACE ESSENTIALLY AFTER CAPTURE OF THERMAL N ON P LEVELS, THE PART PLAYED BY THE DIRECT CAPTURE OF N IS CONSIDERABLY REDUCED VS. NUCLEI WITH A CONGRUENT TO 50. THIS IS INDICATED BY A DECREASE IN THE INTENSITIES OF GAMMA LINES WITH HIGH ENERGIES.

FACILITY: INST. FIZ., MINSK, USSR.

UNCLASSIFIED

Nuclear Physics

K

USSR

RUDAK, E. A., FIRSOV, YE. I., KHIL'MANOVICH, A. M., Institute of Physics, Academy of Sciences, Belorussian SSR

"The γ -Ray Spectrum From the Reaction of $Se^{74} (n, \gamma) Se^{75}$ on Thermal Neutrons

Moscow, Yadernaya Fizika, Vol 11, No 6, 1970, pp 1129-1132

Abstract: The Se^{75} nucleus is one of the least studied nuclei. Some information concerning level decay with an energy of less than 1.2 Mev has been obtained from data concerning the radioactive decay of Br^{75} . Only one study is known that deals with research on the (d,p) -reaction on a specimen with poor enrichment with respect to the Se^{74} isotope. Data concerning energies and quantum characteristics of levels with an energy greater than 1.2 Mev are virtually absent. In this connection, research on the $Se^{74} (n, \gamma) Se^{75}$ reaction is of definite interest, since it permits information to be obtained concerning the little-studied levels of the Se^{75} nucleus. In the present study, the γ -ray

USSR

RUDAK, E. A., et al, Yadernaya Fizika, Vol 11, No 6, 1970,
pp 1129-1132

spectrum from the reaction of Se^{74} . $(n, \gamma) Se^{75}$ on thermal neutrons was studied by means of a magnetic Compton spectrometer with a resolution of 2% on the IRT reactor of the Academy of Sciences, Belorussian SSR. A diagram of γ -transitions of the Se^{75} nucleus from the initial state in the (n, γ) reaction is proposed.

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- 113 -

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--GAMMA RAY SPECTRUM FROM THE ,N, GAMMA, REACTION BASED ON THERMAL
NEUTRONS IN A NATURAL MISTURE OF MAGNESIUM ISOTOPES -U-
AUTHOR--(03)-RUDAK, E.A., FIRSOV, YE.I., KHIUMANOVICH, A.M.
COUNTRY OF INFO--USSR
SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. FIZ.-MAT. NAVUK 1970, (1),
125-6
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--RADIATIVE CAPTURE, GAMMA SPECTRUM, THERMAL NEUTRON, NEUTRON
ABSORPTION, MAGNESIUM ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0064 STEP. NO--UR/0428/70/000/001/0125/0126
CIRC ACCESSION NO--AP0111258
UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AP0111258

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GAMMA RAY SPECTRUM OF A MG ROD
WAS STUDIED (DIAM. 5 CM, AND WEIGHT 1700 G) BY THE METHOD DESCRIBED
PREVIOUSLY (RUDAK, ET AL., 1965).

FACILITY: INST. FIZ., MINSK,

UNCLASSIFIED

Acc. Nr: **AP0047340**

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichniy Zhurnal, 1970,
Vol 42, Nr 1, pp 20-23

**FRACTIONATION OF DNA PREPARATIONS OF TISSUES
OF ALBINO RATS OF DIFFERENT AGE**

I. Yu. Khilobok, O. P. Shevchuk

Institute of Gerontology, Academy of Medical Sciences, USSR, Kiev

Summary

The chromatographic profile was studied of polymeric and fragmented DNA of mucosa of small intestine and liver of albino rats of three age groups.

It is shown that the polymeric DNA of mucosa of one and six-months rats is heterogeneous and fractions are found in it which are washed out by buffer of high concentrations, whereas DNA of old animals possesses a higher heterogeneity due to the appearance of a definite number of low-molecular fractions. The polymeric DNA of the liver does not manifest age differences in the chromatographic profile.

The fragmented DNA of mucosa manifest the pronounced age differences: in old animals the fractions containing small fragments prevail, that is not typical of DNA of rats belonging to younger age groups.

Under the effect of sodium pyrophosphate the amount of small fragments increases inconsiderably in the liver DNA as well, but this rise does not depend on the age of animals.

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REEL/FRA
13790866

tdk 2

USSR

UDC 535.89:621.385.127.8:621.3.083.342

SHCHERBINA, D. M., KHIMCHENKO, V. P., VALUYSKIY, P. G.

"A Xenon Lamp as a Point Source"

Tr. Khar'kov NII Metrol. [Works of Khar'kov Scientific Research Institute for Metrology], Moscow, 1970, pp 34-38, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, 1972, No 5, Abstract No 5.32.1480).

Translation: Xenon lamps are made in the form of tubular high pressure lamps (type VD-T) with a long arc (125-175 mm) and spherical superhigh pressure lamps (type SVD) with a short arc (1.5-5.0 mm). The former have a brightness of 0.2 ksb and a light output of 35 l/w, the power of water cooled (VD-T-V) lamps reaches 10 kw, while the latter have a brightness of about 60 ksb, a light output on the order of 40 l/w, and powers of various types varying from 200 w to 5 kw (the most powerful lamps are water cooled, their brightness reaching 200 ksb). Type VD lamps, due to their high surface and comparatively low brightness, can be used for illumination. Type SVD lamps represent a valuable, near-point light source, with spectrum and brightness similar to that of the sun.

1/1

UDC 662.997.62-52

USSR

SHCHERBINA, D. M., KHIMCHENKO, V. P.

"Tracking System for Solar Furnace"

Tr. Khar'kov, NII metrol. (Works of Khar'kov Scientific Research Institute of Metrology) Moscow, 1970, pp 27-33 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6G122)

Abstract: Tracking system with light modulation by means of a rotary sheared diaphragm, serves for automatic retention of the solar image at the main focus of an automatic reflector. The diaphragm is rotated by a synchronous motor at 3000 rpm, while the 50 Hz modulation frequency is rigorously synchronous with the network frequency. A light cell with blocking layer was used as a photoreceiver. Operating conditions were determined ensuring the motion of the system even when clouds are passing in the field of vision of the long focused objective, and that there is no jerk when the sun is uncovered. The lengthy tracking system ensures the day tracking with an error of less than $3 \cdot 4$ figures. 2 references.

1/1

UDC 548.31

USSR

BADILENKO, N. A. NOVIKOV, N. N., and KHILENKO, M. V., Kiev State University
imeni T. G. Shevchenko

"Dislocation Mobility in Germanium"

Kiev, Metallofizika, No 39, 1972, pp 43-51

Abstract: The mobility of dislocations in pure germanium and germanium alloy with antimony was investigated over a wide interval of temperatures and stresses. Special attention was given to the study of dislocation mobility at low temperatures (150-200°C) and high stresses (10-20 kg/mm²). The obtained results were interpreted on the basis of available theoretical models. 5 tables, 9 figures, 28 bibliographic references.

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- 51 -

UDC 539.3.5

USSR

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NOVIKOV, N. N., and KHIMENKO, M. V., Kiev State University imeni T. G. Shevchenko

"Effect of Oxygen and Hydrogen Impurities on Microhardness of Germanium"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 9, 1970, pp 143-146

Abstract: A detailed study was made of the role of oxygen and hydrogen in raising the microhardness of germanium, particularly the character of the dependence of the microhardness of germanium with gas impurities on temperature. The microhardness studies were performed on the {111} plane of brand GES non-dislocational antimony-doped germanium. All high-temperature measurements were carried out on a special vacuum device, which the article describes in detail. The results indicate that oxygen and hydrogen strongly affect the mechanical properties of germanium in the low-temperature region. Changes in the microhardness of germanium with the introduction of hydrogen and oxygen impurities are due to changes in the composition and properties of the surface oxide film, particularly a change in the interfacial surface energy of the germanium-oxide boundary as a result of the formation of certain oxygen-hydrogen compounds in the oxide film.

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72 20107 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--CONDITIONS FOR THE USE OF CARBOXYL CONTAINING LATEX SKD-1 DURING
 THE PREPARATION OF SYNTHETIC LEATHER -U-
 NAME--(05)-YERKOVA, L.N., PERESNEV, V.N., MARTINSON, D.K., KOZHIROVA,
 T.S., KHINICH, D.S.
 COUNTRY OF INFO--USSR

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 BONDING/(U)SKD1 SYNTHETIC RUBBER

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IRC ACCESSION NO--AP0111531

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ABSTRACT. THE CAUSES FOR INCREASED RIGIDITY OF ARTIFICIAL LEATHER (I) BONDED WITH SKD-1 LATEX (II) WERE STUDIED. THE RIGIDITY OF I INCREASED WITH THE CHARGE CARRIED BY THE CATION OF THE COAGULATING ELECTROLYTE (MOST RIGID I WAS OBTAINED WHEN II WAS COAGULATED WITH AL SUB2(SO SUB4)SUB3), AND AT HIGH PH (AT PH 4.5 THE RIGIDITY WAS 10,000-5,000 G)., PRESUMABLY DUE TO THE COPPTN. OF II WITH AL(OH)SUB3. RIGID POLYMERS RESULTED FOLLOWING COAGULATION WITH NACL (AT HIGH PH), APPARENTLY DUE TO THE FORMATION OF H-BONDS BETWEEN THE OH AND THE CO SUB2 H GROUPS OF II. LEAST RIGID I WERE OBTAINED AT PH IS LESS THAN 4.5 AND WITH NACL COAGULANT.

UNCLASSIFIED

...ICH, Yu.P.

STUDY OF THE PROCESS OF STRENGTHENING SOLID BODIES BY MEANS OF NUCLEAR GAMMA-RESONANCE

G. N. Belozerkiy, V. N. Gitsovich, O. G. Sokolov, and Yu. P. Khramich, Sverdlovsk State University Imeni A. A. Zhukovskiy, submitted to Press 26 September 1971

This work was attempted for the purpose of studying the physical processes responsible for the strengthening of real bodies, in particular alloys, by using the method of nuclear gamma-resonance (NAGR).

The application of nuclear gamma-spectroscopy for these purposes seems to be very justified to us because of its great sensitivity to the phase composition of the specimens. Aside from this, the strengthening of solids is associated in one way or another with the change in the structural state of the crystalline lattice, in particular with the change in the structural state absorption factor, which must be felt on the magnitude of the degree of

For the investigation, iron-vanadium steel was selected (1% V, $V < 1\%$), which may be strengthened not only by the hardening method, caused by the precipitation of dispersed special carbides in the tempering of hardened specimens.

The experiments were conducted on specimens which had passed through various types of treatment for the purpose of changing their strength properties: cold-rolled (degree of deformation 75%), hardened at 1100 and 850°C, and tempered at 900°. Specimens hardened at 850°C were subjected to further tempering at temperatures of 400, 550, and 650°, in which the processes of secondary hardening occur.

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Metalurgy, Str. 53611
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Metallurgy & Metallurgy
Vol 34 # 6, 1972*

4 The spectra were recorded by a 800-channel analyzer of the Moebauer spectrometer of the electrodynamic type, with a constant acceleration, and were processed on an EVM (electronic computer).

All the spectra are Zeeman groups of six, or, more correctly, by superposition of several groups of six, corresponding to various states of the nearest surroundings of iron atoms. At 1% vanadium, states with only one replacement atom in the nearest coordinate spheres have a non-disappearing probability. According to data from reference [1], the presence of one atom of vanadium in the first two spheres decreases the field in the iron by approximately 8%, and in the third sphere increases it by 1.5%. Thus, ignoring the effect of the third and subsequent spheres, in simplified phase analysis we may consider the spectrum to be consisting of two groups of six. In this case we will not consider less than 1% of iron atoms, having two or more atoms of vanadium in the first two coordination spheres. The reasonable values of χ^2 obtained by us in the processing of the spectra on the EVM (usually of the order of the number of points of the experimental spectrum) also show the permissibility of such an approximation.

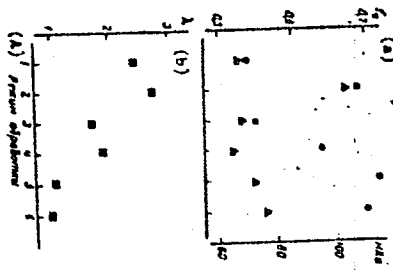


Figure 1. Dependences of the magnitude of the resonance absorption factor (a) and the HRB hardness (A) upon the form of treatment of the specimen (a). The comparative dependence of A (■) of the degree of asymmetry of the lines of the spectrum upon the form of the specimen is also shown (b). Along the abscissa axis are plotted: (1) annealing at 930°C; (2), (3) hardening at 1100 and 850°C; (4)-(6) tempering at 400, 550, and 650°C. (A) treatment regime.

USSR

UDC 678.675.046.32.01:537

KHIMCHENKO, YU. I., MELESHEVICH, A. P., KOMPANIYETS, V. A., and RADKEVICH, L. S.

"Effect of γ -Radiation on the Electric Properties of Metal Polymers Based on Polycapramide"

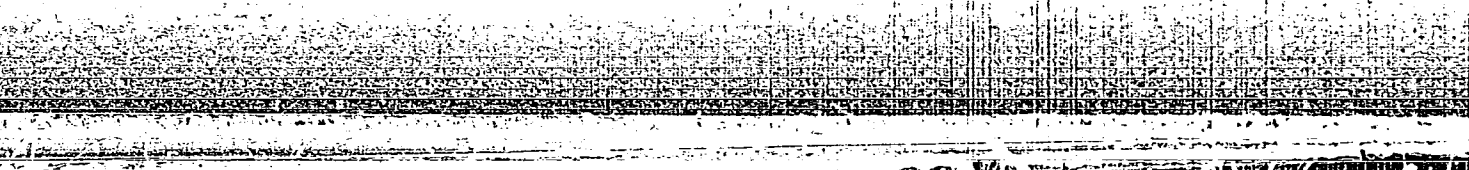
Moscow, Plasticheskiye Massy, No 5, 1973, pp 27-29

Abstract: A study was made of the results of investigating the effect of γ -radiation on the electric properties of polycapramide filled with highly dispersed metals. The electrical conductivity of the metal polymers depends essentially on the radiation dosage. The greatest increase in electrical conductivity is observed for polycapramide filled with copper or nickel; the electrical conductivity of polycapramide with iron or cobalt depends on the radiation dosage to a lesser degree. The variations in electrical conductivity are caused by the difference in supramolecular structures of the polymer in contact with different metals. By variation of the electrical conductivity in combination with ionizing radiation, it is possible to estimate the uniformity of the structure of the polymer compounds with electrically conducting fillers.

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- 69 -

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SHCHERBINA, D. M., KHIMCHENKO, V. P., VALUYSKIY, P. G.

"A Xenon Lamp as a Point Source"

Tr. Khar'kov NII Metrol. [Works of Khar'kov Scientific Research Institute for Metrology], Moscow, 1970, pp 34-38. (Translated from Referativnyy Zhurnal, Metrologiya i Izeritel'naya Tekhnika, 1972, No 5, Abstract No S.32.1480).

Translation: Xenon lamps are made in the form of tubular high pressure lamps (type VB-T) with a long arc (125-175 mm) and spherical superhigh pressure lamps (type SVB) with a short arc (1.5-5.0 mm). The former have a brightness of 0.2 ksb and a light output of 35 l/w, the power of water cooled (VB-T-V) lamps reaches 10 kw, while the latter have a brightness of about 60 ksb, a light output on the order of 40 l/w, and powers of various types varying from 200 w to 5 kw (the most powerful lamps are water cooled, their brightness reaching 200 ksb). Type VB lamps, due to their high surface and comparatively low brightness, can be used for illumination. Type SVB lamps represent a valuable, near-point light source, with spectrum and brightness similar to that of the sun.

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USSR

UDC 662.997.62-52

SHCHERBINA, D. M., KHIMCHENKO, V. P.

"Tracking System for Solar Furnace"

Tr. Khar'kov, NII metrol. (Works of Khar'kov Scientific Research Institute of Metrology) Moscow, 1970, pp 27-33 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6G122)

Abstract: Tracking system with light modulation by means of a rotary sheared diaphragm, serves for automatic retention of the solar image at the main focus of an automatic reflector. The diaphragm is rotated by a synchronous motor at 3000 rpm, while the 50 Hz modulation frequency is rigorously synchronous with the network frequency. A light cell with blocking layer was used as a photoreceiver. Operating conditions were determined ensuring the motion of the system even when clouds are passing in the field of vision of the long focused objective, and that there is no jerk when the sun is uncovered. The lengthy tracking system ensures the day tracking with an error of less than 3'. 4 figures, 2 references.

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USSR

UDC 548.31

BADILENKO, N. A. NOVIKOV, N. N., and KHIMENKO, M. V., Kiev State University
imeni T. G. Shevchenko

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Kiev, Metallofizika, No 39, 1972, pp 43-51

Abstract: The mobility of dislocations in pure germanium and germanium alloy with antimony was investigated over a wide interval of temperatures and stresses. Special attention was given to the study of dislocation mobility at low temperatures (150-200°C) and high stresses (10-20 kg/mm²). The obtained results were interpreted on the basis of available theoretical models. 5 tables, 9 figures, 28 bibliographic references.

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- 51 -