

USSR

UDC: 621.039.001.5

Mal'tsev, B. K., Khlestkin, D. A., Candidates of Technical Sciences, and Keller, V. D., Engineer, All-Union Institute of Heat Engineering

"Experimental Study of the Efflux of Saturated and Underheated Water at High Pressures"

Moscow, Teploenergetika, No 6, 1972, pp 61-63.

Abstract: The All-Union Institute of Heat Engineering has produced a test stand for investigation of critical modes of escape of hot water from a pressure vessel with initial pressures of up to $240 \cdot 10^5$ N/m². In contrast to earlier test stands, this stand allows a stable mode to be maintained with any parameters for an extended period of time. The test stand was used to study the flow modes of water escaping from leaks modeling those which might arise in the high-pressure cooling circuit of a nuclear power reactor. The data produced on the flows of saturated and underheated water can be used to calculate the critical flow rates of saturated and underheated water, and indicate that: 1) At pressures of over $70 \cdot 10^5$ N/m², a

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Mai'tsev, B. K., Khlestkin, D. A., and Keller, V. D., Moscow, Teploenergetika, No 6, 1972, pp 61-63.

value of $l/d=9$ is probably the maximum relative channel length at which a critical flow of saturated water is metastable. 2) Increasing the underheating of water to the saturation point increases metastability of the flow, with otherwise equivalent conditions. 3) As the initial water pressure increases, metastability decreases, disappearing at pressures $p_0 \geq 200 \cdot 10^5 \text{ N/m}^2$.

2/2

USSR

UDC 528.517.622.1

1

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

"Experimental Industrial Tests of the MSD-1 Phototachymeter"

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

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

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1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
 TITLE--ORDERING OF THE NICKEL, IRON, COBALT ALLOYS IN THE GAMMA REGION -U-
 AUTHOR-(04)-GOMANKOV, V.I., PUZEY, I.M., MALTSEV, E.I., PETRENKO, E.D.
 COUNTRY OF INFO--USSR *M*
 SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 429-431
 DATE PUBLISHED----FEB70
 SUBJECT AREAS--MATERIALS
 TOPIC TAGS--ORDERED ALLOY, ALLOY PHASE COMPOSITION, NEUTRON DIFFRACTION,
 COBALT CONTAINING ALLOY, IRON NICKEL ALLOY, ALLOY COMPOSITION
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3003/0345 STEP NO--UR/0126/70/029/002/0429/0431
 CIRC ACCESSION NO--AP0129577
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UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 016

CIRC ACCESSION NO--AP0129577

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTERISTICS OF THE ORDERING PROCESS IN ALLOYS IN THE GAMMA REGION OF THE NI-Fe-CO SYSTEM WERE STUDIED BY NEUTRON DIFFRACTION, WITH SPECIAL REF. TO THE SPECIFIC PART PLAYED BY CO IN THIS PROCESS. THE ORDERING CHARACTERISTICS ARE LARGELY DETERMINED BY THE DEVELOPMENT OF A SUPERSTRUCTURE OF THE NI SUB3 FE TYPE; THE ADDITION OF CO TENDS TO DISRUPT THIS SUPERSTRUCTURE BECAUSE THERE IS A STRONGER INTERACTION BETWEEN THE FE AND CO THAN BETWEEN THE FE AND NI.

UNCLASSIFIED

Acc. Nr. **A0050718** Abstracting Service:
CHEMICAL ABST. 5170

Ref. Code:
UR0368

94975h Effect of electron bombardment on the glow of an electroluminophor. Kolomoitsev, F. I.; Belov, D. G.; Kondrashov, A. P.; Mat'isev, E. K. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 148-8 (Russ). In the excitation of lumino-phor EL-510 m by current of electrons (50 μ A, ~25 keV) or by sinusoidal voltage (~80 V, frequency 5 kHz), positions of the max. in the spectrum were virtually unchanged. In the case of current of electrons, the light intensity was significantly lower than in the case of excitation by sinusoidal voltage. Reflected and the surface layer delayed electrons (~50%) did not participate in the excitation of the electroluminophor. During the joint action of penetrating irradiation and elec. field, light intensity was lower than in the excitation by elec. field only. Under the conditions of simultaneous action of sinusoidal voltage and current of charged particles, in an "impoverishment" barrier of the Schottky type, an addnl. amt. of charge carriers was generated as δ -electrons. The appearance of secondary electrons caused a decrease of barrier resistance and the intensity of local elec. field decreased, which led to a decrease of electroluminescence intensity.

M. Tichy

REEL/FRA
19810716

FB 21

1/2 009 UNCLASSIFIED PROCESSING DATE--1600170
TITLE--ELECTRICAL CONDUCTIVITY AND COEFFICIENTS OF SELF DIFFUSION OF THE
LITHIUM CHLORIDE KU-2 (CATION EXCHANGER) SYSTEM IN RELATION TO
AUTHOR--(03)-MALTSEY, G.I., KURIN, M.N., TIKHOMIROV, I.A.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKIMIYA 1970, 6(2), 258-61

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRIC CONDUCTIVITY, LITHIUM CHLORIDE, CATION EXCHANGE
RESIN, DIFFUSION COEFFICIENT, CALCULATION/(U)KUZ CATION EXCHANGER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/0198

STEP NO--UR/0364/70/006/002/025B/0261

CIRC ACCESSION NO--AP0114584

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0114584
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TABLE OF THE COND. OF THE SYSTEM
WITH LiCl CONCNS. OF 0.1-6N AT 10DEGREES INTERVALS AT 10-90DEGREES IS
PRESENTED. COND. AT VARIOUS CONCNS. AND TEMPS. DIFFERED LITTLE FOR 3
DIFFERENT RANGES OF PARTICLE SIZE OF THE CATION EXCHANGER. SELF
DIFFUSION COEFFS. FOR THE SYSTEM WERE CALCD. BY USING THE NERNST
EINSTEIN EQUATION, AND AGREED WITH LITERATURE VALUES. FACILITY:
TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

USSR

UDC: 532.721.69

MAL'TSEV, G. V., MARTYNOVA, N. K., and NOVOKRESHCHENOV,
P. D.

"Influence of Mercury on Strength of Copper Subject to Ultra-
sonic Vibrations"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 5,
1971, pp 29-32

Abstract: Tensile tests of amalgamated copper specimens subject
to ultrasonic vibrations were conducted.

The specimens were of 1 mm diameter. The coating of
mercury was 0.001 mm thick. One end of the specimen was
connected to a vibrator operating at 22 and 17.5 kilohertz frequency.
The other end was subject to a static load. The grain size was
varied by varying the annealing temperature.

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MAL'TSEV, G. V., et al, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 5, 1971, pp 29-32

On Fig. 1 the tensile strength is plotted versus the square of the vibratory stress. The tensile strength of copper specimens without mercury is affected little by the vibratory stress. The tensile stress of amalgamated specimens is lower than of the specimens without mercury, it remains constant for small values of vibratory stress, then decreases linearly with the square of the vibratory stress. Curves for six different grain sizes are given, the strength decreases with the size of grain.

The explanation of these results is that the vibratory stress destroys the intermetallic bond between copper and mercury and makes it possible for the liquid mercury to penetrate into the cracks between the grains of copper.

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UDC: None

BASOV, N. G., MAL'TSEV, K. K., MARKIN, Ye. P., MARTYNIENKO, V. D.,
ORAYEVSKIY, A. N., PANIKHIN, A. V., SAGITOV, R. G., and SKACHKOV,
A. N.

"Chemical Laser of Mixed Difluoramin With Hydrogen"

Moscow, Sbornik kratkiye soobshcheniya po fizike, No 11, November
1971, pp 3-9

Abstract: This brief communication reports oscillations obtained from oscillatory-rotatory transitions of HF molecules resulting from the reaction of NF_2H with hydrogen, specifically the time variations of the gain yielded by the mixture as a function of the experimental conditions. The experimental equipment consisted of two lasers, an oscillator, and an amplifier, excited by an electrical discharge through the mixture. The oscillator was a quartz tube 85 cm long and 1.7 cm in diameter, with LiF windows set at the Brewster angle. Determinations were made of the optimal relationships between the pressures of the NF_2H and H_2 in the mixture, and a curve is plotted of the energy of the pulse oscillation in the mixture as a function of the ratio of the two pressures. Curves are also plotted for the gain factor in the mixture as a function of time. The authors express their thanks to L. V. Kulekov for his help in plotting the pulse energy spectrum.

1/1

1/2 021 UNCLASSIFIED
TITLE--PAINLESS MYOCARDIAL INFARCTIONS -U-

PROCESSING DATE--13NOV70

AUTHOR--MALTSEV, L.M.

COUNTRY OF INFO--USSR

SOURCE--KARDIOLOGIYA 10(1): 152-160 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, PAIN, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
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STEP NO--00/0495/10/010/001/0152/0160

CIRC ACCESSION NO--AP0131166

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131166

ABSTRACT/EXTRACT--(U) GE-0- ABSTRACT. THE HISTORY AND CONTRIBUTION OF SOVIET AND FOREIGN INVESTIGATORS IN THE ELABORATION OF THIS PROBLEM ARE DISCUSSED. THE CAUSES OF DISCREPANCY OF OPINIONS AND ON SOME PROBLEMS RELEVANT TO CLINICAL PICTURE, COURSE, PROGNOSIS AND INCIDENCE OF INDIVIDUAL FORMS OF PAINLESS MYOCARDIAL INFARCTION (IN MAN) AND THE DIVERGENCE OF THE EXISTING CLASSIFICATION ARE ANALYZED. THE CONDITIONS AND CONCEPTS OF THE PATHOGENESIS OF PAINLESS DEVELOPMENT OF MYOCARDIAL INFARCTION ARE DISCUSSED, AND THE PROSPECTS OF FURTHER STUDY OF THE DISEASE ARE OUTLINES. FACILITY: 2ND DEP. THER., CENT. INST. POSTGRAD. MED., MUSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SOME CLINICAL ASPECTS OF PAINLESS MYOCARDIAL INFARCT -U-

AUTHOR--KALITSEV, L.M.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970 PP 38-40

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, MYOCARDIUM, CLINICAL MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0387

STEP NO--UR/0177/70/000/003/0038/0040

CIRC ACCESSION NO--AP0134162

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE LAST TWO DECADES AMONG ATYPICALLY PROCEEDING MYOCARDIAL INFARCTS MORE AND MORE ATTENTION HAS BEGUN TO BE ATTRACTED BY PAINLESS FORMS WHICH THE LEADING CLINICISTS HAVE POINTED OUT (V. N. VINOGRADOV, 1957; P. YE. LURIMSKIY AND YE. M. TAREYEV, 1958; P. D. WHITE, 1960; N. PLOTS, 1961, AND OTHERS). INADEQUATE KNOWLEDGE OF PRACTICAL PHYSICIANS AND THE POLYMORPHISM OF THE CLINICAL ASPECTS OF PAINLESS MYOCARDIAL INFARCTS (IFTE) ARE THE CAUSE OF DIAGNOSTIC ERRORS (M. I. THEODORI, 1968; NONZHELLI, 1965). THE CONDITIONS OF THE DEVELOPMENT OF THOSE FORMS OF INFARCT AND THEIR CLINICAL VARIANTS AND FORECASTING, ESPECIALLY REMOTE, HAVE STILL BEEN INADEQUATELY STUDIED. THE BASIS OF THE PRESENT REPORT IS DATA ON 40 PATIENTS WHO HAD EXPERIENCED DIFFERENT VARIANTS OF PAINLESS MYOCARDIAL INFARCT. ALL OF THEM, BOTH BEFORE THE FORMATION OF THE INFARCT AND AFTER IT FOR A LONG TIME WERE UNDER DISPENSARY OBSERVATION (FOR A TOTAL OF SIX TO TWELVE YEARS). THE INITIAL PERIOD OF THE DISEASE WAS TRACED IN THE INFIRMARY. THE TABLE PRESENTS THE DISTRIBUTION OF THE PATIENTS BY CLINICAL VARIANTS, AGE AND SEX.

UNCLASSIFIED

USSR

UDC 539.3.313

MAL'TSEV, L. YE.

M

"A Method of Constructing a System of Correcting Stress Tensors"

Moscow, Vestnik Moskovskogo Universiteta, No 4, 1970, pp 114-119

Abstract: The variation method of solving three-dimensional problems in elasticity theory was developed by P. F. Papkovich in 1939. It has proved difficult to construct coordinate systems for this method. The great variety of problems encountered in practice requires a rather extensive set of coordinate systems. In the article, which is a development of one of the sections of the author's dissertation, a method for constructing such systems is proposed. This method is applicable to simply connected and multiply connected bodies bounded by piecewise-smooth surfaces. This general method makes it possible to allow for the particularities of specific problems. It is sufficiently convenient from the practical point of view.

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USSR

UDC: 620.17:669.295:620.186.1

MAL'TSEV, M. V., VOLKOVA, T. N., SKUDNOV, V. A., Gorky Polytechnic Institute
Imeni A. A. Zhdanov

"Influence of Cooling Rate on Phase Composition and Mechanical Properties of
VT16 Alloy"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 49-52.

Abstract: The influence of cooling rate on phase composition and mechanical properties of VT16 titanium alloy was studied on cold-drawn bars 6.15 mm in diameter. After heating to 600-950° C and holding for two hours, the bars were cooled in water, in air, in a container in air and in a container with the furnace. In all cases, the specimens were heated under a vacuum of 10⁻⁴ mm hg. The cooling rate in air averaged 10° per minute, with the furnace -- 3° per minute. It was found that increasing the heating temperature and cooling rate increases the structural instability of VT16, significantly influencing mechanical properties and phase composition. The minimum yield point of the alloy following hardening from various temperatures corresponds to the maximum content of beta phase. The beginning of the sharp decrease in yield point with increasing hardening temperature corresponds to the appearance of the alpha "phase" in the structure. The strain hardening during

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Mal'tsev, M. V., Volkova, T. N., Skudnov, V. A., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 49-52.

extension of specimens subjected to hardening and annealing with heating to from 750 to 900° C is the same. For annealed specimens, it is somewhat less with low degrees of deformation, for hardened specimens -- at higher degrees of deformation. The ductility of hardened specimens is slightly higher than that of annealed specimens in this case.

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USSR

UDC 669.017-620.18

MAL'TSEV, M. V.

Metallografiya tugoplavkikh, redkikh i radioaktivnykh metallov i splavov (Metallography of Refractory, Rare, and Radioactive Metals and Alloys), Moscow, "Metallurgiya" Press, 1971, 488 p., illustrations, graphs, tables, bibliographic reference, 3200 copies printed.

Translation of Annotation: The book deals with structures, properties, and the application of refractory, rare, and radioactive metals and their alloys. The structures of most typical alloys are shown in macro- and microphotographs combined into an atlas to serve as a manual for the analysis of different structures of commercial alloys. The book is intended for a wide circle of engineering and technical personnel in the metallurgical industry and scientific research institutes associated with producing and using these metals, and may serve as a textbook for students in metallurgy.

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USSR

UDC: 669.28'849'788

FREZE, N. I., SHCHUKIN, A. A., ABALIKHIN, A. V., MAL'TSHEV, M. V., MIL'KAN, Yu. V., KURDYUMOVA, G. G.

"All-Union Scientific Research and Design Institute of Refractory Metals and Hard Alloys"

"A Molybdenum-Based Alloy"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrabotki, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334270, Division C, filed 26 Sep 70, published 30 Mar 72, p 104

Translation: This Author's Certificate introduces a molybdenum-based alloy which contains rhenium. As a distinguishing feature of the patent, the physicomechanical properties of the alloy are improved by adding carbon, taking the components in the following proportions in percent:

rhenium	35-50
carbon	0.02-0.2
molybdenum base	

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UDC 539.56 4

USSR

BELOUS, O. A., DANILOVTSEVA, O. G., KUZNETSOVA, V. A., MAL'TSEV, M. V.,
MINAKOV, V. N., TREFILOV, V. I., KHACHATUROV, A. A., SHCHUKIN, A. A.,
Moscow, Kiev. VNIITS (All-Union Scientific Research Institute of Hard
Alloys); Institute of Metallophysics. Academy of Sciences, Ukrainian SSR

“An Investigation of the Influence of Admixtures of Carbon and Zirconium
Carbide on the Cold Brittleness of Cast Molybdenum”

Kiev, Problemy Prochnosti, No. 6, 1971, pp 97-101

Abstract: An investigation is made of the influence of carbon and zirconium carbide upon the structure of cast molybdenum alloys, and of the relationship of the structure to the temperature of transition to a brittle state. It is found that even for alloys which have a complex structural state, the rules governing the change of the cold-brittleness temperature may be explained if account is taken of the composition of the solid solution, its structural state, and the nature of the formation of excess phases on the grain boundaries. 5 figures, 1 table, 11 references.

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USSR

UDC 621.762.4.047

MAL'TSEV, M. V., GOR'kiy Polytechnic Institute

"Investigation of Metal Powder Rolling"

Kiyev, Poroshkovaya Metallurgiya, No 6, (102), Jun 71, pp 19-24

Abstract: Investigation results are presented of rolling powders of stainless steels Kh18N15, Kh18N9T, iron, titanium (IMP-1A), and electrolytic copper. During the vertical rolling process, the specific pressure distribution along the strain arc was measured by means of a "dotted" dynamometer built into the roll. The powders were rolled into bands of different thickness and density by means of changing the roll nip and angular feed. From oscillograms obtained by rolling of the powders, diagrams of specific pressure distribution in the hearth of strain were plotted for each case of rolling and from these diagrams stresses on rolls during rolling powders into bands of different density and thickness, the neutral angles, and the flattening angles of rolls were determined. The analysis of the diagrams and obtained data led to results analogous to findings of other authors (Severdenko, V. P., et al., Belorussian DAN BSSR, Vol 7, No 1, 1963). Two illustr., four tables, seven biblio. refs.

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USSR

UDC 621.762.001:669.295

MAL'TSEV, M. V., KHROMOV, V. G., and MALYSHKINA, Z. N.

"Investigation of the Production and Properties of P/H Electrolytic Titanium"

Tr. Gor'kovsk. politekhn. in-ta (Works of Gor'kiy Polytechnic Institute), 1970, 26, No 15, pp 33-40 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G370 by V. Chelnokov)

Translation: The article investigates the properties of 0.5-mm-thick compact titanium strip produced by the method of rolling PTER-3 electrolytic powder. To obtain the strip, the powder must be rolled into breakdown strip ~3 mm thick with a porosity of 10-20%. Four-time rolling of the breakdown with intermediate sintering at 1000° in high vacuum (~5.10⁻⁵ mm Hg) and final annealing at 750-1000° makes possible the production of titanium with $\delta = 45-50\%$ and $\sigma_B = 32-40$ kg/mm². It is recommended that annealing be performed at 750°, which assures the obtaining of fine-grained structure of alpha-titanium with optimum plastic properties and strength. Four illustrations. One table. Bibliography with six titles.

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USSR

UDC 620.18.182

MAL'TSEV, M. V., Professor, Doctor of Technical Sciences

"Metallografiya promyshlennykh tsvetnykh metallov i splavov" (Metallography of Industrial Non-Ferrous Metals and Alloys), 2nd edition, published "Metallurgiya" Moscow, 1970, 346 pp

ANNOTATION

The structure, properties, and the use of non-ferrous metals and alloys are discussed.

Structures of major industrial alloys are illustrated by appropriate micro-photographs in a separate atlas.

The book is intended for workers in metallographic laboratories of plants and scientific research institutions. It may be useful for aspirants and students of metallurgical institutes of higher learning. 302 illustr., 85 tables, 130 bibliographic references.

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UDC 621.791.856:669.28

ALEKSEYENKO, G. N., NERODENKO, M. M. (Electric Welding Institute imeni YE. O. PATON, Academy of Sciences Ukrainian SSR), BIRYUKOVA, T. A., DANIYELYAN, T. A., MAL'TSEV, M. V., FREZE, N. I., and SHCHUKIN, A. A. (Moscow)

"Effect of Heat Treating on the Properties of Molybdenum-Carbon-Nickel Alloys and Their Weld Joints"

Kiev, Avtomaticheskaya svarka, No 4, Apr 72, pp 47-49

Abstract: The study deals with the properties of intermediate products from TSM-3 structural molybdenum alloy (0.05-0.10% wt % C and 0.01-0.10% Ni) following annealing. The specimens were tensile-tested at room temperature, at $2.5 \cdot 10^{-3} \text{ sec}^{-1}$ deformation rates and were arc-welded in a controlled inert-gas atmosphere. The specimens were pre-annealed for 1 hour in vacuum (10^{-5} mm Hg) at 800, 1100, 1200, 1300, 1400, 1500, 1600, and 1700°C. Metallographic examinations indicate that recrystallization begins at 1200°C and is completed at 1400°C. Maximum plasticity was shown by specimens with a completely recrystallized structure. Pre-annealing appears to upgrade the weld quality. Nickel tends to concentrate along the grain boundaries and not only hinders carbon diffusion, but also

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ALEKSEYENKO, G. N., et al, Avtomaticheskaya svarka, No 4, Apr 72, pp 47-49

promotes strengthening of the metal bond in the boundary layers owing to the localized increase of electron concentration. This strengthening of grain boundaries by nickel appears to be the determining factor in raising the plasticity of TSM-3 alloy in recrystallized state. (2 illustrations, 3 tables, 4 bibliographic references)

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UDC 621.791.754:669.28

USSR

ALEKSEYENKO, G. N., NERODENKO, M. M., Institute of Electric Welding imeni Ye. O. Paton; BIRYUKOVA, T. A., ~~MALITSEV, M. V.~~, and SHCHUKIN, A. A., Moscow

"Properties of Mo-C, Mo-Zr-C, and Mo-Ti-C Weld Joints"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 72, pp 20-22

Abstract: The effect of zirconium and titanium on the properties of weld joints for a molybdenum-carbon alloy was investigated. Ingots of the alloys were produced in an electron-beam furnace and rolled into sheet 1 mm thick. The sheets were welded using a tungsten electrode in a controlled helium atmosphere. One heat of the Mo-C alloy contained 0.06% C (heat 1); two heats of the Mo-Zr-C alloy were made, one containing 0.04 wt% C, 0.16 wt% Zr (heat 2), the other --0.5 wt % C, 0.34 wt.% Zr (heat 3); and two heats of the Mo-Ti-C alloy, one containing 0.05 wt % C, 0.014 wt % Ti (heat 4), the other--0.055 wt % C, 0.026 wt % Ti (heat 5). Alloying with Ti and Zr increased the weld joint ductility but reduced cold brittleness. Ti was less effective than Zr, which is probably associated with the fact that small additions of Ti increase solubility of carbon in Mo in the solid state or bond the carbon into carbides. Ti and Zr also increase strength of the weld joints and seam hardness. Both elements refine the seam metal structure and positively influence the structure of the heat-affected zone, diminishing the extent of the heat-affected zone

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ALEKSEYENKO, G. N., et al., *Avtomaticheskaya Svarka*, No 9, Sep 72, pp 20-22

and grain size near the fusion lines. In the study of weld joint mechanical properties it was established that the alloys containing Ti failed primarily in the seam and that these alloys tend to form hot cracks during welding. In contrast to this, weld joints made from the Mo-Zr-C alloys undergo failure both in the seam and along the fusion lines. In summary, additions of Zr refine the structure of the seam metal and heat-affected zone, facilitate the formation of a substructure, and increase strength and ductility of the weld joints, while Ti additions have a lesser effect on the ductility of weld joints made using the Mo-C alloy. 1 Figure, 2 tables, 6 bibliographic references.

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UDC: 681.327

USSR

ASTSATUROV, R. M., KONDRAT'YEV, A. P., MAL'TSEV, N. A., PASHKOVSKAYA, R. B.

"A Device for Checking an Operational Memory"

USSR Author's Certificate No 333559, filed 9 Jul 70, published 7 Jun 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan
73, abstract No 1B378 P)

Translation: The proposed device pertains to the field of computer technology. It can be used for checking an immediate-access memory. Devices for checking an immediate-access memory are known which can be used to monitor mod-2 readout data. The known devices for monitoring an immediate-access memory do not provide for checking the correctness of operation of the address decoding channel through which data reading takes place (access to the memory).

The proposed device uses an additional shaping circuit for forming a mod-g control code. This circuit simultaneously "displaces" the data and memory address registers. Also incorporated in the proposed device is a control code conversion unit. These modifications not only provide a more effective check on data readout but also verify correspondence between the

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USSR

ASTSATUROV, R. M. et al., USSR Author's Certificate No 333559

readout data and the address with respect to which the reading has occurred; i. e., the operation of the address decoder can be monitored. Besides this, the device provides further monitoring of readout data with respect to a modulus of two, in order not to violate the principle of "continuous" monitoring.

Since increasing the effectiveness of monitoring requires using an additional shaping modulus greater than two (usually $g \geq 3$), the memory word must have at least two control digits for storing a mod- g control code. In modern computers, several data units are stored simultaneously in a memory (with their own control digits), so there is no need to add memory digits to realize the proposed monitoring device.

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UDC: 681.325.5

USSR

KONDRAT'YEV, A. P., ASTSATUROV, R. M., MAL'TSEV, N. A., TIKHOVICH, Yu. V.

"Tabular Adder-Multiplier"

USSR Authors' Certificate No 253442, Filed 11 January 1968, Published 25 February 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B224P, by V. M.)

Translation: The tabular adder-multiplier (TAM) suggested, consisting of a memory unit, tabular address forming circuit, registers (R), first (1) and second (2) operands (O), and control device is simplified and the time required to perform operations is reduced by the use of result output and analysis units. The inputs of the analysis units are connected to the outputs of the R of the first and second O, while the outputs are connected through AND circuits to the inputs of the first and second OR circuits of the result output unit. The output of the first OR circuit of the result R of the second O, the output of which is connected to the flip-flops of the R of the second O. The output of the second OR circuit in the result output unit is connected to the input of the interrogation circuit of the R of the first O, the input of which is connected to the flip-flops of the R of the first O. One illustration.

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USSR

UDC 669.295.053.2 (088.8)

TIMCHENKO, B. S., MAL'TSEV, N. YE., Dneprovsk, Titanium-Magnesium Plant

"Device for Automatic Control of the Process of Metallothermic Reduction of Titanium Tetrachloride"

USSR Author's Certificate No. 271804, Filed 6/01/67, Published, 10/09/70.
(Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G215P).

Translation: A device for automatic control of the process of metallothermic reduction of $TiCl_4$, including the interrelated units for programmed feed of $TiCl_4$, consist of a rheostat sensor flow meter built into the programmer, an electronic relay controlling a reversing motor, an $MgCl_2$ weighing and drain unit, a pressure sensor and a secondary device for measurement of pressure in the reactor, and a relay unit controlling the reactor surface temperature. To provide more reliable operation of the device, the programmed $TiCl_4$ feed unit and temperature control unit for the reactor surface temperature include ferrodynamic converters at the comparison point and a phasesensing semiconductor amplifier with a relay unit, the contacts of which are included in the control unit, while the programmed feed controller for titanium tetrachloride is built into the flow meter.

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UDC: 621.372.8:535

USSR

KINBER, B. Ye., MAL'TSEV, N. Ye., and TOKATLY, V. I.

"Geometrical Optics of Irregular Waveguides"

Tr. Akust. in-ta (Transactions of the Acoustical Institute) 1970,
No. 13, pp 77-85 (from RZh-Radiotekhnika, No. 5, March 71, Ab-
stract No. 3B212)

Translation: Matching beam structures in two-dimensional irregular waveguides, identical to Brillouin waves in waveguides whose walls permit separation of different waves, are constructed. Resume

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CSO: 1860-W

- END -

the fields from the boundary conditions. Both these problems are reduced to the solution of functional equations. Examples of calculation are given. The condition of detachment of the field from the walls of a horn is analyzed.

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USSR

UDC: 621.372.82

KINBER, B. Ye., MALITSEV, N. Ye., TOKATLY, V. I.

"Asymptotic Theory of Irregular Waveguides and Horns"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2512-2521

Abstract: A new method is proposed for calculating irregular waveguides. The field in the waveguide is sought in asymptotic form as the sum of two fields of

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CERTAIN MODIFICATIONS OF THE METHOD OF CROSS SECTIONS -U-

AUTHOR--MALTSEV, N.YE.

COUNTRY OF INFO--USSR

SOURCE--AKUSTICHESKII ZHURNAL, VOL. 16, JAN.-MAR. 1970, P. 102-109

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--WAVEGUIDE TRANSMISSION, DIFFERENTIAL EQUATION SYSTEM,
COORDINATE SYSTEM

CONTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/1561

STEP NO--UR/0046/70/016/000/0102/0109

CIRC ACCESSION NO--AP0106307

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0106307

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF CERTAIN WAYS OF MODIFYING THE WIDELY KNOWN METHOD OF CROSS SECTIONS BY CHANGING THE SHAPE OF THE CROSS SECTIONS. SPECIFIC EXAMPLES ARE CITED OF CROSS SECTIONS, DETERMINED BY THE VARIABLES IN THE HELMHOLTZ EQUATION ARE SEPARATED. THE METHOD OF CROSS SECTIONS IS APPLIED TO THE SOLUTION OF THE SCALAR HELMHOLTZ EQUATION IN INFINITE AND SEMIINFINITE WAVEGUIDES WHICH ARE SYMMETRICAL RELATIVE TO THE AXIS. THE CORRESPONDING INFINITE SYSTEMS OF DIFFERENTIAL EQUATIONS ARE OBTAINED. FACILITY: AKADEMIIA NAUK SSSR, AKUSTICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 62-567.1

ABGARYAN, K. A., RAPOPORT, I. M., MAL'TSEV, O. P., SAMOYLOV, Ye. A.,
HYBAK, S. A., Moscow "Order of Lenin" Aviation Institute imeni Sergo Or-
dzhonikidze

"A Dynamic Vibration Damper"

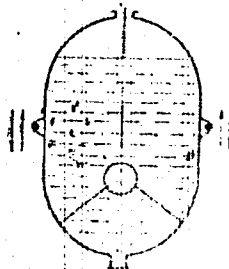
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 5, Feb 72, Author's Certificate No 364781, Division F, filed 17 Mar 71,
published 28 Dec 72, pp 108-109

Translation: This Author's Certificate introduces a dynamic vibration
damper which contains an additional mass coupled to an elastic element.
As a distinguishing feature of the patent, provision is made for using the
damper in liquid-filled elastic tanks. The elastic element is made in the
form of a gas-filled elastic shell located inside the liquid, and the sur-
rounding liquid comprises the additional mass.

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USSR

ABGARYAN, K. A. et al., USSR Author's Certificate No 364781



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USSR

UDC: 537.312.62 (2)

BARANOV, I. A., BYCHKOV, Yu. F., KOREZHOV, V. P., MAL'UTSEV, V. A., SLAV-GORODSKIY, M. P., SHMULEVICH, R. S.

"Effect of Rhodium on the Superconductive Properties of Zirconium and Some of its Alloys"

Moscow, Sverkhprovodyashchiye splavy i soedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 140-147 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D566 [résumé])

Translation: An investigation was made of the effect which dispersed segregations of a phase having a higher critical temperature than the matrix have on the critical current. Additions of rhodium increase the T_c of zirconium to 6-7 K with formation of solid-solution bec, and up to 11-12 K with formation of Zr_2Rh . Critical currents were measured on ternary alloys Zr-Nb-Rh and Zr-Mo-Rh. After annealing at 450°C, when only α -phase was segregated, there was a considerable increase in the critical current. After annealing at 550°C, when the larger segregations of α -phase were accompanied by segregations of compound Zr_2Rh which has a high T_c , the critical current was appreciably lower. The results show a higher positive

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USSR

BARANOV, I. A. et al., Sverkhprovodyashchiye splavy i soyeđin., "Nauka",
1972, pp 140-147

effect on the critical current of dispersed segregations which are non-
superconductive at 4.2 K in a superconductive deformed matrix. Five il-
lustrations, one table, bibliography of four titles.

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USSR

UDC: 669.546.77

NOVAK, V. P., BOGOVINA, V. I., BEDOVIK, S. S. and MAL'ISEV, V. F., All-Union Scientific Research, Design and Technological Institute of the Pipe Industry

"Photometric Determination of Molybdenum in Nickel-Base Alloys in the Form of a Molybdenum-Unitniol Complex"

Moscow, Zavodskaya laboratoriya, Vol 37, No 10, 1971, pp 1170-1171

Abstract: Discussed is the use of unithiol as a reagent for the photometric determination of molybdenum in steels without the separation of accompanying elements. The optimal conditions for the complex formation are: 0,5 n. hydrochloric acid, maximum light absorption -- 345 nm, color intensifies with time and maximum color is achieved after 5 mins. The presence of Fe(II), Cr(III), Ni and Co in ratios (to molybdenum) of 1:80, 1:40, 1:40 and 1:10, respectively, will not interfere with the analysis. Maximum optical density of the solution is achieved after prolonged standing. The reaction rate increases with temperature. An excess of the reagent promotes intensifi-

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NOVAK, V. P., et al. Zavodskaya laboratoriya, Vol 37, No 10, 1971, pp 1170-1171

cation of color in the molybdenum-unithiol complex. An analytical procedure for molybdenum determination in EI-844B and EI-929 steel grades is described. The relative error is 3%. (3 illustrations, 1 table).

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1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--ANODIC ISOLATION OF THE ALPHA PHASE FROM Khibniot STEEL, AND ITS
 ANALYSIS -U-
 AUTHOR--(02)-MALTSEV, V.F., GAVRILYUK, YE.D.
 COUNTRY OF INFO--USSR
 SOURCE--ZAVOD. LAB. 1970, 36(2), 161
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
 TOPIC TAGS--STAINLESS STEEL, ALLOY DESIGNATION, METAL
 CORROSION/(U)Khibniot STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--1996/1897

STEP NO--UR/0032/70/036/002/0161/0161

CIRC ACCESSION NO--AP0118859

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 021

CIRC ACCESSION NO--AP0118859

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STAINLESS STEEL KH18N10T IS
 DECOMP. BY ANODIC DISSOLN. IN ELECTROLYTE CONTG. 74 G KCL, 10 G
 THIOUREA, AND 19 ML CONCD. HCL-L., AT A C.D. OF 20-100 MA-CM PRIME2.
 THE ALPHA PHASE IS SEPD. FROM THE INSOL. RESIDUE WITH A MAGNET, WASHED,
 IDENTIFIED BY X RAYS, DISSOLVED IN 15PERCENT H SUB2 SO SUB4, AND
 ANALYZED. C 1.14, MN 0.50, SI 28.21, CR 4.04, FE 66.11PERCENT, AND TI
 TRACES IS THE REPORTED COMPN. OF THE ALPHA PHASE. AN AMT. OF
 0.65-0.68PERCENT ALPHA PHASE IS FOUND IN THE STEEL BY THE PRESENT
 METHOD; THE PARALLEL MAGNETOMETRIC DETN. GIVES 0.70PERCENT.
 FACILITY: VSES. NAUCH.-ISSLED. KONSTR.-TEKHNOL. INST. TRUB. PRDM.,
 DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEPT0
 TITLE--ANODIC BEHAVIOR OF STAINLESS STEEL KH18N10T --U-
 AUTHOR--(05)-MALTSEV, V.F., SHAVEL, M.M., MARUNENKO, L.V., GAMALI, T.A.,
 SMIRNOVA, N.A. M
 COUNTRY OF INFO--USSR
 SOURCE--ZAVOD. LAB. 1970, 36(2), 140-3
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STAINLESS STEEL, STAINLESS STEEL COMPOSITION, MANGANESE STEEL,
 SILICON STEEL, CHROMIUM STEEL, NICKEL STEEL, TITANIUM STEEL,
 ELECTROLYTE, CHLORIDE, THIOUREA, SOLUBILITY/(U)KH18N10T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1989/0601

STEP NO--UR/0032/70/036/002/0140/0143

CIRC ACCESSION NO--AP0107198

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 024

CIRC ACCESSION NO--AP0107198

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POTENTIAL TIME PLOTS ARE GIVEN FOR STAINLESS STEEL KH18NIOT CONTG. C 0.082, MN 1.17, SI 0.58, CR 17.5, NI 10.8, AND TI 0.33PERCENT DURING ITS ANODIC DISSOLN. IN DIFFERENCE ELECTROLYTES. CONST. PASSIVATION AND IRREGULARITIES IN LOCAL DISSOLN. OF THE STEEL WERE OBSERVED IN 0.2N CCL SUB3 CD SUB2 H, 0.2N ACOH, 0.2N GLYCINE, OR 0.005N H SUB2 SO SUB4. SMOOTH ANODIC DISSOLN., GOOD ISOLATION OF THE CARBIDES, AND ELIMINATION OF PASSIVATION WERE ACHIEVED IN THE MIXED ELECTROLYTE CONTG. H KCL, 0.24M HCL, 10 G THIOUREA-L., AND 0.2N CARBOXYLIC ACID. ADDNS. OF CHLORIDES AND OF THIOUREA ALSO IMPROVE THE ANODIC DISSOLN. IN DIL. H SUB2 SO SUB4 OR H SUB3 PO SUB4.

UNCLASSIFIED

USSR

POPOV, Ye. I., KASHPOROV, L. Ya., MAL'TSEV, V. M., and BREYTER, A. L. UDC: 662.612

"Combustion Mechanism of Aluminum-Magnesium Alloy Particles"

Novosibirsk, Fizika gorennya i vzryva, No 2, 1973, pp 240-246

Abstract: An investigation is conducted of the combustion process of single aluminum-magnesium alloy particles under atmospheric pressure. The particles under test contained 5, 10, 20, 50, 70, 90, and 95% magnesium, and were made in spherical form of 100-600 μ in diameter. The method of the experiment was to place the particle to be tested on a sharp tungsten needle and roast it in air or in the flames of mixtures of ammonium perchlorate and in uretropin at temperatures of 2500, 2700, and 3100° K, with the combustion process observed through the cinema camera "Konvas" and the SKS-1. Photographs from the film strips are reproduced, and curves are plotted of the ratio of the particle glow zone radius to the radius of the original particle as a function of time, and of the relative duration of the first combustion stage as a function of the alloy composition. It is found that the combustion proceeds in two stages, with the magnesium burning out chiefly in the first stage and the aluminum in the second.

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USSR

UDC 629.7.036.54-66:536.46

MAL'TSEV, V. M., KURYLEV, V. V., and SELEZNEV, V. A.

"The Ignition of Individual Metal Particles"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik (11th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--Collection of Works), 1972, p 33 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.165. Resume)

Translation: The authors discuss the influence of various factors upon the ignition of particles of zirconium, titanium, magnesium, and zirconium hydride. The investigation was conducted by means of microphotographing the particles during heating in an atmosphere of air. The maximum temperature of the heater was 1900°K, the heating rate was from 2.5 to 120 degrees/sec. Particles 100 to 500 microns in size were investigated. The influence of the type of metal, particle size, heating rate, and porosity upon the ignition temperature was established. Zirconium, titanium, and zirconium hydride ignite in two stages. The first stage is smoldering, which is characterized by elevation of the particle temperature to a red glow. The second stage is a flare-up, characterized by the formation of a bright nucleus of light. Zirconium and
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USSR

MAL'TSEV, V. M., et al., 11-ya Vses. Konf. po Vopr. Isparennya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik, 1972, p 33

titanium are characterized by the earlier ignition of larger particles. The converse pattern is observed for magnesium. As the heating rate increases, the T_{ignit} of the particles decreases. The ignition temperature of the less dense particles is lower because of the greater specific surface.

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USSR

UDC 536.46

ROMADONOVA, L. D., MAL'TSEV, V. M., and PORHIL, P. P.

"Influence of the Physicochemical Properties of the Fuel and the Oxidant Upon the Nature of the Relationship of the Combustion Rate of a Fuel Mixture to the Particle Size of the Fuel"

Novosibirsk, Fizika Goreniya i Vzryva, No 1, 1972, pp 8-15

Abstract: In order to trace the influence of the physicochemical properties of the fuel and the oxidant upon the nature of the relationship of the combustion rate of a fuel mixture to the particle size of the fuel, stoichiometric compositions were investigated on the basis of three oxidants and 28 fuels. It is shown that in the case of a fusible oxidant and a nonsublimable fuel, the combustion rate of a composition with a fuel of large particle size is higher than the combustion rate of a composition with fine fuel particles. 2 figures. 3 tables. 3 references.

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USSR

UDC 536.45+659.715

BREYTER, A. L., KASHPOROV, L. Ya., MALITSKY, V. M., FOMHIL, P. F.,
POPOV, Ye. I., PEPEKIN, V. I., and SFASENKO, A. C., Moscow

"Burning of Single Particles of Aluminum-Magnesium Alloys in the
Flame of Oxidizer-Fuel Mixture"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 7, No 2, Jun 71,
pp 222-227

Abstract : The burning of single particles of aluminum-magnesium alloys in the tongue of the flame of a mixture of ammonium perchlorate and urotropine of stoichiometric composition (88 % ammonium perchlorate and 12 % urotropine) was experimentally investigated. The investigation results are discussed by reference to photographs of typical tracks of burning particles and diagrams showing the dependences of the inflammation time lag and the particle fraction subjected to explosive burning on particle composition. From the viewpoint of complete burning by modified fuel on aluminum base, alloys with 30-45 % aluminum and 55-70 %

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USSR

BREYTER, A. L., KASHPOROV, L. Ya., et al., Fizika Goreniya i Vzryva, Vol 7, No 2, Jun 71, pp 222-227

magnesium are considered to be effective. The characteristics of burning of the metal component are determined by the nature of included metals: the permeability of its oxidic layers, reaction capability, surface activity, volatility, fusing temperature, density change by fusing, and the burning temperature. Five illustr., one table, 16 biblio. refs.

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UMC 536.46 + 662.222,1
SMOL, P. F., MAL'TSEV, V. M., LOGACHEV, V. S., SELEZNEV, V. A., Moscow

"Combustion of Aluminum Particles in the Flame of a Condensed System"
Fizika Goreniya i Vzryva, No 1, Mar 71, pp 51-57.

ABSTRACT: This work presents a study of the process of combustion of aluminum particles in a flame of type N ballistite powder and a model mixture of ammonium perchlorate with organic fuel. The study of the process of combustion of metal particles was performed in a constant pressure bomb with quartz windows, in which a vacuum or the necessary inert gas (nitrogen, argon) pressure was created. The metal particles were introduced to the composition of the fuels during the manufacturing process. A photographic method was used to study the processes occurring on the surface of combustion, and specimens were taken to study the dimensions of the metal particles through the height of the flame. It was established that as ballistite powder burns, the metal particles adhere to the thermostable decomposition products of the nitrocellulose, later merging near the surface of the charge. Increasing the percentage of metal in the fuel causes an increase in particle diameter. Aluminum particles accumulate and

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USSR

UDC 536.46 + 662.222.1
POKHUL, P. F., MAL'TSEV, V. M., LOGACHEV, V. S., SELEZNEV, V. A., Fizika
Goreniya i Vzryva, No 1, Mar 71, pp 51-57.

agglomerate on the surface of combustion of the charge. In the initial stage of combustion, oxidation of the metal occurs on its surface, with 4 to 6% of the heat realized due to combustion of the metal liberated in this manner in the reaction layer. Combustion of aluminum particles in the flame occurs through intermediate products with the formation of lower oxides. The temperature of the combustion zone of aluminum particles is 400-600° higher than the temperature of the remainder of the flame.

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USSR

UDC:662.215.2

POKHIL, P. F., LOGACHEV, V. SS., MALETSEV, V. M., Moscow

"Mechanism of Combustion of Metal Particles"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 407-410

Abstract: This article is dedicated to investigation of the combustion of condensed systems containing such metals as aluminum, magnesium and their alloys as additives. The experimental study was performed using cylindrical specimens 5 mm in diameter and 7-10 mm high. It was established that ballistite burns stably with preliminary heating to a minimum temperature of 110°C, while an ammonium perchlorate composition must be heated to a minimum temperature of 200°C. Studies were made of the thermal effect of the summary exothermic process in the reaction layer of the condensed phase. The results indicate that in the area of flameless combustion of ballistite compositions with aluminum the surface temperature of flameless combustion is 300°C, that is on the same order as for

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UDC:662.215.2

USSR

POKHIL, P. F., LOGACHEV, V. S., MALITSEV, V. M., Novosibirsk, Fizika
Goreniya i Vzryva, Vol. 6, No. 3, SEP 70, pp. 407-410

ballistite compositions without the metal. This indicates that the aluminum particles burn in the smoke-gas zone of the flame near the surface rather than on the surface of the condensed material. High-speed cinematography indicated that the rate of combustion of aluminum particles is an order of magnitude less than the rate of combustion of the ballistite composition, and increases with increasing surrounding medium temperature.

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1/2 049 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INVESTIGATION OF METAL PARTICLE FUSION DURING THE COMBUSTION OF
METALLIZED BALLISTITE COMPOSITIONS AND FUEL OXIDIZER MIXTURES -U-
AUTHOR--(03)-POKHIL, P.F., LOGACHEV, V.S., MALTSEV, V.M.
COUNTRY OF INFO--USSR
SOURCE--FIZIKA GORENIIA I VZRYVA, VOL. 6, AR. 1970, P. 80-92
DATE PUBLISHED----MAR70
SUBJECT AREAS--PROPULSION AND FUELS
TOPIC TAGS--AMMONIUM PERCHLORATE, POTASSIUM PERCHLORATE, COMBUSTION RATE,
FORMALDEHYDE, COMBUSTION PRODUCT, SOLID PROPELLANT COMBUSTION, ALUMINUM
POWDER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605107/E12 STEP NO--UR/0414/70/006/000/0080/0092
CIRC ACCESSION NO--AP0140763

UNCLASSIFIED

2/2 049

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140763

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTOGRAPHIC AND MICROSCOPIC STUDY OF THE FUSION OF METALLIC PARTICLES DURING THE COMBUSTION OF STOICHIOMETRIC MIXTURES OF AMMONIUM AND POTASSIUM PERCHLORATE AND POLYFORMALDEHYDE WITH ADDITIONS OF 7, 13, OR 20PERCENT ALUMINUM PARTICLES OF VARIOUS SIZES AND GEOMETRIES. SPECIAL TECHNIQUES WERE USED FOR SAMPLING THE CONDENSED PHASE OF THE SMOKE GAS MIXTURES AT VARIOUS DISTANCES FROM THE BURNING CHARGE SURFACE. THE DEPENDENCE OF THE CHARACTERISTICS OF THE FUSION PROCESS ON THE VARIABLES OF THE COMBUSTION PROCESS IS DISCUSSED.

UNCLASSIFIED

USSR

M UDC 536.46

POKHIL, P. F., LOGACHEV, V. S., MAL'TSEV, V. M., SELEZNEV, V. A.

"Spectral and Photometric Research on the Flame Jet in Model Fuel-Oxidizer-Metal Systems"

Novosibirsk, Fizika Goreniya i Vzryva, No 2, June 1970, pp 143-152

Abstract: The equipment used for spectral research on the flame jet in the combustion of fuel-oxidizer-metal systems is described, and its operation is explained. Spectral flame-jet research by means of this installation permitted the photometric method to be used for temperature measurement; this method permitted the shape of the flame of individual metal particles in the combustion products of the charge to be locally determined. Evaluation of the combustion temperature of aluminum and magnesium particles in the flame jet of model systems by the spectral and the photometric method is discussed.

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M

USSR

UDC: 536.45

POKHIL, P. F., LOGACHEV, V. S., MAL'TSEV, V. M.

"Study of Fusion of Metal Particles During Combustion of Metallized Ballistite Compositions and Fuel-Oxidizer Mixtures"

Novosibirsk, Fizika Goreniya i Vzryva, No. 6, March 1970, pp 80-92

Abstract: Experimental data have indicated that the mechanism of combustion of ballistite compositions does not change with the addition of aluminum. An investigation of the size, form and state of particle surfaces before and after combustion of ballistite compositions at various pressures was performed in order to gain an idea of the mechanism of combustion of the aluminum particles added. Photographs of particles during the process of combustion are presented. As the ballistite compositions plus aluminum burn, the particles of metal adhere to the thermostable products of decomposition of the nitrocellulose, then fuse near the surface of the charge. During combustion of fuel-oxidizer-metal compositions, fusion of the metal particles occurs on the surface of the charge, since the charge temperature is sufficient to melt the aluminum and magnesium. As the percent of metal in the composition is increased, the mean particle diameter of aluminum and magnesium particles formed as a result of fusion on the charge surface also increases. The degree of fusion of metal

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USSR

POKHIL, P. F., LOGACHEV, V. S., MAL'TSEV, V. M., Novosibirsk, Fizika
Goreniya i Vzryva, No. 6, March 1970, pp 80-92

particles on the charge surface increases with decreasing size of the initial particles of metal in the model composition. The mean volumetric size of particles of aluminum and magnesium formed as a result of fusion on the charge surface decreases with increasing combustion rate of the charge. The velocity of particles of aluminum and magnesium formed as a result of fusion on the hot surface of the model mixture is 2-3 mm/sec for aluminum and 4-5 mm/sec for magnesium.

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USSR

UTC 591.185.5:577.37

GERSHUNI, G. V., and MAL'TSEV, V. P., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Some General Features of Impulse Sequences in Bioacoustic Signals"

Leningrad, Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, Vol 9, No 2, Mar/Apr 73, pp 162-176

Abstract: Sounds emitted by monkeys (*Cebus capucinus*), cats, albino rats, and chickens under various circumstances were recorded and analyzed. Significant differences were found in the duration of individual impulses and of the intervals between them, organization of impulses into packages, duration of impulse packages and of the intervals between them, and relative amplitudes and spectral components of impulses within a package. Frequency modulation, not observed among insects, appears to be a typical characteristic of mammals. The first and the last impulse in a package differ from each other, clearly denoting the beginning and the end. Organization of impulse packages occurs when the animal performs no definite motor activity and the sound is the main expression of motivational and emotional factors. During this so-called acoustic behavior, the packaged sound signals represent general orientation, a call, a greeting, or a threat addressed to another animal or man. On the other hand, non-packaged
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USSR

GERSHUNI, G. V. and MAL'TSEV, V. P., Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, Vol 9, No 2, Mar/Apr 73, pp 162-176

signals are emitted as an accompaniment to a definite motor activity, such as defense, aggression, or intake of food.

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USSR

UDC 591.58.598.82

~~MAITSEV~~ V. P., Institute of Evolutionary Physiology and Biochemistry, USSR
Academy of Sciences, Leningrad

"Some Types of Acoustic Signals of the Capuchin *Cebus capucinus*"

Leningrad, Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, Vol 7, No 2,
Mar/Apr 71, pp 186-194

Abstract: As one aspect of the study of the neurophysiology and social behavior of higher mammals, communication sounds used by the capuchin monkeys were investigated. The study was done on two male and two female capuchins. The sounds they emitted were recorded as oscillograms and spectrograms while their behavior was observed. Six of the eight sounds noted are described according to the duration of the impulses, the intervals between them, the rise and fall in wave amplitudes, and the value of central frequencies in the spectral bands. The greeting call is a high-pitched trill. The short food call is a single quasiharmonious impulse lasting 20-40 milliseconds and having a large number of spectral bands. The long food call is longer in duration and has different spectral bands. The defense call is a long, unorganized sequence of various impulses. The threat call is a series of short noise impulses. The aggression call is a complex sequence of noise impulses

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USSR

MAL'TSEV, V. P., Zhurnal Evolyutsionnoy Biokhimi i Fiziologii, Vol 7, No 2,
Mar/Apr 71, pp 186-194

of longer duration. The conclusion is drawn that the calls differ from each
other in quality and not just in gradation.

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1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CN SOUND SIGNALIZATION IN THE CAPUCINE CEBUS CAPUCINUS --U--
AUTHOR--MALTSEV, V.P. M
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EVOLYUTSIONNOY BIKHIMII I FIZIOLOGII, 1970, VOL 6, NR 1,
PP 64-73
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MONKEY, ACOUSTIC SIGNAL, OSCILLOGRAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/C379

STEP NO--UR/0385/70/006/001/0064/0073

CIRC ACCESSION NO--AP0132608

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132608
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO TYPES OF ACOUSTIC SIGNALS
EMITTED BY CAPUCINES WERE STATISTICALLY DESCRIBED WITH RESPECT TO SOME
OF THEIR TEMPORAL AND SPECTRAL CHARACTERISTICS. THE DURATIONS OF SOUND
IMPULSES AND OF GROUPS OF IMPULSES, THE INTERVALS BETWEEN IMPULSES AND
THE STEEPNESS OF IMPULSES WERE MEASURED. OSCILLOGRAMS AND DYNAMIC
SPECTROGRAMS OF THE DESCRIBED SIGNALS WERE ANALYSED. IT WAS SHOWN THAT
A GROUP OF IMPULSES TYPICAL OF THE ORIENTATION SIGNAL INCLUDES DIFFERENT
TYPES OF IMPULSES FOLLOWING EACH OTHER IN CERTAIN SEQUENCE WITH
DECREASING INTERVALS. ON THE CONTRARY, A GROUP IN THE CALLING SIGNAL
CONSISTS OF MONOTYPICAL IMPULSES WITH OTHER VALUES OF THE PARAMETERS
STUDIED, THE DURATION OF THE IMPULSES INCREASING FROM THE BEGINNING TO
THE END OF A GROUP. FACILITY: INSTITUTE OF EVOLUTIONARY
PHYSIOLOGY AND BIOCHEMISTRY, USSR ACADEMY OF SCIENCES, LENINGRAD.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THE EFFECT OF ENGINEERING FACTORS ON THE MECHANICAL PROPERTIES OF
AL9 ALLOYS Poured IN A CHILL MOLD -U-
AUTHOR-(03)-MALTSEV, V.P., KRYSIN, B.T., SUVOROV, A.S. M

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE,
NO. 1, 1970, PP 176-180
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL PROPERTY, ALUMINUM ALLOY, METAL CASTING, FOUNDRY
MOLD/(U)AL9 ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/0517

STEP NO--UR/0145/70/000/001/0176/0180

CIRC ACCESSION NO--AT0100978

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0100978

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF METAL FLOW RATE IN THE MOLD, POURING TEMPERATURE, MOLDS, AND THE THICKNESS OF THE MOLD COATING ON THE MECHANICAL PROPERTIES OF AL9 ALLOY CASTINGS IN CHILL MOLDS ARE EXAMINED. A CHART SHOWING THE EFFECTS OF RISER DIAMETER ON MECHANICAL PROPERTIES IS GIVEN. EXPERIMENTAL CASTINGS OF PLATES 5, 8, 12, AND 16 MM THICK AND RISER DIAMETERS OF 8, 14, 18, AND 24 MM WERE MADE AND THE RESULTS, REFLECTING THE MECHANICAL PROPERTIES (TENSILE STRENGTH) FOR THE ZONES AND SUBZONES OF THE PLATES WERE PLOTTED GRAPHICALLY. THE BEST MECHANICAL PROPERTIES WERE OBTAINED AT POURING TEMPERATURES OF 690 AND 700DEGREESC AND THE BEST TENSILE AT MOLD TEMPERATURES OF 200-250DEGREESC AND A MOLD LINER THICKNESS OF 0.2-0.65 MM. IT IS CONCLUDED THAT THE POURING SPEED SHOULD BE MINIMUM TO PERMIT UNIFORM HEATING OF THE MOLD. IT IS RECOMMENDED THAT FLAT CASTINGS WITH A THICKNESS OF 7-8 MM NOT BE POURED IN THE HORIZONTAL. CASTINGS THICKER THAN 8 MM SHOULD HAVE SUPPLEMENTAL POURING (OR INJECTION) OR SHOULD BE POURED IN THE VERTICAL.

UNCLASSIFIED

USSR

UDC 669.71.053.2(088.8)

MAL'TSEV, V. S., and ABISHEVA, R. U., Chemicometallurgical Institute of Academy of Sciences Kazakh SSR

"Method for Reduction of Sodium Aluminate"

USSR Authors' Certificate No 282649, Cl. 40a 5/04, (C 22 b 5/04), filed 9 Feb 67, published 2 Aug 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No RG115P by G. Svodtseva)

Translation of Abstract: The method for the reduction of Na aluminate by aluminum taken with an excess $\leq 50\%$ at residual pressure ≤ 0.8 mm Hg and temperature of 1000° - 1100° is unique in that up to 5% NaF is added to the charge in order to obtain pure alpha-modifications of Al_2O_3 and Na. The method makes it possible to obtain pure Na and an alpha-modification of Al_2O_3 with purity $\geq 95\%$.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--NA, TL, CA PARALLEL TO SO SUB4 SYSTEM -U-
AUTHOR--(02)-GASANALIYEV, A.M., MALTSEV, V.T.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1688-90
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHASE DIAGRAM, SULFATE, SODIUM COMPOUND, THALLIUM COMPOUND,
CALCIUM COMPOUND, CHEMICAL STABILITY, X RAY DIFFRACTION ANALYSIS,
THERMAL ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1408 STEP NO--UR/0078/70/015/006/1688/1690
CIRC ACCESSION NO--AP0135082
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135082

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PHASE DIAGRAM OF TERNARY SYSTEM
NA, TL, CA PARALLEL TO SD SUB4 IS CONSTRUCTED BY USING THERMAL VISUAL, X
RAY DIFFRACTION, AND OPTICAL METHODS. THE PRESENCE OF TL SUB2 SO SUB4
MARKEDLY AFFECTS THE DECOMP. OF NA SUB2 SO SUB4 CASO SUB4 SOLID SOLNS.
BUT INDUCES STABILITY OF NA SUB2 SO SUB4 CASO SUB4, GLAUBERITE, WHICH
DOES NOT FORM IN THE CORRESPONDING BINARY SYSTEM. FACILITY:
ROSTOV. INZH.-STROIT. INST., ROSTOV, USSR.

UNCLASSIFIED

USSR

UDC 541.64:678.86

PLATE, N. A., MAL'TSEV, V. V., Institute of Petrochemical Synthesis
imeni A. V. Topchiyev, Moscow, Academy of Sciences USSR

"Peculiarities of the Interaction of Butyllithium with Organotin
Derivatives During the Polymerization of Triethylvinyltin"

Moscow, Vysokomolekulyarnyye Soyedineniya 12, No 7, 1970, pp 1533-
1537

Abstract: A rapid transformation takes place during polymerization of triethylvinyltin (TEVT) in the presence of $n\text{-C}_4\text{H}_9\text{Li}$ after introduction of the organolithium initiator into the system. Among the peculiarities of the reaction are: low yields in the homopolymer, extremely slow polymerization rates, low molecular weights of the products formed, and deceleration of the reaction. The authors found that the $n\text{-C}_4\text{H}_9\text{Li}$ catalyst loses its activity as polymerization initiator because it forms a complex with the organotin groups of the TEVT macroanions. This fact was confirmed by gamma-resonance spectroscopy, according to which the stability of complexes with $n\text{-C}_4\text{H}_9\text{Li}$ increases considerably when one compares the TEVT monomer

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possible existence of systems containing true macromolecular anions. If
anionically polymerized, the complexed anionic initiator, and
active anionic centers, but no polymerization takes place.

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USSR

PLATE, N. A., et al, Vysokomolekulyarnyye Soyedineniya 12, No 7,
1970, pp 1533-1537

with the corresponding polymer. The data obtained indicate the
existence of systems containing free monomer which can be

Acc. No. **A70041738**

Abstracting Service: **4-70**
CHEMICAL ABST.

Ref. Code:
UR 0459

M

79518t Ionic copolymerization of triethyl(vinyl)tin with styrene. Mal'tsev, V. V.; Plate, N. A. (Inst. Neft'ekhim. Sin. im. Topchieva, Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 182-5 (Russ). $\text{CH}_2=\text{CHSnEt}_3$ (I) was copolymerized with styrene (II) in the presence of Na-naphthalene complex or BuLi in

Electrochemistry

USSR

UDC 541.15

MAL'TSEV, YE. I., and VANNIKOV, A. V., Institute of Electrochemistry,
Academy of Sciences USSR

"Effect of Temperature on the Properties of Solvated Electrons in Irradiated
Hexamethylphosphotriamide"

Moscow, Khimiya Vyoskikh Energiy, Vol 7, No 4, Jul-Aug 73, pp 382-383

Abstract: With increased temperature the spectrum of e^-_{solv} in hexamethylphosphotriamide [HMPT] shifts toward the IR. The effect of temperature on the shortlived absorption spectrum of the pairs $[Me^+ \dots e^-_2]$ agrees with the data obtained from metal solutions in HMPT when the temperature lowering favored the formation of pairs. With increasing temperature the spectrum changes. Since the bond energy of shortlived pairs $[Me^+ \dots e^-_2]$ is low, increasing the temperature by $t = 15^\circ$ will shift the equilibrium



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MAL'TSEV, YE. I., and VANNIKOV, A. V., *Khimiya Vysokikh Energiy*, Vol 7, No 4, Jul-Aug 73, pp 382-383

to the left. The movement of e^-_{solv} in HMPT is not due to simple diffusion.

The activation energy of e^-_{solv} was found to be 1.6 Kcal per mole, in agreement with other literature data.

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- 3 -

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ELECTRICAL CONDUCTIVITY OF ZINC SULFIDE SINGLE CRYSTALS -U-

AUTHOR--(04)--KORSUN, V.M., MALTSEV, YE.K., ROMANCHENKO, Y.A., PEREKRESTOVA,
L.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., ^MFIZ. 1970, 13(2), 131-3

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC CONDUCTIVITY, ZINC SULFIDE, SINGLE CRYSTAL, FORBIDDEN
BAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1398

STEP NO--UR/0139/70/013/002/0131/0133

CIRC ACCESSION NO--AT0120191

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920002-3

LARGE RANGE OF FIELDS WERE DETD. THE ELEC. COND. WAS DETD. BETWEEN 20
AND 250DEGREES; THE ACTIVATION ENERGY OF THE PROCESS WAS BETWEEN 1.25
AND 1.41 EV. THE STRUCTURE OF THE FORBIDDEN BAND IS DISCUSSED.
FACILITY: DNEPROPETROVSK. GOSUNIV., DNEPROPETROVSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201920002-3"

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USSR

KOLOMOYTSEV, F. I., BELOV, D. G., KONDRASHOV, A. P., and MAL'TSEV, Ye. K.

"Effect of Electron Bombardment on Electroluminescence"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1979, pp 145-148

Abstract: By considering the excitation of electrically luminescent materials as the product of separate as well as combined actions of charged particles and electric fields, the authors undertook an investigation into the spectrum of the glow from an EL-510 target. It is asserted that there is no data in the literature for this type of research. The electron beam used in the experiments was obtained by a proton-electron accelerator; the remainder of the equipment and its interrelations are shown in a schematic diagram. Source of the electron beam was a tungsten filament, heated to incandescence, in a Pierce lens. The beam was controlled by two Faraday cylinders. Experiments were conducted at room temperature, and the pressure in the operating chamber was $5 \cdot 10^{-6}$ mm Hg. Luminescent screens in the form of

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2/2 APPROVED FOR RELEASE: 09/01/2001 UNCLASSIFIED PROCESSING DATE: 20NOV79
CIA-RDP86-00513R002201920002-3
CIRC ACCESSION NO--AT0120191
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACCUMULATION OF SPACE CHARGE
IN A CONST. ELECT. FIELD AND THE CURRENT VOLTAGE CHARACTERISTICS IN A

USSR

KOLOMOYTSEV, F. I., et al, Zhurnal Prikladnoy Spektroskopii,
Vol. 12, No. 1, Jan 1970, pp 145-148

electroluminescent capacitors were the targets; the luminescent substance, EL-510, was deposited on transparent, electrically conducting glass 40-50 microns thick. The results of the experiments are given in the form of curves: with separate excitation of the screen by the electron beam and a sinusoidal voltage of about 80 volts at a frequency of 5 kHz, the maximum of the resultant spectrum did not shift. On the other hand, the intensity of the EL-510 glow under electron bombardment was much less than with the sinusoidal voltage. A possible explanation for this phenomenon is offered.

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1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HIGHER PEROXIDE OF HYDROGEN AND FROZEN RADICALS; XIV. ELECTRON
DIFFRACTION STUDY OF AMORPHOUS PEROXIDE RADICAL CONDENSATES -U-
AUTHOR-(02)-MALTSEV, YU.A., NEKRASOV, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 431-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DIFFRACTION ANALYSIS, PEROXIDE, FREE RADICAL, OZONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0887

STEP NO--UR/0076/70/044/002/0431/0436

CIRC ACCESSION NO--AP0137915

UNCLASSIFIED

... CONDENSATES ARE CONSIDERED. MODEL I CONTAINS ONLY H
SUB2 O SUB4 MOLS. AND THE MODEL II CONTAINS H SUB2 O SUB4 MOLS.
CONNECTED BY H SUB2 O MOLS. THE COMPARISON OF THE CALCD. AND EXPTL.
DATA INDICATE THAT THE PEROXIDE RADICAL CONDENSATES SYNTHESIZED FROM
OZONE CORRESPOND TO MODEL II. FACILITY: MOSK. GOS. UNIV. IM.
LQMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 512.7

MAL'TSEV, Yu. N.

"Basis of Identities in the Algebra of Upper Triangular Matrices"

"Algebra i logika" (Algebra and Logic) 10, No 4, 1971, pp 393-400
(from RZh--Matematika, No 4, 1972, Abstract No 4A304)

Translation: It is proved that the ideal for identities in the algebra of upper triangular matrices of order n originates in the polynomial $[x_1, x_2] [x_3, x_4] \dots [x_{2n-1}, x_{2n}]$, where $[x, y] = xy - yx$. It is established that the completely characteristic ideal of free algebra with identities containing the polynomial indicated above and the element $(x_1, \dots, x_{m-3}, x_{m-2}[x_{m-1}, x_m])$ (the brackets on the right) has a finite number of generatrices as a fully characteristic ideal. V. Latyshev

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2/2 016

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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137915

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201920002-3"

ABSTRACT OF GP-0

ABSTRACT.

THE ELECTRON DIFFRACTION STUDY OF

THE STRUCTURE OF THE AMORPHOUS

USSR

UDC 621.382.2

KLEYNER, E. A., Engineer, MALITSKIY, G. A., Engineer, and MAL'TSEV, Yu. S.,
Engineer

"Use of an Integrated Operational Amplifier in the Elements of Digital
Devices"

Moscow, Pribery i Sistemy Upravleniya, No 6, Jun 71, pp 30-32

Abstract: Soviet integrated DC amplifiers are experimentally studied and practical circuits are considered for the elements of digital measuring instruments which operate on the basis of linear monolithic integrated circuits. The LUT401 is a three-stage solid-state DC amplifier with differential input made by planar-epitaxial techniques on a single semiconductor crystal. The unit is designed for use as an operational amplifier. This integrated circuit contains nine NPN transistors and 12 resistive elements. The unit amplifies the difference between signals applied to the input, one signal being inverted, while the other is not inverted. Two modifications are available: the LUT401A with power supply of ± 6.3 V and voltage gain of 700-1800, and the LUT401B with power supply of ± 12.6 V and voltage gain of 1800-4500. The device can perform the operations of addition, subtraction, inversion, integration, differentiation and scaling, and can also convert,

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USSR

KLEYNER, E. A., et al., Pribory i Sistemy Upravleniya, No 6, Jun 71, pp 30-32

compare, generate, stabilize and detect linear and nonlinear signals. In addition, the LUT401 can be used as a resonance, shaper or video amplifier over a broad frequency range. Because of the low input impedance of the device (tens of kilohms), an emitter follower is connected to the input. This follower is based on the LKT011 integrated interrupter. Practical null-indicator and integrator circuits are presented. The integrator circuit can also be used as a sawtooth voltage generator for timing a digital measuring instrument for pulse-time conversion. The characteristics of the null-detector and integrator are given.

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- 84 -

172 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EXTRACTION OF WATER BY TRIBUTYL PHOSPHATE AND SOLUTIONS OF TRIBUTYL
PHOSPHATE IN DILUENTS -U-
AUTHOR--(05)-ROZEN, A.M., KHORKHORINA, L.P., AGASHKINA, G.D., TETERIN,
E.G., MALTSEVA, A.N.
COUNTRY OF INFO--USSR
SOURCE--RADIOKHIMIYA 1970, 12(2), 345-55
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC PHOSPHATE, ORGANIC SOLVENT, URANYL NITRATE, ENTROPY,
SOLVENT EXTRACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1461 STEP NO--UR/0186/70/012/002/0345/0355
CIRC ACCESSION NO--AP0135132
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135132

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF THE SYSTEMS BU SUB3 PO SUB4 H SUB2 O AND BU SUB3 PO SUB4 H SUB2 O DILUENT WERE STUDIED. THE SOLVENTS USED WERE KEROSENE, BENZENE, METHYLBENZENE, CHCL SUB3, BU SUB2 O, CCL SUB4, OR AS MIXTS. WITH BU SUB3 PO SUB4. THE EFFECT OF URANYL NITRATE ON THE SOLY. OF WATER IN THE SYSTEM H SUB2 O BU SUB3 PO SUB4 URANYL NITRATE SOLVATE AND THE PHYS. CHEM. INTERPRETATION OF THE RESULTS FOR BU SUB3 PO SUB4 H SUB2 O SYSTEM AT VARIOUS TEMPS. ARE DISCUSSED. THE EXTN. OF H SUB2 O IS DEPENDENT ON AN ENTROPY EFFECT, A DECREASE IN THE EXCESS ENTROPY IN BU SUB3 PO SUB4 H SUB2 O SOLNS. APPARENTLY, THE EXTN. OF H SUB2 O IS DEPENDENT ON SOME ORDERING IN THE ORG. PHASE.

UNCLASSIFIED

USSR

UDC 678.742.2-137.46.22:66.018.86

TERTERYAN, R. A., LESHCHENKO, S. S., LIVSHITS, S. D., GOLOSOV, A. P.,
ITSIKSON, L. B., MONASTYRSKIY, V. N., KARPOV, V. L., SOBOLEVA, N. S.,
MAL'TSEVA, A. P., and ISKHAKOV, L. I.

"Radiation Stability of Ethylene and Styrene Copolymers"

Moscow, Plasticheskiye Massy, 7, 1973, pp 3-5

Abstract: A study was made of the continuous statistical copolymerization of ethylene monomers (E) with styrene (S) under conditions similar to those under which low density polyethylene is produced and also of the behavior of E + S polymers in an ionizing radiation field. The results of copolymerization studied -- grams of copolymer/hr concentration of S in the polymer, density, and others -- are given as a function of styrene concentration and pressure at 200°C. An increase in the concentration of S in the reaction mixture leads to a decrease in the copolymer yield, in its characteristic viscosity, in its melting temperature, and its crystallinity, and to an increase in the density. The presence of S monomers in the polyethylene chains and the chemical bonds between them and the methylene groups significantly increases the resistance of the material to α -radiation damage. The gases evolved during the radiation of various types of polymers were determined.

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SOLOV'YEV, S. M., IVANOV, V. O., MAL'TSEVA, A. S.,

"Effect of Gelatin on the Storage Life of Light-Sensitive Layers"

Uspekhi nauchn. fotogr. (Advances in Scientific Photography), 1970, Vol. 14,
pp 124-133 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 1291336)

Translation: The effect of the selection of gelatin on the change in the properties of photoemulsion layers in storage and on certain darkening processes in them is investigated. It was shown that the choice of gelatin can have a very considerable effect. The dark discoloration and the photostability of the sensitizing dye, the oxidation products of which can react with sensitivity centers, strongly depend on the choice of gelatin. The choice of gelatin has an effect (and a very individual effect) on the sensitivity of the dye emulsions and on its storage qualities; the gelatin used in the second aging has a much greater effect on the latter than that used in the first aging. If the differences in the effect of the gelatin reduce to differences in their content of thiosulfate (I),

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SOLOV'YEV, S. M., et al, Uspekhi nauchn. fotogr., 1970, Vol. 14, pp 124-133

their effect could be simulated by an additional introduction of I into the emulsion. According to the experiments of the authors, however, the thiosulfate did not have a considerable effect on the initial sensitivity and storage qualities of optically unsensitized emulsion but had a strong and very far-ranging effect (depression or activation of sensitivity, especially by the additional emulsion) on emulsions with different dyes. The effect of thiosulfate on the aging of any optically sensitized emulsions was slight, and a clear depression appears only for very small concentrations of it. Authors abstract.

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