

USSR

UDC: 621.771.3--868.1

SEVERDENKO, V. P., Academician, Belorussian Academy of Sciences,
~~KLUBOVICH~~, V. V., and KONYSHEV, L. K.

"Computing Operating Stresses in Drag With Superposition of Longitudinal Ultrasonic Oscillations"

Minsk, Doklady Akademii nauk BSSR, Vol. 14, No. 9, 1970, pp 812-815

Abstract: The two methods most used for computing drag stresses in tubes and other devices with continuous circular profile are the method of characteristics and the method of averaged values. Using the latter, the authors find an expression for these stresses with longitudinal ultrasonic oscillations applied to the deformation focus. They begin their analysis by considering a small element of the surface of a solid consisting of two tubes of different diameter connected by a conical section. From this, they derive the equation of its equilibrium by assuming that the force of friction is proportional to the normal pressure. By using the curve

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SEVERDENKO, V. P., et al., Doklady Akademii nauk BSSR, Vol 14, No 9, 1970,
pp 812-815

of the yield point for the tube metal plotted as a function of the amplitude of the ultrasonic oscillations, the drag stresses may be computed for particular cases through the equations derived. The authors are connected with the Physics-Technical Institute, Belorussian Academy of Sciences.

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Acoustical and Ultrasonic

USSR

UDC 621.771

SEVERDENKO, V. P., Academician, STEPANENKO, A. V., SYCHEV, Ye. G., Belorussian Polytechnical Institute

"Effect of Ultrasound on Plastic Deformation in a Vacuum"

Minsk, Doklady Akademii nauk BSSR, No. 3, Mar 71, pp 217-219

Abstract: Studies showed that the application of ultrasonic oscillations facilitates the process of deformation in a vacuum and makes it possible to avoid adhesion of the metal being treated to the instrument. It is pointed out that high-temperature treatment of refractory metals and alloys is ordinarily accompanied by an intense interaction with gases, thus lowering their plastic properties, making deformation difficult, worsening physicochemical properties and considerably lowering the percent of yield of suitable metal. It is therefore recommended that heating, plastic deformation, and cooling of refractory materials be carried out in a vacuum; however, in such treatment there are practically no oxide films on contact surfaces and this situation leads to an increase in the coefficient of friction, a rise in specific pressures, and adhesion of the deformed metal to the instrument. To carry out hot deformation in a vacuum with

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SEVERDENKO, V. P., et al, Doklady Akademii nauk BSSR, No. 3, Mar 71, pp 217-219

the application of ultrasonic oscillations was recommended by Academician Severdenko in 1969 and an installation described here was developed to study the characteristics of this process. It consists of a sealed chamber into which is introduced through opposite windows a resonance waveguide with a hammer fastened at its end and a dye. Ultrasonic oscillations in the waveguide and hammer are excited by a magnetostriction converter. The metal to be deformed is drawn between the hammer and the dye. The wire is pressed to the hammer with a force P acting on the dye. The wire was heated with an electric current. The force of drawing T of the heated wire was measured as a function of the loading force P with and without the application of ultrasonic oscillations in a vacuum and in air. The results showed that under deformation by the ordinary method in a vacuum the drawing force is greater than in air by a factor of 1.7-1.8 and this is attributed to an increase in the forces of contact friction and the appearance of adhesion. Under deformation with the application of ultrasonic oscillations the drawing forces were practically the same in a vacuum and in air but they were considerably less in magnitude than under deformation without ultrasonics. Adhesion of the deformed metal to the instrument was absent in this case.

UDC 621.79

USSR

SEVERDENKO, V. P., RASKIN, L. S.

"Theoretical Study of the Stress-Deformation State in the Bending of an Elliptical Plate"

Minsk, Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 9-15

Abstract: A theoretical solution is presented for the problem of determining stresses and deformations in bending an elliptical plate under sheet stamping. It is noted that previous studies to determine stress-deformation state under bending considered elastic bending of a freely suspended or rigidly embedded plate with small bends under the action of a given load, and that such solutions cannot be applied to establish stress-deformation state in sheet stamping since the bends in the stamping cannot be considered small, the deformation process goes beyond the elastic and elastic-plastic stage, and in stamping the shape of the deformed surface is known but not the loads acting on it. The problem is treated in the following order: first elastic bending of a freely suspended rigid plate is considered and then corrections are introduced into the solution obtained that take into account chain or membrane stresses in the middle surface, and finally elastic-

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SEVERDENKO, V. P., RASKIN, L. S., Izvestiya Akademii nauk BSSR, Seriya fiziko-
tekhnicheskikh nauk, No. 2, 1971, pp 9-15

-plastic bending of plates under large bends is considered. An expression is derived giving stresses and deformations as a function of the bend and the dimensions of a blank of a given shape, i.e., that is characterized by a constant curvature in the directions of the axes of the ellipse. The formulas obtained for determining components of stresses and deformations are applicable for cases of bending with fairly large bends not exceeding, however, half the minor semi-axis of the ellipse. The problem was solved considering geometric and physical nonlinearities in using the common simplifying assumptions such as incompressibility of the material under plastic deformation. The reliability of the relationships obtained was checked by comparing their particular solutions with formulas known in the literature for the bending of circular plates and spherical shells and also by comparing computed and experimental data on determining spring in the bending of circular plates.

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UDC 548.4

SEVERENKO, V. P., GURSKIY, L. I., and PETRENKO, S. I.

"examination of a Polycrystal Aluminum Surface Deformed by Ultrasound"

Minsk, Doklady Akademii Nauk BSSR, Vol 15, No 4, 1971, pp 312-315

Abstract: This article is a study of the deformation of the surface of samples of polycrystal aluminum in the region of maximum cyclic stress following exposure to ultrasound. The samples were subjected to repeated cycles of 60 seconds of exposure to ultrasound oscillations plus 120 seconds of rest until they broke (approximately 2.2×10^7 cycles). After observing the development of slip bands with the aid of an optical microscope, the authors conjecture that the formation and expansion of the bands results from repeated cross slipping of screw dislocations. Subsequent examination of the samples with an electron microscope revealed the step-by-step nature of the distribution of dislocations, which confirms the conjecture. The authors conclude that exposure to individual microvolumes of polycrystal aluminum to cyclic stress from ultrasound frequencies causes plastic deformation of the aluminum.

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UDC 539.384:669-41

SEVERDENKO, V. P. and ZHIKIN, YU. D.

"Effect of Neutral Surface Curvature on the Bending Moment in the Case of Pure Bending of Metal Bands"

Minsk, Vestsi Akedemii Navuk BSSR, Seryya Fizika-Tekhnichnykh Navuk, No 3, 1971, pp 9-12

Abstract: In the case of bending of wide flat bands the longitudinal elongation of the fibers is accompanied by radial contraction. If the latter is restricted it results in radial tension. The difference between the two stresses is a function of the longitudinal strain, which is proportional to the curvature. Therefore it is possible to express the bending moment as a function of curvature. Equation (6) gives the relation for both the elastic and plastic deformations. The bending moment calculated by the above equation for a steel band 100 mm wide and 8 mm thick is shown on a graph as a function of curvature.

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UDC 621.762:621.984.5

USSR

~~SEVERDENKO, V. P.~~, and IOSIFOV, V. N., Physico Technical Institute, Academy of Sciences, Belorussian SSR

"Pressing of Briquettes of Aluminum Granules"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 24-27

Abstract: Powder metallurgy, allowing the development of extremely high cooling rates by spraying liquid metal droplets into water, can lead to a displacement of the liquidus line in alloys, forming supersaturated solid solutions with extremely high alloying element contents. These phenomena were studied by producing aluminum powder by pouring melted aluminum into a centrifuge and allowing droplets to spray out of holes around the periphery of the centrifuge basket into water. The aluminum powder thus produced was pressed into briquettes in a special stamp. It was found that the size of the granules had no significant influence on the density of the briquettes as a function of pressing pressure. The density of the briquettes as a function of pressure follow the ordinary regularities observed in pressing powder materials. The calculated pressing curves produced analytically and by graph analysis corresponded to the experimental curves with sufficient accuracy.

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UDC 621.961.01

USSR

SEVERDENKO, V. P., and SHUSTER, Va. B., Physical Technical Institute, Academy of Sciences, BSSR

"The Effect of Ultrasonic Vibrations on the Surface Quality of Die-Cuts in Plastics"
Minsk, Vestsi Akademii Navuk BSSR (News of the Academy of Sciences BSSR), No 3, 1970, pp 87-89

Abstract: The problem of die-cutting and punching nonmetallic sheets, especially plastics, is considered. Edges of apertures cut in plastics have much poorer quality than similar cuts in metals because of the radically different physical properties of plastics. Die-cutting of plastics passes through three stages: 1) elastic deformation, 2) intense formation of initial fracture zones, and 3) a stage of brittle fracture. Punching has a plastic deformation stage that consists of a bending process and a simultaneous crushing process between the faces of the punch and the matrix. The nature of the bend determines the nature of the surface of the punched aperture. The effect of ultrasound of 19.6 kHz on punching and die-cutting was studied. The die was excited to an amplitude of 10 to 20 microns. A 10-mm-diameter punch in a plexiglass-like (textolit) plastic sheet required 1680 kg without ultrasound, but 1400 kg with ultrasound excitation

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SEVERDENKO, V. P., et al, Vestsi Akademi Navuk BSSR, No 3, 1970, pp 87-89
of 10 microns of amplitude and only 1030 kg pressure for a 20-micron amplitude
excitation. Punched and die-cut surfaces of 3 to 3.5 mm thick plastics were
qualitatively much better with ultrasound than without. Orig. art. has 2 figs.
and 4 refs.

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PHYSICS
Acoustics

UDC 621.778-861.1

USSR

SEVERDENKO, V. P., Academician of the Academy of Sciences BSSR; KLUBOVICH, V. V.;
KONYSHEV, L. K.; REPIN, R. A., Physicotechnical Institute, Academy of Sciences
BSSR

"Drawing of Wire From Strainproof Longitudinal Ultrasonic Vibrations" Materials With the Application of

Minsk, Doklady Akademii Nauk BSSR, Vol. 14, No. 5, May 70, pp 415-418

Abstract: Drawing of titanium, molybdenum, manganese nickel NMts 2.5, and stain-
less steel of various dimensions and different initial states was studied under
the application of longitudinal ultrasonic oscillations and without them. The
investigations were conducted on a testing machine with a drawing rate of 20-
-150 mm/min. The effectiveness of the action of acoustical energy on the metal
being drawn was basically a function of the intensity of the ultrasonic oscilla-
tions applied to the deformation focus. The tests showed that a supply of ultra-
sonic energy to the deformation focus has a considerable effect on the force
conditions of the drawing process. The relative drop in drawing force can
reach 80%. A comparison of the drawing of wire from annealed and hardened

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SEVERDENKO, V. P., et al, Physicotechnical Institute, Academy of Sciences BSSR

manganese nickel shows that the effectiveness of the action of ultrasonics on the drawing force somewhat increases with a growth in the degree of hardening. The effectiveness of the action of ultrasonic oscillations on the force conditions of the drawing changes with a change in the drawing rate. If the drawing force was 22 kg at a rate of 22 mm/min, the drawing force increased to 28 kg at a rate of 150 mm/min for the same intensities of the ultrasonic oscillations. It is also shown that if ultrasonic oscillations are applied in rolling, the breaking point of the metal drops somewhat and the plastic properties rise. This is attributed to a decrease in the shear and a partial softening of the metal during deformation under the action of the alternating stresses of the ultrasonic frequency.

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Powder Metallurgy

UDC 621.762.01

USSR

SEVERDENKO, V. P., LOZHECHNIKOV, YE. B., and BAYEK, M. A.,
Belorussian Polytechnical Institute

"Production and Investigation of Powders of Dispersion-Hardened
Compositions Based on Nickel and Copper"

Minsk, Akademiya Nauk BSSR, Izvestiya, Seriya Fiziko-Tekhnich-
eskikh Nauk, No 2, 1970, pp 115-119

Translation: Results are presented of the preparation and
investigation of powders of dispersion-hardened compositions
based on nickel and copper with aluminum, silicon, zirconium,
and hafnium oxides. A description is given of a unit for mix-
ing and dispersion of powder compositions in an ultrasonic field.
The results of an electron microscopic investigation of the
degree of particle dispersion are presented.

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UDC 548.4

USSR

SEVERDENKO, V. P., Academician, Academy of Sciences BSSR, GURSKIY, L. I.,
and PETRENKO, S. I.

"Change in the Dislocation Structure of a Metal Acted on by Ultrasound"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 12, 1970, pp 1082-1085

Abstract: Although there are numerous papers concerned with the influence of ultrasound on the physico-mechanical properties of metals and alloys, there are very few concerned with the effect of ultrasound from the kilohertz frequency range on the dislocation structure of metals. Available data are mainly concerned with studying changes in the dislocation structure of metals.

This article seeks to correct this by looking at the influence of intense ultrasound on the dislocation structure and shift in grain boundaries in samples of polycrystalline aluminum.

Two figures are given for visual presentation.

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SEVERDENKO, V. P., et al., Doklady Akademii Nauk BSSR, Vol 14, No 12, 1970,
pp 1082-1085

It is found that certain changes in the dislocation structure of Al indicate that the ultrasonic energy is absorbed on the crystal lattice defects, outwardly manifested by heating of the sample.

The studies here also show that as a result of absorption of ultrasonic energy, the dislocation structure undergoes substantial restructuring, leading to a decrease in the free energy of the system; and the process of self-diffusion is accelerated and accompanied by disappearance or shift in the grain boundaries.

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1/2 060 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CHANGE IN THE DUCTILITY AND MICROHARDNESS OF PARTS STAMPED AFTER
ULTRASONIC TREATMENT -U-
AUTHOR--(02)-SEVERDENKO, V.P., PETRENKO, V.V.

COUNTRY OF INFO--USSR

5

SOURCE--IZVEST. AKAD. NAUK BELORUSS. SSR, 1970, (FIZ. TEKHN.), (1), 86-87

DATE PUBLISHED-----70

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

TOPIC TAGS--METAL MICROHARDNESS, DUCTILITY, ULTRASONIC IRRADIATION,
RADIATION EFFECT, COPPER, METAL STAMPING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0156

STEP NO--UR/0201/70/000/001/0086/0087

CIRC ACCESSION NO--AP0129412

UNCLASSIFIED

2/2 060

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129412

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERAL PRINCIPLES UNDERLYING THE STAMPING OF METAL PARTS AFTER TREATMENT IN AN ULTRASONIC FIELD ARE DISCUSSED WITH SPECIAL REF. TO THE EFFECT OF ULTRASOUND ON THE MICROSTRUCTURE AND DUCTILITY OF THE MATERIALS. THE DUCTILITY OF CU PARTS SUBJECTED TO ULTRASOUND INCREASES SHARPLY ON SUBSEQUENT STAMPING, THE MICROHARDNESS DIMINISHES UNIFORMLY OVER THE WHOLE SAMPLE, AND NONUNIFORMLY OF DEFORMATION OVER THE CROSS SECTION OF THE PARTS IS ALMOST ENTIRELY ELIMINATED.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STUDY OF FORWARD FLOW AND LAGGING IN ROLLING PROCESSES IN RELATION
TO THE SPREAD OF THE METAL -U-
AUTHOR--(02)-BAKHTINOV, YU.B., SEVERDENKO, V.P.
COUNTRY OF INFO--USSR
SOURCE--IZVEST. AKAD. NAUK BELORUSS. SSR, 1970, (FIZ. TEKHN.), (1), 10-15
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--METAL ROLLING, MATHEMATIC EXPRESSION, MECHANICAL PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0136 STEP NO--UR/0201/70/000/001/0010/0015
CIRC ACCESSION NO--AP0135633
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135633

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXISTING THEORETICAL FORMULAE FOR THE FORWARD FLOW AND LAG OF THE METAL IN ROLLING PROCESSES ARE CRITICIZED AS BEING BASED ON OVERSIMPLIFIED ASSUMPTIONS (UNIFORM VELOCITY, SPECIFIC PRESSURE, AND FRICTIONAL FORCES) AND A REVISED THEORY ALLOWING FOR VARIATIONS IN THESE IS PRESENTED. ANALYTICAL EXPRESSIONS ARE DERIVED FOR THE FORWARD FLOW AND LAG IN RELATION TO THE SPREAD OF THE METAL, AND ALSO FOR THE VELOCITY AT WHICH THE STRIP ENTERS AND LEAVES THE ROLLS AND THE AREA OF THE STRIP IN THE NEUTRAL SECTION.

UNCLASSIFIED

1/2 037

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--INHIBITION OF MARTENSITIC TRANSFORMATION IN STEEL KH18N10T DURING
PLASTIC DEFORMATION WITH SUPERIMPOSED ULTRASONIC VIBRATIONS -U-

AUTHOR--(03)-SEVERDENKO, V.P., PETRENKO, V.V., PETRENKO, S.I.

COUNTRY OF INFO--USSR

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SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(2), 122-4

DATE PUBLISHED-----70

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

TOPIC TAGS--PLASTIC DEFORMATION, STAINLESS STEEL, ULTRASONIC VIBRATION,
ALLOY DESIGNATION, MARTENSITIL TRANSFORMATION, METALLOGRAPHY, MAGNETIC
SATURATION, FERROMAGNETISM/(U)KH18N10T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0224

STEP NO--UR/0250/70/014/002/0122/0124

CIRC ACCESSION NO--AT0108548

UNCLASSIFIED

2/2 037

CIRC ACCESSION NO--AT0108548

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SAMPLES OF STEEL KH19N10T DEFORMED WITH SUPERIMPOSED ULTRASONIC VIBRATION, THE MAGNETIC SATN. CURVE IS ALMOST INDEPENDENT OF THE DEGREE OF STRAIN WHICH PROVES THE ABSENCE OF THE FORMATION OF LARGE AMTS. OF FERROMAGNETIC ALPHA-PHASE IN THE DEFORMED STEEL. THIS IS EXPLAINED BY HIGHER TEMPS. IN THE DEFORMATION WITH SUPERIMPOSED ULTRASOUND. AT THESE TEMPS. THE MARTENSITIC TRANSFORMATION IS SUPPRESSED. THIS WAS CONFIRMED BY THE METALLOGRAPHIC EXAMN. OF POLISHED SAMPLES DEFORMED WITH AND WITHOUT ULTRASONIC VIBRATIONS.

UNCLASSIFIED

USSR

UDC 620.198:537.533.35

SEVERDENKO, V. P., Academician of the Belorussian Academy of Sciences; LABUNOV, V. A.; VOROBEY, Z. F.; and STEL'MAKH, V. T.,
Minsk Radio Engineering Institute

"Selecting Parameters for Plasma Anodized Aluminum"

Minsk, Doklady Akademii Nauk BSSR, vol 16, No 11, 1972, pp 995-997

Abstract: This paper is based on an earlier article (V. P. Severdenko, et al, DAN BSSR, vol 16, No 8, 1972) in which it was shown that the process of plasma anodizing of aluminum is determined to a large extent by the oxygen pressure in the vacuum chamber. The purpose of the present paper is to investigate other factors affecting this process, such as the position of the oxidized specimen relative to the plasma and the discharge current, which affects the kinetics of the aluminum film oxidation and the final thickness of the film. The experimental apparatus used to make these determinations is the same as that used in the earlier article, and the experimental method is described. Curves are obtained for the formation current and oxide thickness as functions of time, for various values of discharge current, and for the formation voltage

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SEVERDENKO, V. F., et al, Doklady Akademii Nauk SSSR, vol 16,
No 11, 1972, pp 995-997.

and oxide thickness as functions of the time. Comparison of the curves shows that with constant formation current density, an increase in the discharge current leads to an increase in the maximum oxide thickness and its growth rate.

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Forming

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UDC:621.771.6

SEVERDENKO, V. P., LOZHECHNIKOV, YE. B., BAYEK, M. A. and STEPANENKO, A. V., Belorussian Polytechnical Institute

"Rolling of Precipitation-Hardened Materials with Imposition of Ultrasonic Oscillations"

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 74, pp 14-16

Abstract: This article studies the possibility of intensifying the breakdown of oxides in strips rolled directly from nickel precipitation hardened with aluminum by subsequent rolling between rolls to which ultrasonic oscillations are applied. Strips 0.41 mm thick produced by direct rolling of the powder were sintered in a vacuum then subjected to 50% rolling in 8 passes in rolls with antiphase azimuthal application of oscillations. Application of the ultrasonic oscillations causes more intensive breakdown of oxide particles during the process of rolling. Determinations of microhardness on the surface and cross section of the strips at temperatures from 20-900° C showed no differences in hardness. However, testing of flat annealed specimens showed an increase in tensile strength in the materials subjected to ultrasonic oscillations.

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USSR

UDC 621.357.8:669.71

SEVERDENKO, V. P., LABUNOV, V. A., VOROBEY, Z. F., and STEL'MAKH, V. T.

"Evaluation of Parameters for the Plasma Anodizing of Aluminum"

Dokl. AN BSSR (Proceedings of the Academy of Sciences Belorussia SSR), 16, No 11, 1972, pp 995-997 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L339 by Ye. I. Khrushcheva)

Translation: A study was made of the influence of the location of oxidizable areas -- relative to the plasma and the discharge current -- on the kinetics of the oxidation of Al films and their ultimate thickness. It was shown that in regimes of a fixed voltage of formation and also a fixed surface current an increase in the discharge current leads to an increased maximum thickness of the oxidized layer and the rate of its growth. This effect of the discharge current is explained by the fact that the wall film and the density of the negative ions increase as the discharge current increases. The wall film determines the size of the oxide film (that is, the final thickness), and the negative ion density determines the oxidation and probability of spreading of the developing oxide.

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Graphite

UDC 621.98.03

USSR

SEVERDENKO, V. P., MURAS, V. S., and ELIMELAKH, S. Z., Physico
Technical Institute, Academy of Sciences, Belorussian SSR

"Analysis of Density and Volume of an Intermediate Graphite
Medium During Hot Hydrodynamic Extrusion"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh
Nauk, No 4, 1971, pp 18-22

Abstract: An experimental analysis was made of the relative
density of EG-0 type electrode graphite used as a plug in hot
hydrodynamic extrusion as a function of the specific pressure.
This graphite has an ultimate strength of 3.5 kg/mm² and an
initial density of 3.26 g/cm³. The volume of graphite was
calculated for various parameters of the extrusion process.
The extrusion of steels and alloys both with and without shaped
profiles was considered.

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UDC 621.762.01

~~SEVERDENKO, V. P.~~, LOZHECHNIKOV, YE. B., and BAYEK, M. A.,
Physico Technical Institute, Academy of Sciences Belorussian SSR

"Problems of Determining the Power Parameters of Roll Compacting"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh
Nauk, No 4, 1971, pp 124-127

Abstract: The power parameters of roll compacting have been studied previously, and the basic laws of distribution of the specific forces of pressure of the metal on the rolls, friction, total pressure, and rolling power have been established. However, a number of problems, such as the presence of nondeformable inclusions (carbides, oxides), the effect of the metal thickness, and other factors on the power conditions of roll compacting have not been considered. In order to study these power parameters, experiments were performed with respect to roll compacting of strips from type PZhZM powdered iron (GOST 9849-61), type PNK-1 nickel powder (GOST 9722-61), type PM-2 powdered copper (GOST 4960-49), and precipitation hardened nickel and copper. The dependence of the variation of these parameters on the thickness
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SVERDENKO, V. P., et al., Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1971, pp 124-127

of strips of identical density was established. A formula for calculating the specific energy of roll compacting which takes into account the density and thickness of the strip was obtained:

$$\lg A_{\text{spec}} = k\gamma_s - ch_s,$$

where A_{spec} is the specific rolling power, kilowatts-hour/ton; k is a coefficient which depends on the powdered material; γ_s is the strip density, g/cm^3 ; h_s is the strip thickness, mm; and c is the proportionality coefficient taking into account the effect of strip thickness. Empirically determined values of the coefficients k and c are presented for the materials studied.

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USSR

UDC: 621.315.592

SEVERDENKO, V. P., Academician of the Academy of Sciences of the BSSR, LAEU-
NOV, V. A., KOSAREVICH, Ye. M., Minsk Radio Engineering Institute

"Switching Effects in Cupric Oxide Films"

Minsk, Doklady Akademii Nauk BSSR, Vol 16, No 6, Jun 72, pp 497-498

Abstract: It is shown that cupric oxide films can be used as a basis for thin-film elements with switching and memory properties. The films were prepared by an anodic electrolytic process in potassium hydroxide. The specimens showing switching effects were obtained by stopping the formation process at points on the potentiodynamic curve lying beyond the second polarization current maximum. The current-voltage curve for these specimens shows two stable states: the initial (closed) state with low conductivity, and an open state with high conductivity. In the closed state the diode structure shows a resistance of more than a megohm, and in the open state the resistance is only a few dozen ohms. Switching from the high-resistance to the low-resistance state takes place at potentials of 0.4-40 v, depending on the conditions of formation of the oxide film (the specific point on the potentiodynamic curve at which the process is cut

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SEVERDENKO, V. P., DAN BSSR, No 6, Jun 72, pp 497-498

off. With elements in which switching occurs at 0.5-2 v the switching process takes place at the frequency of the applied voltage. When switching occurs at more than 2v, the element "remembers" the state: i. e., it remains in the altered state when the voltage is disconnected. The reverse state can be restored by a current pulse lasting 10^{-7} - 10^{-5} sec. The effect is observed from room temperature to 120°C. The elements have stable characteristics and, with some improvement, could be used as switching and memory elements in computer technology.

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UNCLASSIFIED

PROCESSING DATE--11DEC70

1/2 036
TITLE--ANTIFRICTION PROPERTIES OF FILLED FLUOROPLAST, 4
, POLY, TETRAFLUOROETHYLENE -U-
AUTHOR--(03)-SEVERIN, P.A., KLYUYEV, E.A., STADNIKOV, M.T.

COUNTRY OF INFO--USSR

5

SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 6(2), 120-1

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ANTIFRICTION MATERIAL, POLYTETRAFLUOROETHYLENE, GRAPHITE,
PLASTIC DEFORMATION/(U)FLUOROPLAST 4 TEFLON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0930

STEP NO--UR/0369/70/006/002/0120/0121

CIRC ACCESSION NO--AP0134659

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AP0134659
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE POLYMER WAS FILLED WITH
15-40PERCENT COLLOIDAL GRAPHITE BY THE PREVIOUSLY DESCRIBED METHOD (P.
A. SEVERIN ET AL., 1966). THE PRESENCE OF GRAPHITE INCREASED THE
ABRASION RESISTANCE OF THE COMPNS. SMALLER THAN OR EQUAL TO 1000 TIMES.
THE FRICTION COEFFS. OF THE COMPNS. WERE 0.05-0.28. THE DEFORMATION OF
THE COMPNS. UNDER STRESS PROCEEDED FAST FOR 24 HR, THEN IT SLOWED DOWN,
AND WAS ARRESTED BY THE REORIENTATION OF THE POLYMER STRUCTURE.
FACILITY: INST.KHIM. VYSOKOMOL. SOEDIN., KIEV. USSR.

UNCLASSIFIED

Acc. Nr:

AP0049849

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

21R6032

101290a Apparatus for studying the wear of polymer materials during reciprocation. Seyvin, P. S.; Stadnikov, M. T.; Lyvi, P. A.; Fedorenko, V. V. (Inst. Khim. Vysokomol. Soedin. Kiev, USSR). Zashch. Lab. 1970, 36(1), 101-3 (Russ). The title app. for studying the wear resistance of plastics during reciprocating friction along metals at low and high temps. in various gas media, is described. The app. is suitable for use at operating loads and speeds of many reciprocating engines. The driving motion and application of load on the samples are accomplished on one side (vertically), while the samples acquire reciprocating motion along the arc of a ring-shaped countershaft. This permits one to achieve quite simply the necessary insulation of the friction block from the surrounding medium. The app. was used to test samples of filled Ftoroplast-4 at various temps. and sliding velocities over a broad range of loads.

DBJR

20.

REEL/FRAME
19801774

USSR

Pharmacology and Toxicology

UDC 612.837.1

SEVERIN, S. Ye., BOLDYREV, A. A., and PETUKHOV, V. B., Moscow State University
~~Imeni M. V. Lomonosov~~

"Presynaptic Effect of Imidazole and Carnosine"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 2, 1970, pp 471-474

Abstract: A study was made of the effect of imidazole (20 mM) and carnosine (10 and 20 mM) on the frequency and amplitude of miniature end-plate potentials (MEP) derived from electrodes implanted in *Rana temporaria* M. cutaneous pectoris in Ringer's solution and in the presence of KCl or d-tubocurarine. The addition of imidazole to the solution increased the MEP frequency by a factor of 1.5-2 and reduced the mean amplitude by 15 to 30%. The increase in frequency was particularly marked after potassium depolarization. After the preparation was washed with Ringer's solution, the frequency and, somewhat later, the mean amplitude returned to their normal levels. Carnosine in either concentration increased the MEP frequency by a factor of three, but reduced the mean amplitude only slightly. Addition of imidazole and carnosine after d-tubocurarine increased the MEP frequency but did not prevent the amplitude from decreasing. The increase in quantum composition of the end-plate potentials brought about by imidazole and carnosine is direct evidence of the presynaptic action of these agents.

1/1

USSR

UDC 575.150

S
SEVERIN, S. Ye., FILIPPOV, P. P., and KOCHETOV, G. A., Interfaculty Laboratory of
Bio-organic Chemistry, Moscow State University

"Metalloenzymes"

Moscow, Uspekhi Sovremennoy Biologii, Vol 69, No 2, Mar/Apr 70, pp 241-260

Abstract: This is a review article with 112 references, covering the function of metals in enzyme catalysis. The following topics: classification of metallo-enzymes, the effect of metals on the relationship between enzymes and substrates, participation of metals in the complex formation of enzyme-coenzyme, the effect of metals on the conformation of enzymes, the effect of metals on the quaternary structure of enzymes, and the metal content in enzymes, are discussed. The importance of studying the properties and the mechanism of action of metalloenzymes is stressed.

1/1

- 1 -

1/2 021
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--THE BASIC PRINCIPLES OF DIALECTICAL MATERIALISM AND ADVANCES IN
BIOCHEMISTRY -U-
AUTHOR--SEVERIN, S.YE.
COUNTRY OF INFO--USSR S
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 3,
PP 325-336
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BIOCHEMISTRY, MOLECULAR BIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/1609 STEP NO--UR/0216/70/000/003/0325/0336
CIRC ACCESSION NO--AP0127100
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127100

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REGULARITIES IN NATURAL PHENOMENA ARE NOT IN PURE FORM BUT DISPLAY THEMSELVES AS "TENDENCIES". THE EVIDENCE IS PRODUCED THAT BIOCHEMISTRY AS WELL AS OTHER SCIENCES HAS BEEN DEVELOPING BY PASSING FROM TENDENCIES TO FORMULATION OF GENERALIZING LAWS. PERFECT APPLICABILITY OF THE MAIN LAWS OF DIALECTICAL MATERIALISM TO PHENOMENA STUDIED BY BIOCHEMISTRY AND MOLECULAR BIOLOGY WAS SHOWN. THE PRINCIPLES OF DIALECTIC PROVED TO BE FRUITFUL AT STUDING OF NATURAL PHENOMENA AND HAVE OFTEN BROUGHT TO DISCOVERY OF NEW SCIENTIFIC HORIZONS. FACILITY: M. V. LOMONOSOV STATE UNIVERSITY, MOSCOW.

UNCLASSIFIED

1/2 010 UNCLASSIFIED
 TITLE—INVESTIGATION OF THE EXTRACTION OF SOME COPPER, II, CHELATES USING
 ISOTOPE COPPER 64 -U-
 AUTHOR—(03)—RAKOVSKIY, E.E., PETRUKHIN, D.M., SEVERIN, V.I.
 COUNTRY OF INFO—USSR
 SOURCE—J. RADIOANAL. CHEM. 1970, 4(2), 207-14
 DATE PUBLISHED—70
 SUBJECT AREAS—CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY
 TOPIC TAGS—COPPER ISOTOPE, COPPER COMPLEX, COPPER EXTRACTING,
 DISSOCIATION CONSTANT
 CONTROL MARKING—NO RESTRICTIONS
 DOCUMENT CLASS—UNCLASSIFIED
 PROXY REFL/FRAME—2000/2038
 00125626 UNCLASSIFIED
 PROCESSING DATE—3000
 5

PROCESSING DATE--300CT70

UNCLASSIFIED

2/2

010

CIRC ACCESSION NO--A0125626
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EXTN. OF CU(II)
8, HYDROXYQUINOLINATE, 5,7, DICHLORO, 8, HYDROXYQUINOLINATE, AND
2, THENOYLTRIFLUOROACETONATE WAS INVESTIGATED AND THE STABILITY CONSTS.
AND DISTRIBUTION CONSTS. OF THE COMPLEXES WERE DETD. THE DEPENDENCE OF
THE PH VALUES FOR 50PERCENT EXTN. AND OF THE DISTRIBUTION CONSTS. OF THE
CU COMPLEXES ON THE DISSOCN. CONSTS. AND DISTRIBUTION CONSTS. OF THE
CORRESPONDING AGENTS ARE DISCUSSED.
INST. NONFERROUS METALS, MOSCOW, USSR.
FACILITY: CENT. MINING RES.

UNCLASSIFIED

Nitrogen Compounds

UDC 542.91:547.362

USSR

M. V. MAVROV, E. S. VOSKANYAN, T. A. SEVERINA, and V. F. KUCHEROV,
Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences
USSR

"Synthesis of Diacetylenic Hydroxyamines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, 1971,
pp 1088-1091

Abstract: Several new types of polyfunctionally substituted diacetylenes were synthesized by the condensation of 4-hydroxy-3-alkyl (or dialkyl) amino-butyne-1 with different bromoacetylenes under Kadio-Khodkevich conditions. The highest yields of the desired products (70-90 percent) were obtained when (Ia) was condensed in methanol solution in the presence of catalytic amounts of Cu_2Cl_2 , and in an aqueous solution of ethylamine with a 1.5-2 fold excess of the corresponding bromoacetylenic compounds at temperatures not higher than -10° . Infrared spectra of these compounds contain absorption bands in the 2200-2260 cm^{-1} region. They are of moderate intensity corresponding to the conjugated substituted diacetylenic group. Also found in the spectra are absorption bands corresponding to the bond vibrations of the functional groups.

1/2

USSR

MAVROV, M. V., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, 1971,
pp 1088-1091

After exhaustive catalytic hydrogenation in alcoholic solution in the presence
of a Pt-catalyst, diacetylenic hydroxylamines readily absorb 4 moles of H_2
(forming previously unknown aliphatic hydroxylamines (III). No other synthetic
pathways were known for these products.

2/2

- 11 -

UNCLASSIFIED
 TITLE—FATTY ACID COMPOSITION OF BUCKWHEAT LIPIDS —U—
 AUTHOR—(03)—BELOVA, Z.A., NECHAYEV, A.P., SEVERINENKO, S.M.
 COUNTRY OF INFO—USSR
 SOURCE—IZV. VYSSH. UCHES. ZAVED., PISHCH. TEKHNDL. 1970, (1), 32-3
 DATE PUBLISHED—70
 SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
 TOPIC TAGS—CEREAL CROP, CHEMICAL ANALYSIS, LIPID, FATTY ACID,
 SAPONIFICATION, GAS CHROMATOGRAPHY
 CONTROL MARKING—NO RESTRICTIONS
 DOCUMENT CLASS—UNCLASSIFIED
 PROXY REEL/FRAME—3004/0792
 STEP NO—UR/0322/70/000/001/0032/0033
 CIAC ACCESSION NO—A1013139
 UNCLASSIFIED

2/2 011
 CIRC ACCESSION NO--AT015186
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FATTY ACIDS, OBTAINED BY SAPON. OF
 ETHER EXTS. FROM GROUND BUCKWHEAT GRAINS (3 VARIETIES), WERE ANALYZED
 BY GAS CHROMATOGR. THE ACID COMPS. WERE: PALMITIC 15.1-20.6, STEARIC
 0.7-1.7, LLEIC 38.0-39.4, LINGLIC 37.8-39.3, LINELENIC 0.9-5.8, AND
 GONOLIC 1.1-1.8PERCENT. MYRISTIC, PALMITOLEIC, AND SATD. C SUB14, C
 SUB15, AND C SUB20 ACIDS WERE PRESENT IN SMALLER THAN 1PERCENT.
 CONTENTS OF SATD. AND UNSATD. FATTY ACIDS WERE 17.9-21.6 AND
 78.4-82.1PERCENT, RESP.
 PROJ., RESECV, USSR.
 FACILITY: MOSK. TECHNOL. INST. PISHCH.

UNCLASSIFIED
 PROCESSING DATE--20NOV70

UNCLASSIFIED

Ref. Code: UR 0297

Acc. Nr.: AP0029332

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp5-9

GENIMYCIN, A MEMBER OF A NEW GROUP OF ANTIFUNGAL PENTAENIC ANTIBIOTICS

Severinets, L.Ya.; Yefimova, V.M.; Bol'shakova, L.O.;
Karnaushkina, A.I.; Solov'yev, S.N.; Yegorenkova, A.N.;

Leningrad Institute for Antibiotics

A soil culture LIA-0174 was isolated and classified as belonging to the genus of Actinosporangium. An antibiotic named genimycin was recovered from the fermentation materials of this culture. By a number of physico-chemical properties the antibiotic was believed to belong to a new group of pentaenic antibiotics. Genimycin possesses antifungal activity, which is 10-100 times higher than that of pentaens from other groups.

gm

6

REEL/FRAME

19680904

Fluid Dynamics

UDC 517.9:533.7

USSR

BELOTSERKOVSKIY, O. M.; SEVERINOV, L. I., Moscow

"Conservative Method of 'Fluxes' and Calculation of the Flow of a Viscous Heat-Conducting Gas Around a Solid of Finite Dimensions"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, Vol 13, No 2, Mar/Apr 73, pp 385-397

Abstract: A method is proposed for numerical solution of problems in gasdynamics. The procedure is based on approximating laws of conservation written out for each cell of a difference net. In field variables the method generates an explicit asymmetric difference scheme and is conservative with respect to mass, momentum, and total energy in virtue of the method of constructing and organizing the computations. Examples are given of calculations of the flow of a viscous heat-conducting gas around a sphere with a given surface temperature. The results show that the method of fluxes can be used to study flows around solids of finite dimensions in a wide range of Reynolds numbers up to those where the gas is nearly ideal.

1/1

UDC: 621.374.33(088.8)

USSR

BOGUSLAVSKIY, R. Ye., REZNIK, B. D., ~~SEVERINOVSKIY, N. S.~~

"A Bistable Commutator"

USSR Author's Certificate No 272370, filed 25 Mar 68, published 5 Nov 70
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G282 P)

Translation: This Author's Certificate introduces a bistable commutator which contains input and output isolation transformers, a transistor with positive feedback circuit which utilizes transformation of voltages from the collector circuit to the base circuit, and a capacitor. To simplify the circuit, increase the switching capacity of the transistor and reduce power consumption, the transistor is connected between the center-taps of the windings of the input and output isolating transformers, the end-points of these windings being connected through semiconductor diodes. The feedback circuit is made in the form of an auxiliary winding on the output isolating transformer. This winding is connected through a semiconductor diode to the base circuit of the transistor.

UNCLASSIFIED

PROCESSING DATE--20NOV70

AND INDOLEACETIC ACIDS ON PLANT MALATE

1/2 014

TITLE--EFFECT OF GIBBERELIC DEHYDROGENASE ACTIVITY -U-

AUTHOR--(03)-KRETOVICH, V.L., SEVERNAYA, T.A., BUTENKO, R.G.

COUNTRY OF INFO--USSR

SOURCE--DGKL. AKAD. NAUK SSSR 1970, 191(2), 474-5

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GIBBERELIC ACID, INDOLE DERIVATIVE, PLANT PHYSIOLOGY, DEHYDROGENASE; ENZYME ACTIVITY, INHIBITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1475

STEP NO--UR/0020/70/191/002/0474/0475

CIRC ACCESSION NO--AT0139404

UNCLASSIFIED

2/2 C14 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AT0130404
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INDOLE,3,ACETIC ACID AT 10 PRIME
NEGATIVE3-10 PRIME NEGATIVE6 H INHIBITED MALIC DEHYDROGENASE FROM CORN
ROOTS AND FROM BOTH NATURAL AND CULTURED TOBACCO PITH PARENCHYMA IN
VITRO. GIBBERELIC ACID HAD NO SUCH EFFECT. FACILITY: INST.
BIOKHM. IM. BAKHA. MOSCOW. USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30GCT70
 TITLE--THE COAGULATION PROPERTIES OF THE BLOOD IN THE PLEURAL CAVITY -U-
 AUTHOR--(04)--NIKITIN, YU.P., SHUNKOVA, YE.I., SEVERNIY, V.VA.,
 SYSGYEVVGRUBYEV, A.N.
 CCOUNTRY OF INFO--USSR
 SOURCE--KHIRURGIYA, 1970, NR 6, PP 76--80
 DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--BLOOD COAGULATION, LUNG, SURGERY, FIBRINOLYSIS, THROMBOCYTE,
 ERYTHROCYTE

CCNTRGL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3002/1784

STEP NO--UR/0531/70/000/006/0076/0080

CIRC ACCESSION NO--AP0129152

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129152

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

ABSTRACT. INVESTIGATION OF THE BLOOD RECOVERED FROM THE PLEURAL CAVITY SOON AFTER A THORACIC OPERATION WAS CARRIED OUT. THERE WERE REVEALED A FIBRINOGENEMIA, A HIGH FIBRINOLYTIC ACTIVITY, AND AUGMENTED TOTAL COAGULATION AND ANTIHEPARIN ACTIVITY. THERE WERE FOUND NO ANTITHROMBINS IN THIS BLOOD. THE REFERRED TO ALTERATIONS ARE EXPLAINED BY THE EFFECT OF ACTIVATOR OF PLASMINOGEN PRODUCING MESOTHELIUM, AND BY DESTRUCTION PRODUCTS OF THROMBOCYTES AND ERYTHROCYTES.

FACILITY: NOVOKUZNETSKIY INSTITUT
USOVERSHENSTVOVANIYA VRACHEY, 1-YA GORODSKAYA KLINICHESKAYA BOL'NITSA.

UNCLASSIFIED

Acoustical

USSR

UDC 534.2

FUDIN, Ye. Ya., and SEVERNINA, N. N.

"Study of Noise Formation in Throttling Devices When Measuring Noise Characteristics of Fan"

V sb. Novyye metody issled. shumov i vibratsiy i kibernet. diagnost. mashin i mekhanizmov (New Methods of Studying Noises and Vibrations and Cybernetic Diagnostics of Machines and Mechanisms -- collection of works), Kaunas, 1970, pp 29-30 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B255, by G. P. Karaushev)

Translation: Acoustical characteristics of throttles of the washer-grille type used in aerodynamic tests of fans were experimentally studied. The advantage of this class of throttle over others (for example, slide valves, throttle-valves, and others) is that it produces diffuse drag, not twisting the flow and not inducing additional turbulence. It is shown that, except for low frequencies, throttles of the washer-grille type make much less noise than do fans.

1/1

Acc. Nr: **AP 0045341**

Abstracting Service: **3/70** Ref. Code: **US 0000**
INTERNAT. AEROSPACE ABST.

S

A70-22515 The weak magnetic fields of some bright stars.
A. Severnii (Krymskaia Astrofizicheskaia Observatoriia,
Partizanskoye, Ukrainian SSR). *Astrophysical Journal*, vol. 159, Feb.
1970, pt. 2, p. L73-L76. 5 refs.

The technique of the solar magnetograph applied at the coude spectrograph of the 2.6-m reflecting telescope of the Crimean Astrophysical Observatory for the measurement of stellar magnetic fields has recently revealed weak longitudinal magnetic fields (30-300 gauss) of some bright stars. (Author)

ALS

1/1

REEL/F
19780271

12

PROCESSING DATE--02OCT70

1/2 024

UNCLASSIFIED

TITLE--ON THE ASYMMETRY OF MOUSTACHES -U-

AUTHOR--(02)--KOVAL, A.N., SEVERNYI, A.B.

S

COUNTRY OF INFO--USSR

SOURCE--SOLAR PHYSICS, VOL. 11, FEB. 1970, P. 276-284

DATE PUBLISHED----FEB70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PHOTOGRAMMETRY, SOLAR DISTURBANCE, EMISSION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REL/FRAME--1987/1015

STEP NO--NE/0000/70/011/000/0276/0284

CIRC ACCESSION NO--AP0104413

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0104413

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTOMETRIC INVESTIGATION OF TRANSIENT EMISSIONS CALLED MOUSTACHES CARRIED OUT TO REVEAL ASYMMETRY IN THEIR FAR WINGS, IF IT EXISTS. DIFFICULTIES IN PHOTOGRAMMETRIC METHODS, AS WELL AS OTHER SOURCES OF ERRORS, ARE DISCUSSED. A BLUE ASYMMETRY AS A SYSTEMATIC DIFFERENCE OF INTENSITIES BETWEEN THE BLUE AND THE RED WING WAS OBSERVED IN SOME CASES, BEING TWO OR THREE TIMES LARGER THAN THE PROBABLE ERRORS. IN MOST MOUSTACHES INVESTIGATED, THE ACCOMPANYING BACKGROUND CONTINUOUS EMISSION SHOWS A RAPID INCREASE TO THE VIOLET. IT IS CONCLUDED THAT THE APPEARANCE OF THE BLUE ASYMMETRY OF THE FAR WINGS IN SOME MOUSTACHES IS PROBABLY A REAL EFFECT.

UNCLASSIFIED

USSR

UDC: 621.396.6.017.72

SEVERNYI, V. V., UKLONSKIY, D. A., VARLAMOVA, N. V., MINSKER, Ye. I.

"Heat Conducting Organosilicon Materials"

Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry),
Vyp. 10, Moscow, 1970, pp 39-40 (from RZh-Radiotekhnika, No 2, Feb 71,
Abstract No 2V320)

Translation: The overall thermal conductivity of a given device may drop appreciably as a result of an increase in contact thermal resistance when there are air gaps between contacting surfaces. These resistances are reduced by using heat conducting pastes, those with an organosilicon base in particular. Among these are thixotropic pastes designed merely for filling gaps and not for cementing, and pastes of the "Elastosil" type which harden after application and may also act as cements or sealants. Data on these pastes are given. Three tables. N. S.

1/1

- 127 -

USSR

UDC 678.84.02:66.035.3

ZHINKINA, L. N., and SEVERIY, V. V.

"Polyphosphorushydroxymethylphenyl Siloxanes"

Moscow, Plastichekiye Massy, No 3, 1971, pp 22-24

Abstract: Investigation was carried out on the reaction of polymethylphenyl siloxane (PPS) with butyl ester of phosphoric acid (BPA) at 200°C. The effect of various quantities of BPA on the properties of PPS synthesized was also studied. It was determined that BPA does not participate in a hetero-functional condensation reaction with PPS; even prolonged heating of the starting materials to 200°C did not produce any butyl alcohol. BPA catalyzes the condensation of PPS with production of water and formation of siloxane bonds which results in increased viscosity, all the way to the formation of insoluble polymer. Introduction of BPA into PPS in quantities corresponding to a ratio Si/P = 400 results in structuralization of the system; the Si-O-Si and Si-C bonds become stabilized toward the action of high temperature.

1/1

UDC 547.245+547.241+547.244

USSR

ANDRIANOV, K. A., VARLANOVA, N. V., KOLOCHINA, A. G., SEVERNIY, V. V., and SHAPATIN, A. S.

"Synthesis and Study of Properties Bis(organophosphinoxy)dibutoxy Titaniums"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1560-1565

Abstract: The authors previously studied the synthesis of some bis(organophosphinoxy)dibutoxy titaniums by the condensation of tetrabutoxytitanium with phosphorus monoacids or acid monochlorides. In the present article the authors report using an analogous method to obtain similar compounds containing a catecholoxy or methylene-o-carboranene group at the phosphorus. The synthesis of the former was through the corresponding acid monochloride, the latter through 1,2-methylene-o-carboranephosphoric acid. The resistance of these and the previously synthesized compounds to thermooxidative degradation was studied. It was found that thermooxidative degradation is accompanied by loss of the organic part of the monomers. Given the same titanium framework, the comparative resistance to thermooxidative degradation for similar compounds is determined by the stability of the organic phosphorus framework.

1/2

USSR

ANDRIANOV, K. A., et al., Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70,
pp 1560-1565

Monomers containing alkoxy or aroxy groups at the phosphorus are the least stable, the monomer with two phenyl radicals the most stable. The monomer containing a methylene-o-carboranene group at phosphorus loses this grouping during thermooxidative degradation.

2/2

1/2 013 UNCLASSIFIED S PROCESSING DATE--13NOV70

TITLE--ORGANOSILICON POLYISOCYANATES -U-

AUTHOR--(05)-BORODAVCHENKO, YE.S., SOBOLEVSKIY, M.V., NOVITSKIY, E.G.,
SEVERNYI, V.V., SHELUYAKOV, V.D.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,880
REFERENCE--OTKRYTIYA, IZOBRET., PRGM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ORGANOSILICON COMPOUND, ORGANIC ISOCYANATE, CHEMICAL PATENT,
SILOXANE, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1464 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AAD124863

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128853

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. ORGANOSILICON POLYISOCYANATES ARE
PREPD. BY TREATING POLY(ORGANOSILOXANES) CONTG. AN OH GROUP WITH CLME
SUB2 SI(CH SUB2) SUB3 NCO IN THE PRESENCE OF AN HCL ACCEPTOR, E.G.
PYRIDINE.

UNCLASSIFIED

USSR

UDC 547.245+547.241+547.244

ANDRIANOV, K. A., VARLANOVA, N. V., KOLCHINA, A. G., SEVERNYI, V. V., and SHAPATIN, A. S.

"Synthesis and Study of Properties Bis(organo-phosphinoxy)dibutoxy Titaniums"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1560-1565

Abstract: The authors previously studied the synthesis of some bis(organo-phosphinoxy)dibutoxy titaniums by the condensation of tetrabutoxytitanium with phosphorus monoacids or acid mono-chlorides. In the present article the authors report using an analogous method to obtain similar compounds containing a catecholoxy or methylene-o-carboranene group at the phosphorus. The synthesis of the former was through the corresponding acid mono-chloride, the latter through 1,2-methylene-o-carboranephosphoric acid. The resistance of these and the previously synthesized compounds to thermo-oxidative degradation was studied. It was found that thermo-oxidative degradation is accompanied by loss of the organic part of the monomers. Given the same titanium framework, the comparative resistance to thermo-oxidative degradation for similar compounds is determined by the stability of the organic phosphorus framework.

1/2

- 48 -

USSR

ANDRIANOV, K. A., et al., Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70,
pp 1560-1565

Monomers containing alkoxy or aroxy groups at the phosphorus are the least stable, the monomer with two phenyl radicals the most stable. The monomer containing a methylene-o-carboranene group at phosphorus loses this grouping during thermooxidative degradation.

2/2

USSR

UDC: 668.3/.4

SEVERNYI, V. V., MINSKER, Ye. I., CHUKIN, V. S., KVASNOVSKAYA, N. V.

"Optical Elastic Adhesives Based on Low-Molecular Polyorganosiloxane Rubber Stocks"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 176-179

Abstract: The paper presents the results of research on the optical, physico-mechanical and thermomechanical properties of elastic self-vulcanizing cold-setting "Elastosil" cements recommended for use in the optical systems of instruments (in Cerenkov and scintillation counters in particular) at working temperatures from -80 to +200°C.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--IMUNOLOGICAL STRUCTURE OF TULA POPULATION IN RESPECT TO MEASLES AT
DIFFERENT PERIODS OF THE YEAR -U-
AUTHOR-(04)-SILICH, V.A., KHAZANOV, M.I., ZHDANOVA, G.L., SEVEROV, A.M.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,
PP 109-115
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNOLOGY, HEMAGGLUTINATION INHIBITION TEST, MEASLES

CONTROL MARKING--NO RESTRICTIONS .

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0150

STEP NO--UR/0016/70/000/005/0109/0115

CIRC ACCESSION NO--AP0114546

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114546

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMMUNOLOGICAL STRUCTURE OF TULA POPULATION IN RESPECT TO MEASLES WAS STUDIED WITH THE AID OF HEMAGGLUTINATION INHIBITION REACTION. OVER 3,000 UNSELECTED CASES FROM VARIOUS AGE GROUPS WERE EXAMINED IN MARCH AND IN DECEMBER, 1966. THERE WAS NOTED A REGULARITY COMMON TO BOTH SEASONS: THE NUMBER OF POSITIVE REACTIONS INCREASED FROM 5-14PERCENT AT THE AGE OF 1-2 YEARS TO THE MAXIMAL IN SCHOOLCHILDREN AND ADULTS EQUAL TO 89PERCENT IN MARCH, AND 54PERCENT IN DECEMBER. IN DECEMBER (THE TIME OF INTENSIVE ELEVATION OF MEASLES INCIDENCE IN TULA) THE PERCENTAGE OF POSITIVE HEMAGGLUTINATION INHIBITION REACTIONS WAS MUCH LESS THAN IN MARCH. A FALL IN THE LEVEL OF IMMUNOLOGICAL REACTIONS IN DECEMBER COULD BE ATTRIBUTED TO THE DEPRESSIVE EFFECT OF NONSPECIFIC SEASONAL FACTORS ON THE GENERAL IMMUNOLOGICAL REACTIVITY OF THE ORGANISM, AND ALSO TO REDUCTION OF THE CIRCULATION OF MEASLES VIRUS DURING THE PRECEDING PERIOD OF LOW MEASLES INCIDENCE. ONE OF THE CAUSES OF ELEVATION OF MEASLES INCIDENCE DURING THE AUTUMN WINTER PERIOD IS POSSIBLY A REDUCTION OF THE IMMUNITY LEVEL TO MEASLES AMONG THE POPULATION. FACILITY: TSENTRAL'NYI INSTITUT EPIDEMIOLOGII.

UNCLASSIFIED

USSR

DERGACHEV, P. B., DYAD'KIN, V. P., SAVIN, N. S., SEVEROV, L. A., and
TARAN, Yu. A.

"Principal Characteristics of the Random Rolling of Heavy Aircraft During
Flight in Turbulent Atmosphere"

Tr. Leningr. in-t aviats. priborostr. (Works of Leningrad Institute of
Aircraft Instrument Manufacture), 1970, vyp. 66, pp 174-179 (from RZh-
Mekhanika, No 1, Jan 71, Abstract No 1B392 by G. V. Vronskiy)

Translation: The article considers equations of motion of aircraft equipped
with an automatic pilot which maintains horizontal flight at a constant speed
despite exposure to random vertical and transverse uncorrelated gusts of wind
possessing the same spectral density. The solution was accomplished with
the help of analog computers; at the same time the generation of random
gusts with prescribed spectral density was effected by means of a shaping
filter of the "white" noise produced by a random signal generator. During
simulation, pitch-, bank- and yaw-angle signals, as well as their angular
velocities and accelerations were simultaneously tape-recorded on a multi-
channel oscillograph. After processing on the correlator, autocorrelation
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USSR

DERGACHEV, P. B., et al., Tr. Leningr. in-t aviats. priborostr. (Works of Leningrad Institute of Aircraft Instrument Manufacture), 1970, vyp. 66, pp 174-179 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B392 by G. V. Vronskiy)

functions of these signals were obtained, which are represented in the form

$$R(\tau) = D [e^{-\alpha_1|\tau|} \cos \beta_1 \tau + \mu e^{-\alpha_2|\tau|} \sin \beta_2 \tau]$$

The authors present a table of coefficients α_1 , α_2 , β_1 , β_2 , μ , corresponding to the above-indicated signals.

EQUIPMENT

Gyroscopic

USSR

531.383

SEVEROV, L. A., SAVIN, N. S., DYAD'KIN, V. P.

"Errors of Adjustable Gyroscopic Devices With Limitation of Zone of Linearity of Adjustment Circuit"

Leningrad, IVUZ Priborostroyeniye, Volume 13, No. 2, 1970, pp 72-76.

Abstract: The errors of an adjustable gyroscopic device are analyzed. It is shown that saturation of the adjustment circuit has a filtering influence on perturbations applied to the sensing element.

Furthermore, it is shown that static errors of the device caused by perturbations applied to the gyroscope increase sharply when the adjustment circuit is saturated.

Forming

USSR

UDC 621.73.043

ATROSHENKO, A. P., SEDEL'NIKOV, YE. P., SHASTIN, E. G., and SEVEROV, M. A.

"Precise Barb Stamping of Turbine Blades"

Moscow, Kuznechno-Shtanpovochnoye Proizvodstvo, No 6, Jun 73, pp 1-4

Abstract: A study is made of precision stamping of turbine blades with minimum allowances for cutting (and in some cases allowance only for burnishing and finishing). The precision stamping represents a departure from stamping with the usual allowances, governed by GOST7505-55. The new technology involves hot-stamping crankshaft presses and is used to forge 212-mm-long turbine blades for the 16th working stage of the VT-100 turbine. Comparative data are presented for material expenditures under the old and new methods. Five figures, and one table.

1/1

USSR

UDC 911.3:616.981.452(575.4)

SOLDATKIN, I. S. and SEVEROVA, E. A.

"The Problem of Possible Development of Plague Epizootic Among Great Gerbils in the Winter"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 124-128 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.119) by B. Dobrokhotov

Translation: The climatic conditions of the Southern desert regions have a considerable influence on characteristics of development of plague epizootic. Propagation of Xenopsylla fleas proceeds here all year around, although with less intensity during the winter period. In the Meshched sands (Southwestern Turkmenia) an experiment in modeling the epizootic process was set up with radioactive isotopes. In winter, fleas feed on great gerbils; whereas in the northern regions of the desert, Rhadinopsylla and Paradoxopsyllus predominate, Xenopsylla and Coptosylla are the more effective plague vectors in the southern desert lands. A high intensity of transfer of labeled fleas among neighboring colonies was observed.

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- 35 -

Acc. Nr:

AP0055981

Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code:

418 0075

117189w Hydrogen catalytic wave in the presence of copper-
 (II) diethyldithiocarbamate. Vinogradova, E. N.; Drozdova,
 I. I.; Prokhorova, G. V.; Severova, L. A. (Moscow State
 Univ., Moscow, USSR). *Zh. Anal. Khim.* 1970, 25(1), 183-5
 (Russ). The complex compd. Cu(II) diethyldithiocarbamate
 (I) catalyzes the liberation of H on a dropping Hg electrode.
 The wave observed has a humplike shape, its height does not de-
 pend on the square root of the Hg column height. The wave
 height depends on the concn. of Cu(II), I, pH, and on the concn.
 of the supporting electrolyte. These relations are characteristic
 of the H catalytic waves. Chaim Weiner

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SEVERTSEV,

S.A.
UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, /- 70

241851 SHAFT AND SEAL is reliable and provides a tight seal. It consists of a fixed chromium silicon steel ring 1, encased (3) rotation carbon ring 2 and an elastic gland 4 held on the shaft 5 by a sleeve 6. Crimped spring 7 fitted on the sleeve pushes the rotating clamp 8 and gland 4. The gland section represents a ring, neck 9, radiused portion 10 which projects by 0.3 mm in front of the ring face and a cylindrical part 11. During the assembly, the air is forced out of the space 12 and the gland is sucked towards the ring 2.

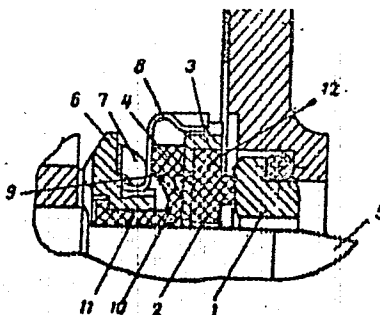
9.6.67. as 1163033/25-27. CHUGAEV, N.G. et al.
(2.9.69) Bul. 14/18.4.69. Class 47c, Int. Cl.
F 06d.

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19821392

AA0052654

Klincev, L. Ya.; Obukhov, N. Ya.; Lavrov, M. T.;
Antipenko, I. N.; Severtsev, S. A.



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SEVERTSOVA, M. K.

MEDICINE

1973
D
6000

И. В. Северцова
Институт микробиологии
Советского Союза

In the presence of S.A. Alkhanov, N.Ye. Golov, and of others (see introduction, p. 106), the authors, well defined immunological changes were observed in the course of the active and passive immunization of the population of the Republic of Dagestan, and in the prevention of measles.

The introduction of immunization of the population and of new methods of prevention of infectious diseases, especially in the case of measles, is a complex problem. In addition to the direct participation in the immunization of the population the agents of immunization, the biological properties of the vaccine, its immunogenicity, and its effect on the immune system of the recipient, and its effect on the course of the disease, are of great importance.

The problem of the present investigation was the study of immunological efficiency of the method of immunization of the population of the Republic of Dagestan with a vaccine which has been used in the country. The authors' research was carried out in the course of a long-term investigation of the immunization of the population of the Republic of Dagestan with a vaccine which was grown on a solid nutrient medium. The work with a concentrated preparation was carried out in the laboratory of the Institute of Microbiology of the USSR Academy of Sciences, and the work with a concentrated preparation of the vaccine was carried out in the laboratory of the Institute of Microbiology of the USSR Academy of Sciences. The laboratory work was carried out in the laboratory of the Institute of Microbiology of the USSR Academy of Sciences. The laboratory work was carried out in the laboratory of the Institute of Microbiology of the USSR Academy of Sciences.

For the present investigation a dry and wet vaccine prepared containing in 1.0 g of a dry preparation 1.5 g of active salmonella bacteria which was obtained by the attachment of the bacteria grown on solid nutrient medium (see Introduction). The vaccine was prepared with a dry nutrient medium in which the same amount contained concentrated antigen of salmonella bacteria which was prepared by the method of attachment of the bacteria grown in a fluid medium (see Introduction).

The concentration of the vaccine and the concentration of the active agent in the dry and wet vaccines were determined by means of a spectrophotometer (SP-1) with a monochromator and a filter of the type of the SPM-1 (Soviet Scientific Instrumental Institute of Epidemiology and Microbiology). The concentration was expressed

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84

either in milligrams of the vaccine or in units of antigenicity according to the formula

$$C = A \cdot 10^4 / V$$

where

- A - the amount of vaccine found in 1 ml of the bubbler (mg or U_{pr})
- V - volume of the fluid in the bubbler (ml)
- t - volume of air that passed through the bubbler in 15 minutes (lit.)

With consideration of the average volume of pulmonary ventilation of man during 15 minutes, the calculated inspired dose corresponded to the value (C = 150).

We found (Table 1) that the somewhat greater activity of vaccine P permits to produce a correspondingly large concentration of aerosol active substance in one liter of air with less sprayed suspension per 1 m³ of room. The possibility of assuring even concentrations of aerosol in U_{pr} with the atomization of equal amounts of antigenic units evidently proves identical volatile properties of both preparations.

Table 1

Vaccine Code	Amount sprayed per 1 m ³	U _{pr}	Vaccine concentration in 1 liter of air mg	U _{pr}
P	0.10	8,000	0.008	0.44
	0.15	12,000	0.0097	0.78
	0.20	16,000	0.0120	1.22
Zh	0.10	6,000	0.006	0.22
	0.15	9,000	0.0075	0.44
	0.20	12,000	0.0110	0.78

Considering however that the antigenic and immunogenic properties of inactivated vaccines do not correlate with such other characteristics as the immunological response after aerosol atomization in people with both preparations, as it can be seen from Table 1, the respective amount of these vaccines does not assure equal concentrations of the aerosol. Their obtainment is possible only with the spraying of equal amounts of antigenicity in U_{pr}. In connection with the various specific activity of vaccines P and Zh (U_{pr}/mg) we did not get information on the weight concentration but on the concentration expressed in antigenic units. The two preparations were compared according to the findings obtained after vaccination with equal aerosol amounts of the active principle (12,000 U_{pr} per 1 m³). Moreover, by knowing the higher immunogenicity of the P preparation in comparison with the Zh in animal experiments, we inoculated two groups of people (vaccine P) spraying a smaller amount of antigenic units (9000 and 5000) per 1 m³.

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CONDUCTING AEROSOL IMMUNIZATION UNDER FIELD CONDITIONS -U-

AUTHOR--(05)-VIKULOV, I.M., VORONTSOV, I.V., KREYNIN, L.S., SEVERTSOVA,
M.K., KAVERINAFIRGANG, K.G.
COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 1, PP 54-56

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AEROSOL IMMUNIZATION, TYPHOID FEVER, MILITARY MEDICINE,
BIOMEDICAL CHAMBER/(U)UST56 CHAMBER, (U)USB56 CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1314

STEP NO--UR/0177/70/000/001/0054/0056

CIRC ACCESSION NO--AP0136705

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136705

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. AEROSOL IMMUNIZATION AGAINST TYPHOID WAS CONDUCTED IN THE UST-56 CHAMBER (VOLUME 48.5 M PRIME3, AREA 22 M PRIME2) AND THE US8-56 CHAMBER (VOLUME 138.3 M PRIME3, AREA 58.5 M PRIME2). PEOPLE WERE EXPOSED TO AEROSOL TYPHOID VACCINES OF SERIES 21-65 AND 1-67 FOR 12-15 MIN. THE TEMPERATURE IN BOTH CHAMBERS BEGAN TO RISE IMMEDIATELY AFTER ENTRANCE OF PEOPLE (SEE TABLE 1), AND REACHED 28-30 C IN SPRING AND SUMMER AND 22-24 C IN FALL AND WINTER. RELATIVE HUMIDITY DID NOT INCREASE, BUT DROPPED SLIGHTLY THREE MINUTES AFTER THE START OF IMMUNIZATION AND REMAINED FAIRLY CONSTANT AT 64-72PERCENT. THE CONCENTRATION OF AEROSOL IN CHAMBERS IS SHOWN IN TABLE 3. THE DISTRIBUTION OF AEROSOL IN CHAMBERS IS SHOWN IN TABLE 4. SINGLE AEROSOL IMMUNIZATION WITH BOTH VACCINES IN THE UST-56 CHAMBER PRODUCED A STATISTICALLY RELIABLE INCREASE IN ANTIBODY TITERS. THE SAME RESULTS WERE OBTAINED AFTER IMMUNIZATION IN AN ORDINARY ROOM. THE FREQUENCY OF FEVER REACTIONS IN IMMUNIZED PEOPLE WAS TWO TO THREEPERCENT IN 12 HRS AND ONE TO TWOPERCENT IN 24 HRS, BOTH IN GROUPS INOCULATED IN CHAMBERS AND IN A ROOM. THERE WERE NO STRONG REACTIONS. A GROUP OF 2166 PEOPLE WAS INOCULATED IN THE UST-56 WITH VACCINES OF SERIES 21-65, AND A GROUP OF 1248 WITH SERIES 1-67. TWO PEOPLE (A PHYSICIAN AND HELPER) WERE ABLE TO INOCULATE 1248 PEOPLE IN A UST-56 CHAMBER IN 2 HRS, 40 MIN, AS COMPARED WITH THE NORM OF 150 STANDARD INOCULATIONS IN THE SAME PERIOD CONDUCTED BY SIX MEN. FACILITY: MEDITSINSKAYA SLUZHBA.

UNCLASSIFIED

Immunology

USSR

UDC 615.471:615.835.5

VORONTSOV, I. V., Lt. Col. Med Serv, SEVERTSOVA, M. K. SMIRNOVA, T. A., and
BIKULOV, I. M., Maj Med Serv.

"The Effectiveness of Aerosol Immunization"

Moscow, Voenno-Meditsinskiy Zhurnal, No 4, 1970, pp 71-74

Abstract: Two aerosol typhoid vaccines were made, one from bacteria grown on solid medium, and the other from bacteria grown in liquid medium and alcohol dried. All experimental subjects were of similar age, size, and had similar living conditions. They had been vaccinated with typhoid and paratyphoid strains six months before. A total of 241 received aerosol inhalation for 15 minutes (dry vaccine) and 243 were treated similarly with vaccine prepared from alcohol-dried cultures. The reaction of both groups was very much alike. Within 6-12 hours, a slight rise in temperature was noted in a small percentage of subjects. However, 24 hours after aerosol revaccination, all side reactions subsided. Immunological tests a month after vaccination showed a twofold increase in antibody titer. The findings were similar in both groups. However, a few subjects vaccinated with dry vaccine showed a slight increase in the titer of O-agglutinins. A single vaccination with dry typhoid aerosol produced a significant increase in antibody titers.

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Immunology

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USSR

UDC 615.47:615.835.5

BIKULOV, I. M., Maj Med Serv, VORONTSOV, I. V., Lt-Col Med Serv, KREYNIN, M. K., Lt-Col Med Serv, SEVERTSOVA, M. K., and KAVERINA-FIRGANG, K. G.

"Conducting Aerosol Immunization Under Field Conditions"

Moscow, Voyenno-Meditsinskiy zhurnal, No 1, 1970, pp 54-56

Abstract: Experiments were conducted to determine the possibility and advantages of conducting aerosol immunization against typhoid fever under field conditions in a tent. Dry aerosol typhoid-fever vaccines of series 21-65 and 1-67 were used. The preparations were atomized and dispersed with the help of a special device placed in the center of the tent. For comparative purposes, parallel dispersion of the dry vaccines was conducted under normal conditions in a room. Immunological shifts in people immunized were determined by titration of O-agglutinins and Vi-hemagglutinins before to and a month after immunization. Data obtained by both methods of immunization indicated that a considerable increase in the titer of protective antibodies was produced, and that there was practically no difference in the results obtained after immunization under normal

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USSR

BIKULOV, I. M., et al., Moscow, *Voyenno-Meditsinskiy Zhurnal*, No 1, 1970, pp 54-56

conditions in a room and under field conditions in a tent. The number of average temperature reactions was about the same, and no strong reactions were observed. Further investigations established that a brigade consisting of only two people -- a physician and registrar -- working in a tent and using the aerosol method, immunized an average of 1,248 people in a period of two hours and 40 minutes. A brigade of six people -- a physician, registrar, and four sanitary instructors, working continuously with a hypodermic could vaccinate only 150 people in the same period.

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USSR

UDC: 538.4

ALEKSANDROV, A. F., KUZOVNIKOV, A. A., RUKHADZE, A. A., and
SEVER'YANOV, V. V.

"Average Force Acting on a Non-Isothermic Plasma in a High-Frequency Field"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas -- collection of works) Minsk, "Nauka i tekhn." 1970, pp 144-148 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B43)

Translation: The problem of the interaction of a high-frequency field with a plasma is considered on the basis of the model of two-fluid hydrodynamics. The average force acting on the plasma is represented as a surface and volume force. It is shown that, at low frequencies of the field, the surface force is much greater than the volume force; at frequencies close to the Langmuir frequency for ions, the volume force is comparable with the surface force. Author's abstract

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- 69 -

ENGINEERING
Aeronautical and Space

USSR

B O O K

UDC 629.78.036.7(075.8)

GUROV, A.F., SEVRUK, D.D., SUPNOV, D. N.

KONSTRUKTSIYA I RASCHET NA PROCHNET' KOSMICHESKIH ELEKTRODARITEL'NYH DVIKATELEY
(Design and Calculation of Strength Of Electric Propulsion Systems for Space);
Moscow ("Mashinostroyeniye") 1970, 491 pp, illus, biblio, 2,500 copies printed

Authorized by the Ministry of Higher and Intermediate Special Education RSFSR as a textbook for the aviation VUZ. Gives general information, drawings, formulas, graphs, tables on design of electrical propulsion systems for space and calculation of their strength and vibrations, and an estimate of their reliability. Designs of nuclear reactors, isotope sources, solar concentrators and chemical fuel elements are discussed, as are various types of converters. Methods are discussed for computing the strength and vibrations of turbine buckets and wheels, the bearing capacities of hydrostatic bearings and the critical speeds of turbo-generators mounted on liquid metal bearings. The method of computing the anode block of a thermo-emission type converter is also discussed. Temperature stresses in various parts of the systems are emphasized.

The book is intended for use as a text and for reference by engineers and designers working in space engineering. Ye. A. Yakovlev is the editor.

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USSR
GEROV, A.F., SEVUK, D.D., SURICV, D. N., KONSTRUKTSIYA I RASCHET NA PROCHNOST'
KOSMICHESKIKH ELEKTROKAMENNYKH DVIGATELEY, K. 1970, 491 PP

<u>Contents</u>	<u>Pages</u>
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Chapter III. Converters Machine Converters, Thermo-emissive Converters, Thermoelectric and Photoelectric Converters	169-322 323-371
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Chapter V. Engines Plasma and Ion Thrusters	372-470
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USSR

UDC 531.383

BARANOV, I. A., KAN, S. G., SEVODIN, YE. P., YAKOVLEV, I. V., Moscow Aviation Engineering Institute

"Vibration of Gyromotors With Spherical Air Bearings"

Leningrad, Izvestiya vysshikh uchebnykh zavedeniy - Priborostroyeniye, No. 11, 1971, pp 86-88

Abstract: Comparative studies of the vibration parameters of gyromotors with air and ball bearings are reported. The studies were conducted on synchronous gyromotors with a kinetic moment of 500 g cm sec at a rotation rate of the rotor of 24,000 rev/min. The mean square value of the amplitude A_{Σ} of the axial and radial vibration acceleration was measured experimentally and the amplitude spectrum of the axial and radial vibration acceleration was recorded. A_{Σ} was measured in the three regimes of acceleration, working revolutions and coasting while the amplitude spectrum was taken only at working revolutions. The results showed that the vibrograms of the gyromotors with air bearings were considerably different from the vibrograms of gyromotors with ball bearings both qualitatively and quantitatively. Gyromotors with ball bearings showed a characteristic

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BARANOV, I. A., et al, Izvestiya vysshikh uchebnykh zavedeniy - Priborostro-
yeniye, No. 11, 1971, pp 86-88

smooth increase in the amplitude of A_z in the acceleration process and a decrease at the time of coasting with a small number of resonance peaks. At working revolutions, the amplitude A_z was not constant and varied over time. The amplitude A_z of gyromotors with air bearings rose sharply at startup as a result of dry friction in the bearings. After the formation of a supporting gas film in the bearing, A_z dropped sharply and then rises smoothly until the rotor goes into working revolutions. A similar picture, but in the reverse order, occurs at coasting. Both under acceleration and in coasting there are no clearly expressed resonance peaks, thus indicating the good damping properties of air bearings. The amplitude A_z of gyromotors with air bearings at working revolutions is 50-100 times less than the amplitude of A_z of gyromotors with ball bearings. The amplitudes of the components of the vibration spectrum are less by an order of magnitude.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

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235867 UNDERWATER HARD FACING of cast iron components ensures a minimum amount of surface melting of the component and prevents the refining of the cast iron by keeping the metal core of the electrode in continuous contact with the component and by letting the electrode describe a reciprocating motion. 3.8.66. as

1095233/25-27. N. SEVOSTYANOV (12.6.69.) Bul.6/24.1.69. Class 21h. Int.Cl. B23k.

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USSR

UDC:533.0.011.35

SEVOST'YANOV, G. D., Saratov

"Flat, Vortex Transsonic Flows of an Ideal Gas"

Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 105-109

Abstract: Equations are produced for flat, transsonic vortex adiabatic (nonisenergetic and nonisentropic) flows of an ideal gas, using the natural coordinates $\phi\psi$ ($\psi=\text{const}$ is the set of flow lines, $\phi=\text{const}$ is the set of lines orthogonal to them). The condition of similarity of the transsonic flow of gas to a homogeneous sonic flow is not applied (conclusions are given without ϵ estimates). The solutions of the equations produced are presented and studied, describing the vortex flow within a Laval nozzle and near the sonic boundary of a free stream.

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USSR

OVCHARENKO, A., SEVOST'YANOV, K.

"Basic Areas and Procedures of Oil and Gas Exploration in Sakhalin, Kamchatka and the Northeastern Part of the USSR"

Moscow, Geologiya nefi i gazi, No 6, 1972, pp 76-78

Abstract: A meeting of the petroleum, gas and geophysics sections of the Geological Appraisal Council of the RSFSR Ministry of Geology on the basic areas and procedure of oil and gas exploration operations in Sakhalin, Kamchatka and the northeastern part of the USSR was held from 24 May to 23 May 1971 in Yuzhno-Sakhalinsk. The conclusions drawn from the reports given at that meeting are summarized. The geological structure of Southern Sakhalin is very complex, and there were noteworthy oil and gas shows the data on which are presented. In Kamchatka, the most prospective areas are the Kolpak Basin and the Tigil' Fold. Results are presented from concentrated drilling in the Anadyr Basin in the northeastern part of the USSR. Several anticlinal zones were established on the Western Kamchatka Shelf. A large anticlinal fold was mapped on the Bering Sea 30 km northeast of Khatyrka. The most prospective for deep drilling was the Sakhalin Shelf where 30 prospective structures were discovered. Recommendations were made with respect to each of the investigated areas for further development of the oil and gas extraction industry and geological exploratory operations. These recommendations are listed.

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1/2 014

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--TECHNOLOGICAL IMPROVEMENT OF THE PROCESS FOR REMOVAL OF HYDROGEN SULFIDE FROM COKE OVEN GAS -U-

AUTHOR--(03)-ROTT, A.V., SEVOSTYANOV, V.N., SHUKH, YA.I.

COUNTRY OF INFO--USSR

S

SOURCE--KOKS KHIM. 1970, (3), 33-8

DATE PUBLISHED-----70

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

TOPIC TAGS--HYDROGEN SULFIDE, CARBONATE, SULFURIC ACID, CHEMICAL SYNTHESIS, SULFUR DIOXIDE, COKE, INDUSTRIAL FURNACE, INDUSTRIAL WASTE, AIR POLLUTION CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1407

STEP NO--UR/0068/70/000/003/0033/0038

CIRC ACCESSION NO--AP0109469

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN A PLANT BUILT IN 1960 FOR REMOVAL OF H SUB2 S FROM COKE OVEN GAS, VACUUM CARBONATE METHOD WAS USED AND H SUB2 SO SUB4 WAS SYNTHESIZED BY WET CATALYSIS. ALTERATIONS FOR CONTINUOUS OPERATION INTRODUCED CHARACTERISTICS THAT REDUCED THE EFFICIENCY. THE PROCESS WAS ACCORDINGLY IMPROVED BY A SERIES OF MAJOR MODIFICATIONS. THESE INCLUDING SUBDIVIDING THE COOLER INTO SECTIONS FOR SELECTIVE USE; INCREASING THE WATER FLOW AND PROVIDING FOR ITS PURIFICATION AND REPLENISHMENT; REPLACING THE CAST IRON RADIATORS OF THE COOLER FOR THE ABSORBENT SOLN. WITH TUBULAR CONDENSERS AND INCREASED COEFF. OF HEAT TRANSFER; CAULKING THE SEAMS OF THE ACID COOLER TUBES WITH CEMENT AND RECORDING THE SOLN. ACIDITY; AIR BLOWING OF THE CATALYST FOR SO SUB2 OXIDN.; ELIMINATION OF EQUIPMENT BY IMPROVED SO SUB2 CIRCULATION; PROVIDING FOR STEADY OPERATION OF THE ELECTROSTATIC FILTERS; AND REARRANGING THE EQUIPMENT TO REDUCE CORROSION. THESE MEASURES RAISED THE VACUUM AND THE H SUB2 SO SUB4 YIELD; REDUCED THE REQUIREMENTS FOR CIRCULATING WATER BY 30-40PERCENT; THE LOADING ON THE EVAPORATORS, AND THE REQUIREMENTS FOR FREQUENT MAINTENANCE. FACILITY: RUTCHENKOVSK, KOKSOKHIM. ZAVOD., USSR.

UNCLASSIFIED

USSR

UDC 546.651+541.49

KHRAMOV, V. P., IVANOV, A. B., and SEVCST'YANOV, V. P., Saratov Institute for the Mechanization of Rural Farming imeni M. I. Kalinina

"Physical Chemical Studies of Some Rare Earth Ethylenediaminediisopropylphosphonates Having the Formula $KLnR \cdot nH_2O$ "

Ivanov, Khimiya i Khimicheskaya Tekhnologiya, Vol 16, No 1, 1973, pp 18-21

Abstract: A study was made of salts having the general formula $KLnR \cdot nH_2O$ -- where $R = C_8H_{18}O_6N_2P_2$, $n = 6$ for Ce and Pr, 7 for Nd, and 8 for La and Sm -- using thermogravimetric, IR, and x-ray analyses. Diagrams are given for the former and the spectra for the latter two techniques. Partial dehydration reduced n to 3 for all 5 rare earth elements (REE). The thermolysis of the REE complexes occurred in two steps: the first from 55 - 180°C, the second from 270 - 310°C. The x-rays indicate that the obtained salts are rather more amorphous than H_4R . Analysis of vibrations in the infrared region shows that the metal coordinates with five atoms of oxygen from the phosphoryl group and three molecules of water. The potassium ion is bonded to six atoms of oxygen; also H_4R has a higher coordination number (in this case, 6) than has been reported in the literature.

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JPRS 49937

Radar Observations in Gissarskaya Valley

(Abstract: "Some Results of Radar Observations in the Gissarskaya Valley,"
by T. V. Sevost'yanova and G. K. Sulakvelidze; --, Trudy Vysokogornogo
Geofiz. Instituta, No 14, 1969, pp 167-168)

/From: Moscow, Referativnyy Zhurnal, Geofizika, Svodnyy Tom, No 1, 1970,
IB957

The following hail danger criteria were obtained on the basis of observations of 197 zones of radar reflections: 1) The maximum altitude of radar echoes must not be lower than 7-8 km. 2) The temperature at the level of the maximum altitude of the radar echoes must not be above -28° . 3) The thickness of the zone of increased reflectivity must be less than 3.5 km. 4) More than half the thickness of the zone of increased reflectivity must be situated in the region of negative temperatures. 5) The temperature at the upper boundary of the zone of increased reflectivity must not be greater than -14° . 6) The level of maximum radar reflectivity must be situated above the zero isotherm. 7) The altitude of the level of maximum reflectivity must not be below 5-3.5 km.

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UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--NITRATION OF IODO DERIVATIVES OF IMIDAZOLE -U-

AUTHOR--(05)--NOVIKOV, S.S., KHMELNITSKIY, L.I., LEBEDEV, O.V., YEPISHINA,
L.V., SEVOSTYANQVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--KHM. GETEROTSIKL. SOEDIN. 1970, (5), 664-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, IODINATED ORGANIC COMPOUND, IMIDAZOLE, ORGANIC
NITRO COMPOUND, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/E01 STEP NO--UR/0409/70/000/005/0664/0668

CIRC ACCESSION NO--AP0140303

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PROCESSING DATE--04DEC70

2/3 021

CIRC ACCESSION NO--AP0140303

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE ACTION OF HNO SUB3 OF DIFFERENT CONCNS. (3, 50, AND 100PERCENT) ON IODOIMIDAZOLES, IODINE IS SUBSTITUTED BY THE NO SUB2 GROUP AT THE 2 POSITION, WHICH IS INACTIVE IN ELECTROPHILIC SUBSTITUTIONS IN ACID MEDIUM; 3PERCENT HNO SUB3 DOES NOT GIVE ANY NITRO DERIV. WITH TRIIODOIMIDAZOLES. HNO SUB3-H SUB2 SO SUB4 ALSO SUBSTITUTES IODINE, BUT AT THE 4(5) POSITION.

2,4(5),DINITRO,5(4),IODOIMIDAZOLE (I) WAS PREPD. BY THE FOLLOWING 4 NITRATION ROUTES: (A) 2,4,5,TRIIODOIMIDAZOLE (II) (M. 191-20DEGREES) (1 G) WAS ADDED TO 40 ML HOT HNO SUB3 (D 1.32), AND THE MIXT. BOILED UNTIL IODINE VAPOR CEASED TO EVOLVE; THE REACTION MIXT. FROM 14 RUNS, COMBINED AND WORKED UP, GAVE 8 G I, M. 216-18DEGREES; (B) 1,2,4,5,TETRAIODOIMIDAZOLE (III) (0.8 G) WAS BOILED WITH 50 ML HNO SUB3 (D 1.32) TILL IODINE CEASED TO EVOLVE; III WENT INTO SOLN., AND A YELLOW PPT. OF 1,2,5(5),TRIIODO,5(4), NITROIMIDAZOLE (IV) FORMED, WHICH IN TURN ALSO WENT INTO SOLN. SLOWLY; WORKUP GAVE 0.2 G I; (C) REACTION OF 2,4(5),DIIODOIMIDAZOLE WITH HNO SUB3 IN CONDITIONS ANALOGOUS TO (A) GAVE 40PERCENT I; (D) SIMILARLY, TREATING 0.43 G 2,3,DIODO,5,NITROIMIDAZOLE (V) WITH 20 ML HNO SUB3 GAVE 70PERCENT I. SLOW HEATING OF 1 G II WITH 40 ML HNO SUB3 (D 1.32) GAVE 0.22 G IV, M. 350DEGREES. ADDN. OF 0.7 G IV TO 100 ML 10PERCENT KI CAUSED DISSOLN. AND EVOLUTION OF IODINE; WORKUP GAVE 1.9 G V M. 225-6.5DEGREES, ALSO PREPD. IN 55PERCENT YIELD BY ADDING DROPWISE 0.4 ML HNO SUB3 (D 1.5) TO A COOLED SOLN. OF 4.46 G II IN 40 ML CONCD. H SUB2 SO SUB4, DECOMPG. THE REACTION MIXT. WITH H SUB2 O, AND WASHING WITH KI SOLN. TO REMOVE IODINE.

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3/3 021

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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AF0140303

ABSTRACT/EXTRACT--A MIXT. OF 5 G I AND 40 ML HNO SUB3 (D 1.5) WAS BOILED 10 MIN TO GIVE 67PERCENT 2,4,5,TRINITROIMIDAZOLE M. 232-50DEGREES, ALSO OBTAINED FROM II AND III IN 26 AND 15PERCENT YIELDS, RESP., BY SIMILAR TREATMENT. TO A SOLN. OF 3.2 G 2,4(5),DIIGDOIMIDAZOLE IN 40 ML CONCD. H SUB2 SO SUB4 WAS ADDED DROPWISE IN THE COLD 0.4 ML HNO SUB3 (D 1.5) TO GIVE 1.5 G 2, IODO,4(5),NITROIMIDAZOLE (VI), M. 277-80DEGREES, ALSO OBTAINED IN 40PERCENT YIELD BY ADDING 3 ML HNO SUB3 (D 1.5) DROPWISE TO A SOLN. OF 0.5 G 2, IODOIMIDAZOLE IN 30 ML CONCD. H SUB2 SO SUB4, THEN HEATING TO 170DEGREES. HEATING VI 20 MIN AT 180DEGREES WITH H SUB2 SO SUB4, HNO SUB3 NITRATING MIXT. GAVE 20PERCENT 4,5,DINITROIMIDAZOLE, M. 187-80DEGREES.

FACILITY: INST. ORG. KHIM. IM. ZELINSKOGG, MOSCOW, USSR.

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1/2 008

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PROCESSING DATE--30OCT70

TITLE--SYNTHESIS AND SOLVOLYSIS OF SOME DERIVATIVES OF I BROMOMETHYL
ADAMANTANE -U-

AUTHOR--(03)-DANILENKO, G.I., KRAYUSHKIN, M.M., SEVOSTYANOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 444-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, BROMINATED ORGANIC COMPOUND, ADAMANTANE,
HYDROXYL RADICAL, SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1997/0849

STEP NO--UR/0062/70/000/002/0444/0445

CIRC ACCESSION NO--AP0119753

UNCLASSIFIED

2/2 008

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119753

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING
 1, PHENYL, 3, ADAMANTANECARBOXYLIC ACID WITH MEOH CONCD. H SUB2 SO SUB4 4
 HR GAVE 90PERCENT ME ESTER, B SUB1 169-70DEGREES, WHICH LIALH SUB4-ET
 SUB2 O 1 HR GAVE 92PERCENT 1, PHENYL, 3, (HYDROXYMETHYL) ADAMANTANE, M.
 73-4DEGREES. THIS 45PERCENT HBR IN ACOH GAVE THE 3, (BROMOMETHYL)
 ANALOG, M, 72-3DEGREES. HEATING 1, BROMO, 3, (BROMOMETHYL) ADAMANTANE 3
 HR AT 100DEGREES WITH 85PERCENT HCO SUB2 H GAVE 85PERCENT 1, HYDROXY, 3,
 (BROMOMETHYL) ADAMANTANE, M 88DEGREES, WHICH REFLUXED WITH SOCL SUB2 0.5
 HR GAVE 1, CHLORO, 3, (BROMOMETHYL) ADAMANTANE, M 104DEGREES. 1, BROMO, 3,
 (BROMOMETHYL) ADAMANTANE IN COND. H SUB2 SO SUB4 WAS TREATED AT
 0DEGREES WITH CL SUB2 C:CH SUB2 AND KEPT 1 HR AT ROOM TEMP. TO GIVE
 65PERCENT 1, (BROMOMETHYL) 3, ADAMANTANECETIC ACID, M 124-5DEGREES,
 WHICH WAS CONVERTED AS ABOVE INTO ME ESTER, B SUB2 113-15DEGREES.
 KINETIC DATA ARE REPORTED ON THE SOLVOLYSIS OF 3 SUBSTITUTED 1,
 (BROMOMETHYL) ADAMANTANES IN 80PERCENT AQ. DIOXANE AT 150DEGREES (CF. K.
 ET AL., 1969); RATE CONSTS. (K TIMES 10 PRIMES MIN PRIMENEGATIVE)
 WERE TABULATED FOR INDICATED SUBSTITUENTS: H, 3.47; PH, 2.34; OH, 1.89;
 P, O SUB2 NC SUB6 H SUB4, 1.43; CO SUB2 H, 1.46. FACILITY: INST.
 ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

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USSR

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UDC 621.791.79

PATON, B. YE. (Academician), MEDOVAR, B. I. (Corresponding Member, Academy of Sciences Ukrainian SSR), SAFONNIKOV, A. N. (Cand. of Techn. Sciences), SEVRUK, A. N., and YEMEL'YANENKO, Yu. G. (Engineers)

"New Electroslag Welding Method"

Moscow, Svarochnoye proizvodstvo, No 6, June 72, pp 16-17

Abstract: Described is a new method for enlarging castings of nearly unlimited cross sections. The method involves the use of two advanced technological processes--electroslag remelting and electroslag welding. The test specimens were castings from 25KIN3MFA rotor steel produced by electroslag remelting. The castings were 1200 mm in diameter and weighed 14 tons. The electrode metal was of the same heat as the castings. The new electroslag welding technique does not require preheating. Mechanical property tests failed to reveal any differences between the base and the weld metal. Plant tests confirmed the superiority of the new method over all others currently in use with respect to simplicity and reliability. The new technique will be chiefly used for producing rotor shafts from individual castings and has been patented in a number of Western countries.
(5 illustrations, 3 tables)

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USSR

UDC 661.183.123

PLACHENOV, T. G., GUR'YANOV, V. V., ~~SEVRYUGOV, L. B.~~, and MUSAKIN, G. A.

"Porous Structure and Molecular-Sieve Properties of Activated Hydrocarbon Adsorbents From Industrial Fuxyl Resin FL-2

Leningrad, Zhurnal Prikladnoy Khimii, Vol 44, No 11, Nov 71, pp 2498-2503

Abstract: Conditions prevailing during activation of carbon obtained by carbonization of thermosetting fuxyl resin, using optimal quantity of an acid catalyst, were studied in respect to their effect on the porous structure and adsorptive properties of the material. Carbon activation was performed by CO₂ in a stationary phase at temperatures of 700-850°. It has been shown that such activation up to 40% charring leads to development of microporous structure only, producing adsorbents with high dynamic activity towards benzene vapors. Lowering the activation temperature results in a more uniform development of the microporous structure due to predominant opening of the pore volumes of the molecular dimensions of the starting charcoal. Hydrocarbon adsorbents activated with CO₂ to low charring at temperatures up to 800° show highly selective molecular sieve properties.

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