

SAVILOV, A.A.

SPRS 56.459
14 JULY 72

75

STUDY OF THE HUMAN CARDIOVASCULAR SYSTEM REACTION WHEN
PERFORMING FUNCTIONAL TESTS DURING A YEARLONG EXPERIMENT

Article by G. A. Kapotitsky and A. A. Savilov, Moscow, USSR, in
Izvestiya Vsesoyuznogo Nauchnogo Tsentra Akademiya Nauk SSSR (Bulletin of the
USSR Academy of Sciences, Division of Biological and Medical Sciences), 1971, pp 187-
189.

The objective of our study was an investigation of the
orthostatic stability and physical performance of subjects
during a yearlong experiment in a ground experimental com-
plex of life support systems. The conditions for this experi-
ment have been set forth in detail in a study published ear-
lier by A. I. Burnazyan, Ya. G. Hefedov, et al. (1969). As the
tasks used in determining the functional state of the cardio-
vascular system in these subjects we employed a 30-minute ac-
tive orthostatic test (before and after the experiment) and
a test with a maximum, stoplike-increasing load (work on a
bicycle-type ergometer, conducted during different phases of
the experiment). When conducting the functional tests we re-
corded the pulse rate, arterial pressure, and ECG (standard
and chest leads), and investigated the changes in the circum-
ference of the chest and the cardiac stroke and minute volumes.

The results obtained by conducting load tests made it
possible to detect individual signs of reactions to a physi-
cal load during the first months of confinement in the life-
support chamber there was an increase in the physical condition-
ing of the subjects. During the second half of the experi-
ment there was a tendency to a decrease in the total amount
of work performed and in an increase in the degree of exhaus-
tion of changes in the registered indices. The decrease in
physical performance was most clearly expressed during the
period when emergency situations were simulated.

SAVIN, B.M.

Bats

JPRS 56073
23 May 1972

UDC 591.185.1+591.185.5
SPATIAL ORIENTATION OF BATS UNDER THE INFLUENCE OF INCREASED GRAVITY

[Article by B. M. Savin, V. N. Kozlov, B. M. Savin; Moscow, Doklady Akademiya Nauk SSSR, Russian, No 3, 1971, submitted 17 February 1971, pp 723-725]

Bats orient themselves in space mainly by echolocation [1]. Presumably, during flight this mechanism must interact closely both with the functional system of acceleration to ensure the perception of body position in space and with the accelerations caused by change in direction and speed of flight [2, 3]. However, no experimental data are available as yet on this matter. One possible way of studying it is to determine the nature of spatial analysis in echolocating animals after sharp functional changes in their acceleration system resulting from exposure to increased gravity.

Chronic experiments were carried out on two bat species, Myotis myotis and Myotis blythii. Increased gravity (hypergravity) was created by rotation on a centrifuge with a radius of 2 m. The animals were subjected to single or series (of 4 rings) acceleration in two directions: head - pelvis (0°) or pelvis - head (180°) - at intensities of 25 to 120 g lasting 15 or 60 seconds. The acceleration increase gradient (Δg) was 5 to 6 g/sec while the deceleration gradient was 10 to 12 g/sec. The animals were kept in form-fitting containers in the centrifuge in order to prevent local accelerations.

The effect of preceding hypergravity on spatial analysis was judged from the ability to detect and overcome obstacles in the form of some wires of threshold(?) diameter (0.11 to 0.14 mm) strung vertically. The distance between them in the experiments with M. myotis and M. blythii was 50 and 25 cm, respectively. The ratio of correct (without touching) and wrong (touching the wires) flights through the barrier served as an indicator of the state of spatial analysis. The threshold values of the diameter of the wires (75% significance) found by each of the experimental animals were determined in control experiments and before each exposure to acceleration. The animals' reaction to hypergravity was assessed from their general condition and behavior as well as from the coordination of

UDC 611:613.73

USSR

DYSKIN, Ye. A., and SAVIN, B. M. Military Medical Academy Order of Lenin Red
Banner imeni S. M. ~~Korov~~ Leningrad

"Certain Problems in the Method for Investigating the Effects of Gravitational
Loads"

Leningrad, Arkhiv Anatomii Gistologii i Embriologii, Vol 59, No 7, 1970, pp 106-113

Abstract: Experiments were conducted on cuts to analyze certain aspects of gravi-
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be as important a factor as the value, length, and direction of the load. Physio-
logical studies with animals show that load build-up and dissipation are of ex-
treme importance in gravitational effects. When cats are used, the centrifuge
radius must be at least 1.5 to 2 m. A special container was designed to keep the
body of the test animal in an exact position with respect to the acting forces, so
that local loads are eliminated. The animals were familiarized with the test
apparatus before they were subjected to the tests. Three test series were run to
study the structure of vascular and nerve formations in animals subjected to ap-
plied gravitational loads.

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UDC 612.821:613.693+629.198.61

SAVIN, B. M., *Gipervesomost' i Funktsii Tsentral'noy Nervnoy Sistemy* (Hypergravity and Functions of the Central Nervous System), Leningrad, "Nauka", 1970, pp 2,282-283 pp

Translation: Annotation: The book contains both purely phenomenological descriptions of changes in the functional condition of various branches of the central nervous system under the influence of acceleration and also an analysis of the changes in the light of modern neurophysiological data. The state of conditioned reflexes, conditioned reflex activity, and also spontaneous and induced bioelectrical activity of various parts of the brain is examined. A number of new concepts of the mechanism of disruption of activity of the optical analyser and cortical dynamics are advanced. For the first time data on the effect of natural and artificial gravitation on the development of a number of functions and structures of the organism are presented in a systematic manner.

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SAVIN, B. M., Gipervesomost' i Funktsii Tsentral'noy Nervnoy Sistemy, Leningrad, "Nauka", 1970, p 2, 282-283 pp

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"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002202810017-8

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002202810017-8"

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Bats

SPATIAL ORIENTATION OF BATS UNDER THE INFLUENCE OF
Article by E. Sh. Arapov, V. M. Zverev, S. M. ...
Doklady Akademi Nauk SSSR, Russian, no 3, 1972, submit
pp 723-725

Bats orient themselves in space mainly by echolot
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speed and with the accelerations caused by change in dir
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spatial analysis in echolocating animals after sharp fin
their acceleration system resulting from exposure to fast

Chronic experiments were carried out on two bat
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UDC 611:613.73

DYSKIN, Ye. A., and SAVIN, B. M. Military Medical Academy Order of Lenin Red Banner ineni S. M. ~~Meditsina~~ Leningrad

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Leningrad, Arkhiv Anatomii Gistologii i Embriologii, Vol 59, No 7, 1970, pp 106-113

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SAVIN, B. H., Gipervesomost' i Funktsii Tsentral'noy Nervnoy Sistemy,
Leningrad, "Nauka", 1970, p 2, 282-283 pp

Comparative Analysis of the Effect of Accelerations
and Acute Oxygen Deprivation on the Functional Condition of
the Different Parts of the Optical Analysor

Concerning the Neuroreflex Mechanism of Optical Dis-
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JSSR

UDC 612.824.014.477-063

SAVIN, B. M., KUZOVKOV, A. G., and IVANOV, B. M., Chair of Normal Physiology, Military Medical Academy imeni S. M. Kirov

"Acid-Base Balance and Gas Tension in the Cerebrospinal Fluid and Blood After Accelerations in Different Directions"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1970, pp 34-39

Abstract: Exposure of rabbits to a series of accelerations (5 G) in the head-pelvis direction lowered the sodium bicarbonate level and pCO_2 of arterial blood. Acceleration increased the pCO_2 , but had no effect on the bicarbonate level in venous blood. Acceleration increased the pCO_2 , bicarbonate level, and buffer bases in the cerebrospinal fluid. However, these effects did not significantly alter the pH of these fluids. Repeated exposure of the animals to the same accelerations (5 series over 5-7 days) had the same effect on the arterial blood and cerebrospinal fluid pH as did exposure to a single series, but the pH of venous blood flowing from the brain was reduced while the pCO_2 was reduced. Acceleration in the pelvis-head direction
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SAVIN, B. M., et al., Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1970, pp 34-39

caused more pronounced shifts in the acid-base balance in the blood and cerebrospinal fluid, and disrupted oxygen supply of brain tissues. Decompensated metabolic acidosis developed in the blood. Although there were changes in the components of the acid-base balance in the cerebrospinal fluid, they did not significantly affect its pH. Thus, regardless of the acceleration vector, the pH of brain fluids remained within normal limits due to the active role played by the blood-brain barrier.

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Acc. Nr:

AP0052076

Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i
Eksperimental'naya Terapiya, 1970, Vol 14,
Nr 1, pp 34-39

ACID-BASE BALANCE AND GASEOUS TENSION IN THE CEREBROSPINAL FLUID
IN OVERLOADS OF VARIOUS DIRECTION

B. M. Savin, A. G. Kuzovkov, B. M. Ivanov

Single action upon rabbits of a series of overloads (5 g) in the head-pelvis direction causes a fall of standard bicarbonates and of pCO_2 in the arterial blood. pCO_2 increases in the venous blood, but bicarbonates remain at the previous level; as to cerebrospinal fluid, there is a rise of bicarbonates, pCO_2 and of buffer base. These shifts do not lead to statistically reliable changes of pH of the media under study. pH of arterial blood and of cerebrospinal fluid remains the same in repeated actions of overloads; but it falls in the blood flowing from the brain. Overloads in the pelvis-head direction are accompanied by more marked changes of the acid-base balance in the blood and cerebrospinal fluid, as well as by considerable disturbances by oxygen supply of the brain tissues. Decompensated metabolic acidosis develops in the blood; no marked shifts are seen in the pH of cerebrospinal fluid, despite the changes in the components of the acid-base balance.

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--STEROIDS CONTAINING HETEROATOMS IN THE NUCLEUS OR SIDE CHAIN OF THE
MOLECULE -U-
AUTHOR--(03)-ZHUNGIYETU, G.I., DOROFYENKO, G.N., SAVIN, B.M.
COUNTRY OF INFO--USSR
SOURCE--USP. KHIM. 1970, 39(4), 646-61
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHEMICAL SYNTHESIS, HORMONE, CHOLESTEROL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0259 STEP NO--UR/0074/70/039/004/0646/0661
CIRC ACCESSION NO--AP0120949
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120949

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 79 REFERENCES THROUGH 1966 COVERING METHODS OF SYNTHESIS OF STEROIDAL COMPS. CONTG. N, O, AND S ATOMS. THE BIOL. ACTIVITY OF SUCH COMPS. IS DISCUSSED BRIEFLY; COMPS. WITH N AND O ATOMS IN THE SIDE CHAIN TEND TO INTERRUPT THE SYNTHESIS OF CHOLESTEROL AT THE 24 DIHYDROCHOLESTEROL STAGE AND LEAD TO AN ACCUMULATION OF THIS IN THE BLOOD. FACILITY: INST. KHIM., KISHINEV, USSR.

UNCLASSIFIED

USSR

UDC: 627.833.002.72+627.881.002.72+
621.87.002.72

Savin, D. M., Chief Project Designer

"Mechanical Equipment of the Krasnoyarsk Hydroelectric Power Plant"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No. 9, Sep 72, pp. 24-29.

Abstract: the mechanical equipment of the power plant was designed by the "Lengidrostal" special design bureau and amounted to over 60,000 tons of steel equipment. This article briefly describes the equipment installed during construction and after construction of the concrete structures the the plant. Cross-sectional diagrams of some of the equipment are presented. Several innovations were used in construction and installation of the mechanical equipment, including placement of stand pipes at the lower edge of the dam so as to simplify the concrete pouring operations by eliminating the necessity of planning for the time required to install the pipes, installation of gates so that they are raised by cranes rather than bars, provision of areas for anti-corrosion protection of equipment, equipped with modern cleaning and painting apparatus, and use of highly mechanized transportation and installation equipment throughout construction and installation.

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USSR

UDG 537.311.33

BOLTAKS, B.I., SAVIN, E.P.

"Effect Of Neutron Irradiation On The Electrical Properties Of Indium Arsenide"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 116-123 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B44)

Translation: It is shown that during irradiation of n-type InAs, the concentration of electrons is increased but irradiation of p-type specimens leads to a decrease of the concentration of holes, and with a certain dose of neutron (depending on the initial concentration of holes in the specimen) p-type material is converted to n-type. With sufficiently large integrated fluxes, the concentration of electrons does not depend on their magnitude, which attains a limiting value of $\sim 2 \cdot 10^{18} \text{ cm}^{-3}$ (at room temperature). The electrical characteristics (electrical conductivity and Hall effect) of irradiated specimens were investigated in the temperature range 80--600° K, and annealing of radiation defects was also studied. On the basis of the results obtained, the problem is considered of the nature of the defects originating during irradiation and their effect on the concentration and mobility of current carriers. 5 ill. 6 ref. Summary.

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1/2 051 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EFFECT OF NEUTRON IRRADIATION ON THE DIFFUSION OF ZINC IN INDIUM
ARSENIDE -U- S
AUTHOR--(02)-BOLTAKS, B.I., SAVIN, E.P.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 567-8
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--NEUTRON IRRADIATION, ZINC, RADIATION EFFECT, SINGLE CRYSTAL,
ELECTRON MOBILITY, ELECTROMOTIVE FORCE, INDIUM ARSENIDE, ELECTRIC
CONDUCTIVITY, METAL DIFFUSION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--198R/0819 STEP NO--UR/04497/07004/003/0567/0568
CIRC ACCESSION NO--AP0105724
UNCLASSIFIED

272 051

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

CIRC ACCESSION NO--AP0105724

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTAL N-TYPE INAS SAMPLES WITH 5 TIMES 10 PRIME16 ELECTONS-CM PRIME3 AND A MOBILITY OF 25,000 CM PRIME2-V SEC WERE IRRADIATED WITH 5 TIMES 10 PRIME16 FAST NEUTRONS-CM PRIME2 AT 150DEGREES IN A REACTOR BEAM HOLE. AFTER IRRADN., THE ELECTRON CONCN. WAS 2 TIMES 10 PRIME17 CM PRIME3. ZN WAS DIFFUSED INTO THE SAMPLES IN AR FILLED SID SUB2 TUBES AT 800DEGREES; THE CONCENTRATIONAL ZN DISTRIBUTION WAS DETD. BY MEASURING THE ELEC. COND. OF THE DIFFUSION LAYER WITH SUBSEQUENT REMOVAL OF THIN LAYERS AND BY THE SIMULTANEOUS DETN. OF THE COND. TYPE THROUGH THE THERMAL EMF. SIGN. AFTER IRRADN., THE DEPTH OF THE P-N JUNCTION WAS 60 MU LESS THAN BEFORE, IMPLYING A DECREASED DIFFUSION COEFF. THE EFFECT IS EXPLAINED BY ASSUMING A DISSOCIATIVE DIFFUSION MECHANISM, WHERE THE ATOMS ARE MOVING THROUGH INTERSTICES, WITH SUBSEQUENT CAPTURE BY VACANCIES.

UNCLASSIFIED

USSR

UDC 539.3

SAVIN, G. M., Academician of the Academy of Sciences Ukrainian SSR, and
PELEKH, B. L., Institute of Mechanics, Academy of Sciences Ukrainian SSR,
Physicomechanical Institute, Academy of Sciences Ukrainian SSR

"Analogy Between Boundary Value Problems of the Bending of Transverse-
Isotropic Plates and Plane Asymmetric Theory of Elasticity"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A -- Fizyko-Technichni
ta Matematychni Nauky, No 2, Feb 71, pp 166-168

Abstract: The article uses the analogy

$$w \leftrightarrow -\Phi, G \leftrightarrow -\Phi_1, \varphi \leftrightarrow F_1, \delta^2 \leftrightarrow n^2, \varepsilon \leftrightarrow \frac{m^2}{h^2}$$

to establish the equivalence of the fundamental equation of the plane
problem of the asymmetric theory of elasticity

$$\Delta\Delta\Phi_1 = 0, \Delta F_1 - n^2 F_1 = 0$$

and the fundamental equation of the problem of the bending of transverse-
isotropic plates

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$$\Delta\Delta G = 0, \Delta\varphi - \delta^2 \varphi = 0$$

USSR

SAVIN, G. M., and PELEKH, B. L., *Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky*, No 2, Feb 71, pp 166-168

as well as the equivalence of the respective boundary conditions

$$\frac{\partial \Phi_1}{\partial y} - \frac{\partial F_1}{\partial x} = \int_L X_n ds + C_1,$$

$$\frac{\partial \Phi_1}{\partial x} + \frac{\partial F_1}{\partial y} = - \int_L Y_n ds + C_2, \quad - \frac{m^2}{n^2} \frac{\partial}{\partial s} \Delta \Phi_1 + \frac{\partial F_1}{\partial n} = M_n.$$

and

$$\omega = \omega', \quad \gamma_n = \gamma_n', \quad \gamma_s = \gamma_s'.$$

2/2

1/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CERTAIN DEVELOPMENTAL TRENDS IN MODERN SOLID STATE MECHANICS OF
DEFORMABLE MEDIA -U-
AUTHOR--SAVIN, G.N. S
COUNTRY OF INFO--USSR
SOURCE--RESPUBLIKANSKA I KONFERENTSIJA MOLODYKH UCHENYKH PO MEKHANIKE
RVEROLGO DEFORMIROVANOGO TELA, 1ST, KIEV, UKRAINIAN SSR, OCT 1, 1969
DATE PUBLISHED--APR70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SCLID MECHANICS, METAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1970

STEP NO--UR/0198/70/006/000/0016/0022

CIRC ACCESSION NO--AP0125559

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125559

ABSTRACT/EXTRACT--(U) CP-C- ABSTRACT. ANALYSIS OF THE PRINCIPAL TRENDS OF THE DEVELOPMENT OF SOLID STATE MECHANICS OF DEFORMABLE MEDIA, STARTING WITH THE END OF THE 19TH CENTURY. PARTICULAR ATTENTION IS GIVEN TO RHEOLOGY AND DISLOCATION THEORY. ONE OF THE MAJOR TRENDS IN MODERN SOLID STATE MECHANICS IS TO OBTAIN MAXIMUM INFORMATION ON THE RELATIONSHIP BETWEEN PHYSICAL AND MECHANICAL PROCESS ON THE BASIS OF ADVANCED CONCEPTS OF SOLID STATE PHYSICS ABOUT THE MOLECULAR STRUCTURE OF MATERIALS. FACILITY: AKADEMIJA NAUK UKRAINSKOI SSR, INSTITUT MEKHANIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 534.21:539.3

SAVIN, G. N., LUKASHEV, A. A., Kiev, Kishinev

"Some Acoustical Effects in a Medium With Internal Degrees of Freedom (Review)"

Kiev, Prikladnaya Mekhanika, Vol 6, No 11, 1970, pp 3-9

Abstract: Most actual solids which are considered isotropic and homogeneous in solid state mechanics actually have microheterogeneities in their internal structure. Consideration of nonlinearities in the theory of isotropic elastic models of solids which internal degrees of freedom (non-local theory of elasticity) leads to a dependence of the velocity of longitudinal and transverse acoustic waves on pressure, while consideration of the microstructure leads to a dependence of the speed of sound on frequency (negative velocity dispersion). Both effects are comparatively slight. For example, in polycrystalline metals, the relative change in the speed of sound does not exceed 10^{-4} - 10^{-3} with a change in pressure of 10 Mn/m^2 , and will be of the same order of magnitude with a change in oscillating frequency by a

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SAVIN, G. N., et al, Prikladnaya Mekhanika, Vol 6, No 11, 1970,
pp 3-9

factor of 2 in the megacycle frequency range. The development of acoustical equations for theories with gradients, and particularly their experimental testing, encounters certain methodological difficulties at the present time, primarily resulting from the inaccuracies of measurement of velocities and attenuation of sound in both infinite and limited media. Therefore, the problem must be stated of creating improved acoustical methods and apparatus for the measurement of material constants.

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USSR

UDC: 539.3/.5

SAVIN, G. N., PODSTRIGACH, Ya. S.

"On the Effect Which Diffusion Processes Have on the Stressed State of Deformable Bodies"

V sb. Probl. mekhan. tverd. deformir. tela (Mechanics of a Deformable Solid -- collection of works), Leningrad, "Sudostroyeniye," 1970, pp 391-403 (from RZh-Fizika, No 9, Sep 70, Abstract No 9Ye576)

Translation: The article concerns a survey of works in which the effect of diffusion processes on the stressed state is studied within the framework of the mechanics of a continuous medium with regard to generalized conditions of physical and mechanical coupling of deformable solids. It is shown that the satisfaction of these conditions, which make it possible to describe surface diffusion and diffusion along the interfaces of the material and the contact surfaces, may lead not only to a change in stresses but also to an appreciable change in the nature of the stressed state.

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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 1/2

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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.

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EQUIPMENT

Gyroscopic

USSR

S
551.385

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.

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USSR

UDC 621.52:621.384.8

ZENKIN, V. I., SAVIN, O. R., SHKURDODA, V. P.

"Automatic Calibration of Mass Spectrometer Gas Analyzers"

Pribory i sistemy avtomatiki. Resp. mezhved. nauchno-tekhn. sb. (Devices and Systems of Automation. Republic Interdepartmental Collection), Vyp. 9, pp 125-130 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5A50)

Translation: A system was developed for automatic calibration of mass spectrometer gas analyzers which assures delivery of the results of analysis in percents by volume of the contents of the components being checked. On the basis of this system the MX-12 (checking) and MX-1212 (regulating) mass spectrometer gas analyzers were constructed, which successfully passed industrial tests and were accepted for series production. G. B.

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SAVIN, S. B.

Analytical Chemistry

PROBLEMS OF ANALYTICAL CHEMISTRY
(Congress in Japan)

Article by Doctor of Chemical Sciences S. B. SAVIN, Moscow,
Vestnik Akademi Nauk SSSR, Moscow, Vol. 47, No. 10, October
1972, pp 105-108

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In recent years the importance of analytical chemistry has grown in all branches of science and technology. This is connected primarily with the appearance of new materials and the development of new technological processes which require rapid, precise and reliable control of material and semi-finished goods in all stages of production. The ever-increasing scales of use of pure and ultrapure materials in the intensifying developing branches of industry and science have led to the creation of analytical methods which have permitted increasing by several orders of magnitude the sensitivity of determination of almost all chemical substances. The need for knowledge of the precise composition and stoichiometric ratios of the principal components in certain materials has stipulated the appearance of highly precise methods of determining large concentrations of substances. The transition to continuous production processes has presented chemical analysis with requirements of speed, massiveness and automation of the entire process of obtaining and processing data.

The Second International Congress on Analytical Chemistry, held 3-7 April in Tokyo, in which about 800 representatives from 26 countries participated, was one of the largest in recent years. At it both special and general problems of analytical chemistry were examined. The Congress was convoked by the Japanese Analytical Chemistry Society and took place under the sponsorship of the International Union of Pure and Applied Chemistry (IUPAC) and the Scientific Society of Japan.

The Congress was opened by the President of the Japanese Analytical Chemistry Society, K. Kimura. M. Iijima, Vice-President of the Organizing Committee, shed light on the main

USSR

UDC 546.824'131+546.821+536.666

SAVIN, V. D. and OGORODNOVA-ZAKHAROVA, N. V., State Scientific Research and Planning Institute of Rare Metals

"Interaction of $TiCl_4$ with Metallic Titanium in a Medium of NaCl"

IVUZ, Tsvetnaya Metallurgiya, No 2, 1971, pp 67-71.

Abstract: This article presents a study of the thermochemical regularities of the process of interaction of $TiCl_4$ with metallic titanium in a medium of NaCl. The study was performed thermographically at 660-900°. The nature of the interaction is complex. At the beginning of the experiment, their interaction forms primarily $TiCl_2$, then later -- $TiCl_3$; the reaction products during the middle of the reaction are lower chlorides of titanium of variable composition. The interaction of $TiCl_4$ with titanium in NaCl occurs with an excess thermal effect, which is a result of the interaction of $TiCl_2$ and NaCl at the beginning of the experiments. The heat is constant below 810° and amounts to 5.2 kcal/mol $TiCl_2$, although as the temperature increases to 850°, the heat decreases to 3.0 kcal/mol.

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USSR

UDC 546.824'131+546.821+536.666

SAVIN, V. D. and OGORODNOVA-ZAKHAROVA, N. V., State Scientific Research and Planning Institute of Rare Metals

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IVUZ, Tsvetnaya Metallurgiya, No 2, 1971, pp 67-71.

Abstract: This article presents a study of the thermochemical regularities of the process of interaction of $TiCl_4$ with metallic titanium in a medium of NaCl. The study was performed thermographically at 660-900°. The nature of the interaction is complex. At the beginning of the experiment, their interaction forms primarily $TiCl_2$, then later -- $TiCl_3$; the reaction products during the middle of the reaction are lower chlorides of titanium of variable composition. The interaction of $TiCl_4$ with titanium in NaCl occurs with an excess thermal effect, which is a result of the interaction of $TiCl_2$ and NaCl at the beginning of the experiments. The heat is constant below 810° and amounts to 3.2 kcal/mol $TiCl_2$, although as the temperature increases to 850°, the heat decreases to 3.0 kcal/mol.

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Titanium

USSR

UDC 669.293.721

SAVIN, V. D., State Scientific Research and Planning Institute of Rare Metals

"Some Remarks on the Article 'The Kinetics of $TiCl_4$ Interaction With Magnesium in the Production of Spongy Titanium'"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy --- Tsvetnaya Metallurgiya, No 5, 1970, pp 63-68

Abstract: This article presents some critical remarks on the content and conclusions formulated by the authors of the above named article and contains discussions of the results obtained there. It is stated that: 1) the boundary conditions considered in the article differ sharply from those encountered in industrial apparatus; 2) the process mechanism suggested in the article does not follow from the results of investigations; 3) the negation of autocatalysis phenomena is not valid; 4) in comparing the results, a non-correspondence of the autocatalysis with high and variable E values is observed; and 5) the assertion that the limiting stage of the process is the delivery of magnesium to the evaporation zone is not well-founded. Data are given on the relationship between the rate of interaction and the degree of $TiCl_4$ utilization at various temperatures, and on the process activation energy.

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USSR

UDC 546.3+19.81.82+541.11

SAVIN, V. D., and GOLIKOV, V. V., State Scientific Research and Planning Institute of Rare Metals

"Basic Regularities of Combined Reduction of Titanium and Tin by Magnesium From Solution of Tetrachloride Compounds"

Ordzhonikidze, Izvestiya Vysshikh Uchevnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1971, pp 60-64

Abstract: This work presents a study of the primary regularities involved in the formation of alloys in the system Ti-Sn during the process of simultaneous reduction of these metals by magnesium from solutions of their tetrachloride compounds. The studies were performed by the thermographic method at 820°. The magnesium-thermal reduction of $TiCl_4$ is an autocatalytic reaction occurring on the surface of the titanium sponge. Particles of titanium which separate from the sponge are set by the reducer. Therefore, the significance

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SAVIN, V. D., and GOLIKOV, V. V., *Izvestiya Vysshikh Uchevnykh Zavedeniy, Tsvetnaya Metallurgiya*, No 1, 1971, pp 60-64

of secondary reactions between $TiCl_4$ and metallic titanium is negligible.

Thermodynamically, the course of these reactions is characterized by negative values of the change in isobaric potential. The bends found on the thermographic curves are analyzed. Analysis indicates that the excess thermal effect of the process can be attributed to formation of intermetallides. The heats of formation at 820° (in Kcal/g·atom) are as follows: 12.4 for Ti_3Sn , 22.5 for Ti_2Sn , 23.0 for Ti_5Sn_3 , and 28.2 for Ti_6Sn_5 . These values should be looked upon as approximate, due to the possibility of occurrence of unconsidered side processes.

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1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--KINETICS OF THE REDUCTION OF TITANIUM TETRACHLORIDE WITH MAGNESIUM
-U-
AUTHOR--SAVIN, V.D. S
COUNTRY OF INFO--USSR
SOURCE--Zh. Fiz. Khim. 1970, 44(3), 636-40
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL KINETICS, TITANIUM CHLORIDE, METAL REDUCTION,
MAGNESIUM, SPONGE TITANIUM, METAL CATALYST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0460 STEP NO--UR/0076/70/044/003/0636/0640
CIRC ACCESSION NO--AP0126212
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126212

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE TITLE INVESTIGATION WAS MADE BY UTILIZING THE THERMOGRAPHIC METHOD (V. D. SAVIN, 1968) AT 770-910 DEGREES. TlCl SUB4 WAS INTRODUCED INTO THE LIQ. MG IN AN AR ATM. IN PORTIONS OF 1, 2, 3, AND 4 G EACH. THE REACTION WAS FOLLOWED UNTIL COMPLETION OF INTERACTION. WHEN INCREASING THE TlCl SUB4 INCREMENTS, THE RATE OF INTERACTION INCREASED WHILE THE APPARENT ACTIVATION ENERGY DECREASED FROM 18.7 TO 7.1 KCAL-MOLE. THE REON. MECHANISM IS DETD. BY THE COMPLEX COMBINATION OF MANY FACTORS AND THE DEVELOPMENT OF EACH FACTOR IS DETD. BY EXPTL. CONDITIONS: AT SMALL INCREMENTS BY THE REACTION BETWEEN GASEOUS REAGENTS; AT MEDIUM INCREMENTS BY THE PHENOMENA OF HETEROGENEOUS CATALYSIS, AND IT IS ASSUMED THAT THE FORMED TI METAL SPONGE ACTS AS A CATALYST; AND AT LARGE INCREMENTS, BY THE SUPPLY OF THE REDUCING MG IN THE REACTION ZONE. THE ANALOGOUS SHIFT IN THE REACTION MECHANISMS TAKES PLACE WHEN THE DEGREE OF UTILIZATION OF MAGNESIUM IS INCREASED.

FACILITY: GOS. INST. REDKOMETAL. PRUM., MOSCOW, USSR.

UNCLASSIFIED

USSR

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UGC: 541.124/.128

SAVIN, V. D., State Institute of the Rare Metals Industry

"Kinetics of the Process of Magnesium Reduction of Titanium Tetrachloride"

Moscow, Zhurnal Fizicheskoy Khimii, Vol. 44, No 3, Mar 70, pp 636-640

Abstract: Thermal reduction of titanium tetrachloride by magnesium is a complex exothermic heterogeneous process. The thermographic method was used for studying the macrokinetics and ruling principles of this process. The rate of interaction of the reagents was studied as a function of temperature, the amount of titanium tetrachloride added, and the magnesium consumption. The reaction rate increased with the amount of $TiCl_4$ added, while the activation energy decreased. The laws of development of the process were determined by the conditions under which the experiment was conducted: with introduction of small quantities of $TiCl_4$ -- by reactions between gaseous reagents, for moderately large additions of $TiCl_4$ -- by phenomena of heterogeneous catalysis, for large additions -- by the delivery of the reducing agent into the reaction zone. Similar changes in the mechanism of the process took place when magnesium consumption was increased. The resultant data were compared with the results of an investigation of the process by the manometric method. It was found that the thermographic and manometric methods give results which are numerically close.

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USSR

UDC 669.293

GAL', V. V., NIKITIN, K. A., PAVLOV, Yu. A., SAVINOV, V. K., and SKACHKOVA, T. M.
Moscow Institute of Steel and Alloys, Institute of High Temperatures of the
Academy of Sciences USSR

"Study of the Process of Producing Niobium Carbide By Through Diffusion Saturation of Graphite"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 117-120

Abstract: The process of producing niobium and carbide by through diffusion saturation of graphite was analyzed, proceeding from the derived expression for the time τ required to realize a through saturation of the grain $\tau = R^2 / 6\beta D$, where R = initial radius of the grain, D = coefficient of reactive diffusion, and $\beta = \Delta C_1 / \Delta C_2$, and ΔC_1 = homogeneity range of the growing phase and ΔC_2 = difference of solubilities in the growing phase and the saturable grain. The duration of saturation of a graphite granule was found to be less than the through saturation time of

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GAL', V. V., et al., Tsvetnaya Metallurgiya, No 2, 1973, pp 117-120

a metal granule of the same size. Experimental results of niobium carbide production by diffusion saturation of graphite granules in a pseudo-liquefied layer by their interaction with $NbCl_5$ are reported. The temperature dependence T (duration of the experiment 1 hr) of the magnitude of the reaction surface S , referred to a single granule, is discussed by reference to the S/T diagram. The through diffusion saturation of graphite granules (0.6-0.8 mm), when using PG-50 porous graphite and niobium pentachloride, can be realized at temperatures $> 2400^\circ$ and ~ 10 hrs aging. Two figures, one table, two formulas, five bibliographic references.

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1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70
 TITLE--CHARACTERISTICS OF HEAT TRANSFER NEAR THE STAGNATION POINT FOR A
 TURBULENT JET IMPINGING ON A PLATE SITUATED NORMAL TO THE FLOW -U-
 AUTHOR--(05)-ANDREYEV, A.A., DAKHNO, V.N., SAVIN, V.K., TSIRLIN, O.V.,
 YUDAYEV, B.N.
 COUNTRY OF INFO--USSR

SOURCE--MASHINOSTROENTE, NO. 3, 1970, P. 57-60

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TRANSFER RATE, STAGNATION POINT, TURBULENT JET, FLAT
 PLATE, PARAFFIN WAX, FLOW VISUALIZATION, FLOW VELOCITY, VORTEX FLOW,
 BOUNDARY LAYER FLOW, TWO PHASE FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--3004/0865 STEP NO--UR/0418/70/000/003/0057/0060

CIRC ACCESSION NO--4P0131462
 UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131452

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF EXPERIMENTS IN WHICH PARAFFIN COATED PLATES WERE USED TO VISUALIZE THE FLOW PATTERN FORMED BY AN IMPINGING TURBULENT AIR JETS EXPELLED FROM TWO DIMENSIONAL (135 TIMES 15 MM) AND AXISYMMETRIC (30 MM DIAM) NOZZLES. THE VELOCITY OF THE JETS VARIED BETWEEN 30 AND 100 M-SEC. THE JET TEMPERATURE WAS 100 DEG C. THE RESULTS INDICATE THAT THE INCREASED HEAT TRANSFER RATE AT THE FORWARD STAGNATION POINT (SPREADING LINE) IS ASSOCIATED WITH THE FORMATION OF STABLE VORTEX SYSTEM IN WHICH THE VORTICES ARE ORIENTED ALONG THE LINES OF FLOW. UNDER THE ACTION OF THIS SYSTEM, THE TWO DIMENSIONAL BOUNDARY LAYER FLOW BECOMES A THREE DIMENSIONAL FLOW, LEADING TO A SUBSTANTIAL INCREASE IN THE HEAT TRANSFER RATE.

UNCLASSIFIED

172 050 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INVESTIGATION OF HEAT TRANSFER IN A GRADIENT FLOW REGION FOR PLANE
TURBULENT JET IMPINGING ON PLATE SITUATED NORMAL TO THE FLOW -U-
AUTHOR--(U4)-ANDREYEV, A.A., DAKHNO, V.N., SAVIN, V.K., YUDAYEV, B.N.
COUNTRY OF INFO--USSR
SOURCE--INZHENERNO-FIZICHESKII ZHURNAL, VOL. 18, APR. 1970, P. 631-637
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--HEAT TRANSFER, TURBULENT FLOW, LAMINAR BOUNDARY LAYER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1753 STEP NO--UR/0170/70/018/000/0631/0637
CIRC ACCESSION NO--AP0125370
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP012537Q

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

ABSTRACT.

EXPERIMENTAL DETERMINATION OF THE BOUNDARY CONDITIONS REQUIRED FOR THE SOLUTION SYSTEM OF EQUATIONS OF MOTION, DISCONTINUITY EQUATION, AND ENERGY EQUATION DESCRIBING HEAT TRANSFER IN THE GRADIENT FLOW REGION ARISING WHEN A PLANE ISOTHERMAL TURBULENT JET IMPINGES ON PLATE SITUATED NORMAL TO THE FLOW. THE BOUNDARY CONDITIONS ARE OBTAINED IN THE FORM OF A UNIVERSAL RELATION BETWEEN THE VELOCITY AT THE OUTER BOUNDARY OF THE BOUNDARY LAYER, THE COORDINATE ALONG THE PLATE, AND THE SPACING BETWEEN THE PLATE AND THE NOZZLE. FORMULAS FOR CALCULATING THE HEAT TRANSFER COEFFICIENT IN A LAMINAR BOUNDARY LAYER ARE DERIVED. A SUBSTANTIAL DISCREPANCY IS FOUND TO EXIST BETWEEN THE EXPERIMENTAL AND THEORETICAL RESULTS. AN ANALYSIS OF THE CHANGES IN THE EXPERIMENTAL HEAT TRANSFER COEFFICIENT NEAR THE SPREADING LINE AS A FUNCTION OF THE SPACING BETWEEN THE NOZZEL AND THE PLATE, AND THE INFLUENCE OF THIS SPACING ON THE DEGREE OF TURBULENCE INDICATES THAT THE RELATION BETWEEN THIS COEFFICIENT AND THE DEGREE OF TURBULENCE MAY BE CONSIDERED TO BE LINEAR IN THE FIRST APPROXIMATION. THIS RESULT IS USED AS A BASIS FOR DERIVING FORMULAS FOR THE HEAT TRANSFER COEFFICIENT IN THE GRADIENT FLOW REGION UNDER CONSIDERATION.

FACILITY: NAUCHNO-ISSLEDOVATEL'SKII INSTITUT STROITEL'NGI FIZIKI; MOSKOVSKOE VYSSHEE TEKHNIЧЕСKOE UCHILISHCHE, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.95

MALYUTIN, P. P., RADTSEV, V. S., SAVIN, V. P., SAKONOV, V. D., STONOV, L. D.,
SHAKIROVA, A. M., Ufa Affiliate of the All-Union Scientific Research Institute
of Agents for Plant Protection

"A Herbicidal Preparation"

USSR Author's Certificate No 311594, filed 21 Apr 70, published 19 Nov 71
(from RZh-Khimiya, No 11, Jun 72, Abstract No 11N470)

Translation: In order to intensify herbicidal activity and improve selectivity,
3-carbomethoxyaminophenyl N-(3-methyl phenyl)carbamate is used in a mixture
with benzanidoxyacetic acid in ratios by weight from 1:2 to 1:6. In experiments,
the mixtures inhibited the development of wild oat seedlings more actively
than their components used separately.

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1/2 033 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROCHEMICAL REDUCTION OF OXYGEN ON OXIDE SEMICONDUCTOR
MATERIALS. HETEROGENEITY OF CHEMISORBED OXYGEN ON ELECTRODES OF NICKEL
AUTHOR--(02)-SAVIN, V.S., TRAVINA, G.YA.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(3), 420-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROCHEMICAL REDUCTION, SEMICONDUCTOR MATERIAL, NICKEL,
METAL ELECTRODE, CRYSTAL LATTICE STRUCTURE, CHEMICAL BONDING, ELECTRODE
POTENTIAL, LITHIUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/1143 STEP NO--UR/0364/70/006/003/0420/0422
CIRC ACCESSION NO--AP0121702
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121702

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES CONTG. 1, 20, AND 30PERCENT ATOM LI WERE TESTED. CURVES OF THE CURRENT VS. TIME WERE RECORDED AT 25DEGREES IN N SUB2 ATM. IN A 30PERCENT KOH SOLN. THE SP. SURFACE OF THE ELECTRODES USED WAS 0.6 M PRIME2-G. THE AMT. OF CHEMISORBED O INCREASED WITH INCREASE IN LI CONC. FOR ALL THE SAMPLES THE MAX. OF THE CURVES OF POTENTIAL VS. CHARGE NEEDED FOR O REDN. WAS AT 0.90 PLUS OR MINUS 0.02 V. FOR A SIMILAR LI CONTENT, THE AMT. OF CHEMISORBED O DEPENDED ON THE HISTORY OF THE ELECTRODE. FOR A FRESHLY PREPD. ELECTRODE THE AMT. OF O WAS HIGHER, AND SO WAS THE INITIAL POTENTIAL OF THE ELECTRODE. FOR CATHODIC POTENTIALS PLUS 0.75 V AND ABOVE, THE AMT. OF O REMOVED FROM ELECTRODES INCREASES; THIS IS PROBABLY CONDITIONED BY THE START OF THE REDN. OF O STRONGLY BOUND IN THE CRYST. LATTICE.

FACILITY: NAUCH.-ISSLED. FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.396.6-1E1.5

SAVIN, V. V.

"Basic Trends in the Development of Equipment for Mass Production of Integrated Circuits"

Elektron. prom-st'. Nauchno-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1970, No 1, pp 62-66 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V181)

Translation: The author discusses fundamental methods of raising the productivity of equipment for mass production of microcircuits -- increasing the output of acceptable articles on each operation, shortening the duration of operations, optimum utilization of multiple machining on each operation, cutting down on the number of checking operations and raising their productivity, and introducing new high-productivity technological processes. Two illustrations. N. S.

1/1

USSR

UDC 547.853.7.07:539.183.2

SAVIN, YU. I., SINGIN, A. S., SAZONOV, N. V., KROPACHEVA, A. A., and SAFONOVA T. S., Scientific Research Institute of Medical Radiology, Academy Medical Sciences USSR, Obninsk; All Union Scientific Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Synthesis of Phosphorus Tagged Diethyleneimide of Pyrimidyl-2-imidophosphoric Acid [Phosphemide]"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 73, pp 1251-1253

Abstract: The following synthetic route was selected for the synthesis of diethyleneimide of pyrimidyl-2-amidophosphoric acid [phosphemide] (I). From the reaction of equimolar quantities of 2-aminopyrimidine and phosphorus pentachloride in benzene 2-trichlorophosphazopyrimidine hydrochloride was obtained which was then converted to pyrimidyl-2-amidophosphoric acid dichloride by a reaction with 98% formic acid, which finally could be reacted without purification with ethyleneimine to yield I. Depending on the activity of the starting $^{32}\text{PCl}_5$ the specific activity of phosphemide- ^{32}P was 5-10 μc per gram.

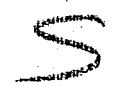
1/1

- 10 -

Electromagnetic Wave Propagation

USSR

UDC 621.371.25:621.391.242

BULATOV, N. D., SAVIN, YU. K. 

"Methods of Countering Polarized Fading of High-Frequency Signals"

Moscow, Elektrosvyaz', No 9, 1970, pp 29-32

Abstract: This article considers three methods of reception designed to combat fading and describes experimental research on the problem. A transmitter was used which radiated pulses of 150-microsecond and 20-minute durations, the former to determine the multiradiation and the presence of magnetoionic wave components at the reception point and the latter an unmodulated carrier, from a dipole antenna over several frequencies. The receiver antenna consisted of two mutually perpendicular dipoles of the BG 15/12 type. A block diagram and description of the receiver equipment are given. Transmissions were made over distances varying from 50 to 1000 km at various hours of the day and seasons of the year, with observations made on six to ten frequencies over periods of 10-12 days for each distance range investigated. The results of the research are given in the form of a table of energy gain in dB for the different times of the day, and curves showing the effectiveness of the three methods researched. The authors express their gratitude to Ye. A. Khmal'nitskiy for his valuable advice.

1/1

USSR

UDC 613.633+614.715]-07:615.47

SAVINA, A. A. and BOMSHEYN, E. M., All Union Scientific Research Institute of Labor Protection, of the All Union Council of Trade Unions, Leningrad

"Method of Clarifying AFA Filters in Determining Dust Concentration and Dispersity"

Moscow, Gigiyena i Sanitariya, No 11, 1970, pp 60-61

Abstract: AFA [analytical aerosol filters] made of patryanov filter material are widely employed. Features of the filters include: hydrophobicity (obviating the need for drying them) and resistance to chemical and aggressive agents.

Dust count concentrations (by number of particles) were determined by AFA-D-3 filters in the atmosphere and in the air of work premises. Dispersity of dust was also measured. These filters are recommended for trapping and counting dust particles in the 0.5-100 micron size range. When necessary, AFA-V-18 or AFA-V-10 filters can be used for the same purpose, with the requirement that before sampling, these filters must be pressed, for example, with a simple hydraulic press at a pressure of about 50 kg/cm². This drives
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USSR

SAVINA, A. A., and BOMSHEYN, E. M., Gigiyena i Sanitariya, No 11, 1970, pp
60-61

out air bubbles in the filters. The dust increment on an 18 cm² filter (AFA-V-18) can be taken as 0.1-1 mg, depending on the dispersity of the dust.

The filters were placed on tracing cloth, covered with laboratory slide glasses, and placed in a holder. The holder was placed in a beaker containing acetone. The beaker was kept in a water bath for not more than 1 minute.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DEVELOPMENT OF INVASION IN CHICK EMBRYOS INOCULATED WITH TOXOPLASMA
OF LOW VIRULENCE. COMMUNICATION I --U--
AUTHOR--(02)--SAVINA, M.A., ZASUKHIN, D.N.
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE SOLEZNI, 1970, VOL
39, NR 3, PP 278-282
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TOXOPLASMA, INOCULATION, MOUSE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0108 STEP NO--UR/0358/70/039/003/0278/0282
CIRC ACCESSION NO--AP0125928
UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0125928
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. IT HAS BEEN SHOWN THAT IN TISSUES OF CHICK EMBRYOS MULTIPLICATION OF TOXOPLASMA OF LOW VIRULENCE AND THEIR DISSEMINATION FROM THE PRIMARY FOCUS OF MULTIPLICATION OCCURS AS SLOWLY AS IN THE ORGANISM OF ADULT MAMMALS (MICE) WITH HIGH REACTIVITY. UPON INOCULATION ON THE CHORIOALLANTOIC MEMBRANE, INTO THE YOLK SAC OR EMBRYO, EMBRYONAL MEMBRANES ARE INVADDED FIRST OF ALL WHICH IS CONFIRMED MICROSCOPICALLY ON THE 5TH POSTINOCULATION DAY. IN EMBRYONAL VISCERA TOXOPLASMA ARE DEMONSTRABLE MICROSCOPICALLY 6 DAYS AFTER INOCULATION. THE INTENSITY OF INVASION OF MEMBRANES AND VISCERA INCREASES WITH TIME REACHING THE MAXIMUM BY 10-14TH DAY AFTER INOCULATION. OWING TO LONGER MULTIPLICATION OF PROLIFERATIVE FORMS OF TOXOPLASMA IN CHICK EMBRYOS THAN IN MICE, THE EXTENT OF INFECTION OF EMBRYONAL TISSUES IS MUCH HIGHER THAN THAT IN MICE OR OTHER ANIMALS. CYSTS OF TOXOPLASMA FORM IN THE VISCERA AND BRAIN OF CHICK EMBRYOS 7 DAYS AFTER INOCULATION. IN 10-12 DAYS CYSTS CAN BE FOUND IN A CONSIDERABLE NUMBER OF IMPRESSIONS OF EMBRYONAL MEMBRANES, BRAIN AND OTHER ORGANS. FORMATION OF CYSTS OF TOXOPLASMA IN THE VISCERA AND MEMBRANES OF CHICK EMBRYOS IN THE ABSENCE OF HUMORAL IMMUNITY SHOULD BE CONSIDERED AS A NECESSARY PART OF THE BIOLOGICAL CYCLE OF TOXOPLASMA DEVELOPMENT.

FACILITY:
LABORATORIYA TOKSOPLASMOZA, INSTITUTE EPIDEMIOLOGII I MIKROBIOLOGII IM.
N. F. GAMALYEI, AMN SSSR, MOSKVA.

UNCLASSIFIED

USSR

UDC 621.385.832.002.237

LYUBCHIK, Ya. G., SAVINA, N. V., PITKOVA, T. Ya., SHKUNOV, V. A.

"Improving the Sensitivity of Cathode-Ray Oscillographs by Using Electrostatic Quadrupole Lenses"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1941-1945

Abstract: It is experimentally and theoretically shown that a triplet of quadrupole lenses can be used as a system for focusing and after-deflection of the electron beam in an oscilloscope CRT. It is concluded on the basis of the data presented that the proposed method has promise for improving sensitivity. A further increase in the specific sensitivity of cathode-ray oscilloscopes can be achieved by eliminating the spherical aberrations of the quadrupole lenses. The tube design used in the experiment with electrostatic quadrupole lenses is slightly more complicated than that of the analogous tube with axial electrostatic lens, but is much simpler than a tube with a magnetic focusing system.

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- 65 -

USSR

UDC 621.397.332

TIKHOMIROV, L. M., LOBAN, V. I., SAVINA, V. A.

"Line Scanning Generator"

USSR Author's Certificate No 274156, Filed 8 Jun 66, Published 1 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G91P)

Translation: The schematic of a line scanning output cascade is patented. In this device a thyatron anode is connected to the auxiliary winding of the transformer via a capacitance, and the controlling electrode of the auxiliary winding is connected via a capacitive divider. The scheme is distinguished by the fact that in order to improve the degree of stabilization, the preparatory electrode of the mentioned thyatron is connected via a resistor to the power supply, and the anode of the thyatron is connected via a resistive divider and an integrating circuit to the control grid of the amplifying tube.

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USSR

UDC: 621.397.332.1

TIKHOMIROV, L. M., LOBAN, V. I., SAVINA, V. A.

"A Line Scanning Oscillator"

Moscow, Otkrytiya, Izobroteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 21, 1970, Author's Certificate No 274156, filed 8 Jun 66, p 40

Abstract: This author's certificate introduces a line scanning oscillator for a television receiver. The device contains an amplifier tube, a damper diode, and an output transformer which has an additional winding to which a device is connected for stabilizing the line scanning parameters. This device is based on a nonlinear element such as a thyatron. The anode of the thyatron is connected through a capacitor to the auxiliary winding of the output transformer, while the control electrode of the tube is connected through a capacitive divider to the same winding. As a distinguishing feature of the patent, the degree of stabilization of the scanning oscillator parameters is improved by connecting the preparatory electrode of the thyatron through a resistor to the power supply, while the anode is connected through a resistor divider and an integrating circuit to the control grid of the amplifier tube.

1/1

SAVINA, V. P.

STUDY OF THE COMPOSITION OF AIR EXHALED BY MAN
EXPOSED TO SOME EXTREMAL FACTORS

SO: JPRS 53323
17 JAN 71
DOC 612-2212-014

Article by N. I. Sokolov, V. G. Wolkov, V. P. Savina and K. M. Vozzhova
Kosmos, International Space Station, Vol 5, No 1, 1971.
pp 51-60, published for consideration 27 August 1970.

Abstract: This paper presents the results of an analysis of
constituents present in the air exhaled by human subjects
exposed to different stress effects (20-day and confinement
20-day starvation, 20-day diet of Apyllid and confinement
temperature and humidity). The composition, physical and
gas chromatography methods were used. The most significant
air changes were detected during exposure to prolonged
starvation and high temperature (40°C).

Formation of an atmosphere within a pressurized closed space of
man's vital functions, it has been established that through his lungs, skin
and gastrointestinal tract man releases a whole series of gaseous substances
which under the conditions prevailing in the pressurized volume can accumu-
late and exert an influence on the state of the atmosphere within this space
(V. G. Wolkov, et al.; V. V. Anisov and L. A. Turkov; Conley, et al.).
The release of microimpurities in the exhaled air transpires with
different intensity and is dependent to a considerable degree on the param-
eters of the microclimate, food ration and schedule, physical load, effect of
ionizing radiation, and number of other factors (V. V. Anisov and
L. A. Turkov, and others). It is noted that the percentage of microimpurities
released with the exhaled air is extremely high.
This paper gives the results of qualitative and quantitative investi-
gations of gaseous microimpurities present in air exhaled by human subjects
when the body is exposed to some extremal factors: 20-day hypodynamia, 20-day
total starvation, around-the-clock exposure to high temperature (up to 40°)
and prolonged consumption of dehydrated foods.

SPACE PHYSIOLOGY

STUDY OF TRACE CONTAMINANTS IN MAN-EXHALED AIR

Dr. G. Neal Klock
V. P. Sevina
NC 6317940

JPRS-S4340
24 OCT 91

[Signature]
COLEEN

pp 1-5

Abstract: 1. Man enclosed in a small-volume chamber releases a considerable number of gaseous trace toxic compounds. One of the sources of these compounds is man-exhaled air. 2. The gas chromatography method was used together with other techniques to identify and measure trace contaminants in man-exhaled air. The air was examined in a chromatograph using preliminary sample concentration and without it. Columns filled with a small quantity of column filler and connected to the gas line of the chromatograph by a six-step valve were used as enrichment traps. 3. The air exhaled by the test subjects contained a large number of trace contaminants. They included the following toxic compounds: methanol, ethanol, acetaldehyde, acetone, methyl ethyl ketone, amines, etc. 4. Investigations of man-exhaled air were made during chamber experiments, which included stress factors inherent in space missions, e.g. hypodermic, starvation, increased temperature and humidity. The experiments demonstrated a correlation between the amount of contaminants exhaled and the effect of the above factors. Hunger and high temperatures produced a particular effect on the qualitative and quantitative composition of the toxic compounds. 5. The possibility of contamination of a spaceship atmosphere by harmful gaseous impurities and their gradual so-

SAVINA, V. P.

SO: JPRS 54340
28 OCT 91

STUDY OF TRACE CONTAMINANTS IN MAN-EXHALED AIR

W. G. Neff, Jr.
V. P. Savina

(Life Support Systems)

65-17980

NC

PP 1-5

Abstract: 1. Man enclosed in a small-volume chamber a human subject released into the ambient atmosphere a considerable number of gaseous and particulate contaminants, many of which are toxic compounds. One of the sources of these contaminants is man-exhaled air. 2. The gas chromatography method was used together with other techniques to identify and measure trace contaminants in man-exhaled air. The air was examined in a chromatograph using preliminary sample concentration and without it. Columns filled with a small quantity of column filler and connected to the gas line of the chromatograph by a six-stop valve were used as enrichment traps. 3. The air exhaled by the test subjects contained a large number of trace contaminants. They included the following toxic compounds: methanol, ethanol, acetaldehyde, acetone, methyl ethyl ketone, amines, etc. 4. Investigations of man-exhaled air were made during chamber experiments, which included stress factors inherent in space mission: hypoxemia, starvation, increased temperature and humidity. The experiments demonstrated a correlation between the amount of contaminants exhaled and the effect of the above factors. Higher and high temperatures produced a particular effect on the qualitative and quantitative composition of the toxic compounds.

The possibility of contamination of a spaceship atmosphere by harmful gaseous impurities and their gradual acc-

1/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--EFFECT OF TOLERANCE DEVELOPMENT TO BACTERIAL POLYSACCHARIDE
PYROGENAL ON ABILITY OF THIS PREPARATION AND ENDOGENIC SERUM PYROGEN TO
AUTHOR--(02)-DZHEKSEN BAYEV, D.SH., SAVINA, V.T.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 544-547

DATE PUBLISHED--70

S

SUBJECT AREAS--BIOLOGGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POLYSACCHARIDE, ANTIBODY FORMATION, TYPHOID FEVER VACCINE,
RABBIT, AGGLUTININ

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1855

STEP NO--UR/0297/70/015/006/0544/0547

CIRC ACCESSION NO--AP0125466

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADAPTATION (NON IMMUNOLOGICAL TOLERANCE) OF RABBITS TO A BACTERIAL LIPOPOLYSACCHARIDE COMPLETELY ELIMINATED ITS CAPACITY FOR INCREASING AGGLUTININ FORMATION IN THE ANIMALS IMMUNIZED WITH HEATED TYPHOID VACCINE. ENDOGENIC SERUM PYROGEN STIMULATED ANTIBODY PRODUCTION IN THE TOLERANT RABBITS TO THE SAME EXTENT AS IN NORMAL ANIMALS. FACILITY: MOSKOVSKIY NAUCHNO ISSLED. INSTITUT VAKTSIN I SYVOROTOK IM. I. I. MECHNIKOVA, MZ SSSR, MOSKVA.

UNCLASSIFIED

USSR

UDC 632.954

SAVINA, Ye. V., Krasnoyarsk Agricultural Scientific Research Institute

"Effectiveness of Triallate Against Wild Oat, Used Prior to and After Wheat Sowing"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol. 9, No 4 (90), 1971, pp 25-27

Abstract: Triallate was applied either prior to wheat sowing followed by two embedding courses with harrows, or it was sprayed on the top soil after the wheat was planted. The herbicide applied prior to sowing in quantities of 1.2-1.5 kg/ha destroyed about 71-79% of wild oat, increasing the wheat crop by 3.4-4.4 centners per hectars. The quantity and quality of the wheat improved also: the ears were larger, they had more grains per ear, the grains were heavier. Triallate was not effective without embedding when applied after wheat sowing.

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UDC 621.771.23.001.5

USSR

TITLYANOV, A. Ye., POLUKHIN, V. P., BOGDANOVA, G. P., and SAVINKINA, A. I.

"Optimizing Reduction States of the Dressing Process Considering the Effect of Straightening on the Mechanical Properties of a Thin Sheet"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No. 64, 1970, pp 97-103

Translation: It is shown that, at low reductions in the process of dressing 08kp steel, subsequent straightening lowers the value of a majority of mechanical properties and the depth of the hole when testing according to Eriksen. Taking into account the effect of straightening on mechanical properties of the dressed metal makes it possible to select the optimal dressing mode more correctly. Reduction during dressing in the range of 0.5-0.7 percent with subsequent straightening makes it possible to eliminate the area of yield on the tension diagram and to obtain metal with a minimum yield point, lowered hardness, and a very deep Eriksen hole, which increases the stampability of sheet metal. Six illustrations and seven bibliographic entries.

1/1

USSR

UDC 621.771.23.001.5

TITLYANOV, A. Ye., POLUKHIN, V. P., BOGDANOVA, G. P., and SAVINKINA, A. I.

"The Effect of Speed on Change in the Technological Parameters of the Dressing Process"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya"
Publishing House, No. 64, 1970, pp 91-97

Translation: Investigation on the four-high 1700 mill showed that, with O8kp steel 0.5-2.0 mm thick, increasing the speed of dressing leads to an increase in reduction and metal pressure on the rolls. It is shown that increasing these quantities does not depend on preliminary adjustment and is established by the mechanical properties, thickness of the sheet, rigidity of the stand, and design of the liquid friction bearings. The results make it possible to determine the amount of preliminary adjustment established at low speeds, which corresponds to the optimal reduction state at working speed. Six illustrations, 13 bibliographic entries.

1/1

USSR

UDC: 8.74

SAVINKOV, V. M.

"Programming for the 'Minsk-22' Computer"

Programmirovaniye dlya EVM "Minsk-22". Izd. 3-ye, pererab. i dop. (cf. English above. Third Edition, revised and enlarged), Moscow, "Statistika", 1972, 320 pp, ill. 1 r. 8 k. (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V487 K)

[No abstract]

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USSR

UDC 681.3

BALAKIN, V. B., SAVINKOV, V. M., TSAL'P, V. D.

"Collected Programming Exercises"

Sbornik Uprazhneniy Po Programirovaniyu, [English Version Above], Moscow, Vyssh. Shkola Press, 1970, 463 pages, (Translated from Referativnyy Zhurnal Kibernetika, No. 5, 1971, Abstract No. 5V595 K).

No Abstract.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--EQUILIBRIUM OF CARNALLITE HYDROLYSIS WITH THE FORMATION OF
KCL, HCL, OH, CL, SOLID SOLUTIONS IN AN ATMOSPHERE CONTAINING WATER VAPOR
AUTHOR--(03)-SAVINKOVA, YE.I., VILNYANSKIY, YA.YE., SVIT, T.F.
COUNTRY OF INFO--LSSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 754-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL EQUILIBRIUM, HYDROLYSIS, SOLID SOLUTION, HYDROCHLORIC
ACID, CRYSTAL LATTICE STRUCTURE, OPTIC PROPERTY, POTASSIUM COMPOUND,
MAGNESIUM COMPOUND, CHLORIDE
CENTRAL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3C04/C945 STEP NO--UR/0080/70/043/004/0754/0758
CIRC ACCESSION NO--AP0131530
UNCLASSIFIED

PROCESSING DATE--11DEC70

UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0131530
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EQUIL. BETWEEN THE COMPN. OF
 SOLID SOLNS. $KClMgCl(OH, Cl)$ AND THE COMPN. OF GASEOUS PHASE $CO_2, HCl,$
 $H_2O,$ AND AIR WAS STUDIED AT 220-370 DEGREES. CHEM, X RAY, AND
 CRYSTALLOGRAPHICAL STUDIES CONFIRM THE FORMATION OF SOLID SOLNS. BY THE
 SUBSTITUTION IN CRYST. LATTICE OF HYDROXYL ION FOR CHLORIDE IONS. THE
 SOLID SOLN. CAN BE EXPRESSED BY THE FORMULA $KMgCl_{1-x}OH_x$ WHERE x
 IS SMALLER THAN OR EQUAL TO 0.33 AND ITS VALUE CORRESPONDS TO
 THE MOLE FRACTION OF $MgOHCl$ BASED ON ALL THE UNHYDROLYZED CARNALLITE.
 FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLEVSK, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CARNALLITE HYDROLYSIS PRODUCTS IN AN ATMOSPHERE OF HYDROGEN
CHLORIDE AND WATER VAPOR STUDIED UNDER CHEMICAL EQUILIBRIUM CONDITIONS
AUTHOR--(03)-SAVINKOVA, YE.I., VILNYANSKIY, YA.YE., BICHIKHINA, L.S.

COUNTRY OF INFO--USSR

SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(3), 513-18

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROLYSIS, HYDROGEN CHLORIDE, WATER, MAGNESIUM OXIDE,
POTASSIUM CHLORIDE, CHEMICAL EQUILIBRIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0733

STEP NO--UR/0080/70/043/003/0513/0518

CIRC ACCESSION NO--AP0119640

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0119640

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN HEATED IN AN ATM. OF HCL AND H SUB2 O AT 250-390DEGREES THE TITLE MINERAL HYDROLYZED ACCORDING TO THE FOLLOWING SPECIFIC CONDITIONS: LESS THAN OR EQUAL TO 2.5PERCENT HCL AND GREATER THAN OR EQUAL TO 370DEGREES GAVE KCL AND MgO, LESS THAN OR EQUAL TO 2.5PERCENT HCL AND LESS THAN OR EQUAL TO 370DEGREES GAVE KCL AND MG SUB2 NEGATIVEN (OH) SUBN, 3.5-5.4PERCENT HCL AT A WIDE TEMP. RANGE GAVE KMGCL SUB2.5(OH) SUBO.5, AND GREATER THAN OR EQUAL 5.5PERCENT HCL GAVE KMGCL SUB2 TIMES 67(OH) SUBO.33. FACILITY: URAL. POLITEKH. KNST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 621.43.011.533+621.5.533

RAZHIN, A. F., and SAVINOV, A. A.

"Experimental Investigation of the Distribution of Pressure on a Solid of Revolution with a Jet in a Carrying Stream"

Uch. Zap. Tsentr. Aero-Gidrodinam. In-ta (Scientific Notes of the Central Aerohydrodynamic Institute), Vol 2, No 3, 1971, pp 76-79 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B405 by Yu. A. Lashkov)

Translation: The article presents the results of an investigation on a model of the interaction of a body of revolution and their reaction jet of the lifting engine of a VTOL or STOL aircraft. The jet emerged from the undersurface of the body into a carrying stream. The model constituted a cylinder, consisting of front and rear rotating parts and a central stationary part. The aspect ratio of the model was 15 at a length of 1.5 meters. On the bottom surface of the stationary central part was a round nozzle 45mm in diameter, from which emerged a jet of compressed air normal to the axis of the model. The compressed air was supplied to the rear part of the model through an air-conduit pedestal. The tests were conducted at a zero angle of attack within a range of velocity variation of the mainstream from 25 to 75 meters per second at two values of the jet, equal to 100 and 300 mps. Measurement of the distribution pattern of

1/2

Heat Treatment

USSR

UDC: 669.293

YELISEYEV, S. A., SHPITSBERG, A. L., RYABYSHEVA, N. D., KALACHEV,
I. B., and SAVINOV, A. T.

"Alloys with A Niobium Base for Elastic Sensing Elements"

Moscow, Tsvetnyye Metall, No 7, Jul 70, pp 61-62

Abstract: The purpose of the experiments described by this article was to develop alloys which can be used as elastic sensing elements at temperatures above 500-550°, the present-day limit. Taking up where an earlier article left off (Yeliseyev, S. A., et al, Tsvetnyye Metall, No. 12, 1968) the authors processed two alloys consisting of various proportions of refractory elements Mo, Zr, Ti, Cr, C, Nb, and S+O. The proportions of the last two were the same in both cases, the proportion of Nb being standard. The alloys were given two smeltings in a vacuum electric-arc furnace with soluble electrodes, and the ingots were given hot and cold deformations for conversion into sheets 0.3 mm thick. Investigating the effect of thermal processing on these sheets, the authors found that they could get effective hardening by a vacuum procedure consisting of tempering in oil and subse-

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YELISEYEV, S. A., et al., Tsvetnyye Metally, No 7, Jul 70, pp 61-62

quent aging. From their experiments, the authors concluded that the alloys can be toughened, with niobium as the basis, through vacuum processing with tempering in the 1400-1800° C range, and aging at 950-1050° C. They found also that they can develop alloys that can work as elastic sensing elements at temperatures of 800°.

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UDC 621.438-226.3-253.5.031.5

SAVINOV, L. V., and KOSANOV, V. S.

"Generalized Gas-Dynamic Characteristic of the Straight Blade Lattice"

Tr. TsNII Mor. Flota / Works of the Central Scientific Research Institute of the Maritime Fleet /, No 148, 1971, pp 9-19
(from Referativnyy Zhurnal, Turbostroyeniye, No 49. Single Issue No 2, 1972, Abstract No 2.49.83)

Translation : Results of blowing through of a large selection of subsonic blade lattices of axial turbines of transport power plants are analyzed. Generalized dependences were obtained of the loss factor and the flow take-off angle of different flow-past conditions by angle of attack (-60---+60) and flow rate ($M = 0.2-1.1$) for arbitrary interblade passage. Means are suggested for further distribution of generalization results on compressor lattices and axial stages of turbines. Seven illustr., three biblio. refs.

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1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THERMAL DEGRADATION OF AROMATIC POLYAMIDES WITH HETERO GROUPS IN
THE CHAINS -U-
AUTHOR--(05)-VELYAKOV, V.K., KOSOBUTSKAYA, A.A., SAVINOV, V.M., SOKOLOV,
L.B., GITIS, S.S.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 610-19
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--THERMAL DEGRADATION, POLYAMIDE COMPOUND, POLYMER, ACTIVATION
ENERGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1678 STEP NO--UR/0459/70/012/003/0610/0619
CIRC ACCESSION NO--AP0125299
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125299

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL DEGRADATION IN AIR OF AROMATIC POLYAMIDES WAS STUDIED. THE AMTS. OF THE POLYMERS CONVERTED TO GASES IN 30 MIN AT THE DECOMP. TEMPS., THE ACTIVATION ENERGIES OF THE DEGRADATION AT 410-20DEGREES AND 440-60DEGREES, THE TEMPS. AT WHICH 20PERCENT OF THE GEL FRACTION REMAINS, AND THE TEMPS. AT WHICH THE VISCOSITY IS REDUCED TO 0.5 OF ITS ORIGINAL VALUE IN 30 MIN ARE GIVEN. HETERO GROUPS IN THE POLYMER MOLS. LOWER THE THERMAL OXIDATIVE RESISTANCE IN THE ORDER CH SUB2 LARGER THAN S LARGER THAN CO LARGER THAN O LARGER THAN SO SUB2 LARGER THAN OR EQUAL TO CF SUB2 CF SUB2. FACILITY: VLADIMIR. NAUCH.-ISSLED. INST. SIN. SMOL, VLADIMIR, USSR.

UNCLASSIFIED

USSR

UDC 535.215.1:620.152

SAVINOV, YE. P., SHCHEMELEV, V.N.

"On The Regularities Of Forming X-Ray Photoemission In Dielectrics"

Uch. zap. LGU (Scientific Annals. Leningrad State University), 1970, No 354, pp 118-124 (from RZh--Elektronika i yeye primenaniye, No 2, February 1971, Abstract No 2A14)

Translation: An analytical computation is performed for the pulse quantum yield of the x-ray photoeffect X_n and the average number \bar{n} of an elementary event of emission, taking into account the effect of secondary emission phenomena on the nature of formation of the photoemission events. Expressions are obtained which show the dependence of X_n and \bar{n} on the ratio of the energy of the x-ray quantum $h\nu$ and the energy necessary for creation of one internal secondary electron capable of entering into a vacuum, and also on the ratio of the average depth of the secondary electron yield and the average depth of penetration of x-ray radiation. The experimental spectral and angular dependences X_n and \bar{n} for a CsJ photocathode are presented. 3 ill. 20 ref. N.S.

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UDC: 621.391:519.2

SAVINOV, YU. V.

"On Approximate Methods of Analyzing the Interference Resistance of FM Signal Receivers"

Moscow, V sb. Metody pomekhoustoychivogo priyema ChM i FM (Methods of Interference-Free FM and PM Reception--collection of works), "Sov. radio", 1970, pp 62-71 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A42)

Translation: The author discusses the threshold mechanism in FM signal receivers which contain an ideal limiter and a frequency detector. The limits of applicability of approximate methods for analyzing the interference resistance of receivers in the face of large noises are discussed; the case of an i-f amplifier with square frequency response is considered by way of example. The threshold signal-to-noise ratio is determined, in particular for sinusoidal modulation. Three illustrations, bibliography of eight titles. N. S.

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SAVINOVA, L. I.

THE EFFECT OF ACCELERATOR TRAINING ON THE RABBIT'S RETINAL VESSELS

Article by L. I. Savinova, Chair of Normal Anatomy (headed by Professor N. G. Priva, Honored Scientist) of the First Leningrad Medical Institute, Leningrad, Russian S.S.R., No 11, 1971, submitted 3 September 1970, pp 65-70

Modern flight technology exposes man to stress conditions to which changes in the gravitation field go beyond the usual range. In this connection the question of extent of physiological reserve of compensatory adaptational reactions and the possibility of increasing it are growing into pressing problems.

Most investigators tend to believe that it is the most purposeful to proceed on the basis of development of natural compensatory mechanisms of regulation in seeking to increase compensatory resistance to hypergravitation. General and special physical training methods are based on this principle: they include special sets of physical exercises and rotation on a centrifuge (N. Buskin and M. Chirkov, 1936; A. Popov, 1939; D. Roznabiyeva, 1939; V. Stral'tsov, 1939; V. A. Flekkel and A. I. Odinov, 1949; V. I. Babushkin, V. M. Naikin, V. V. Usachev, 1956; L. V. Chkhaidze, 1963; Britton-Coxey and Steward, 1946; Katchevs, 1953). Researchers believe that in this case, the training effect is based on the repetitive action of a specific stimulus. At the same time, there are reports in the literature that repeated exposure to gravitational stress disrupted adaptation and caused development of pathological morphological changes (S. A. Gozulov, 1956; I. M. Khazin, 1958; A. S. Burer, 1962). Consequently, specific programs of repeated exposures. V. I. Stepanov and A. V. Yermolaev (1969) established five principles that the protocol of training rotation on a centrifuge must include: 1) repetition of exposure, 2) gradual increase in force, 3) warmup, 4) exposure to submaximum and maximum forces, 5) individualization of the protocol. The effectiveness of rotation programs based on these principles has been tested and corroborated by

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--INFLUENCE OF THE COMPOSITION OF A REACTION MIXTURE ON M,XYLENE
OXIDATION -U-

AUTHOR--(05)-ALEKSANDROV, V.N., GOLUBEV, G.S., GITIS, S.S., ZABELINA, G.V.,
SAVINOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRGM. (MOSCOW) 1970, 46(5), 341-3

DATE PUBLISHED-----70

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SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--XYLENE, OXIDATION, ORGANOCOBALT COMPOUND, CATALYST ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/0892

STEP NO--UR/0064/70/046/005/0341/0343

CIRC ACCESSION NO--AP0137920

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137920

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CO(OAC) SUB2 CATALYZED, BR INITIATED OXIDN. OF M,ME SUB2 C SUB6 H SUB4 (I) AT A CONC. OF 2 MOLES-L. IN HOAC SOLN. BY AIR ADMITTED AT 150DEGREES AND UNDER 20 ATM PRESSURE WAS 0.2-0.5 ORDER IN BR, 1-2 ORDER IN CO, AND 1.7-0.4 ORDER IN I. THE ORDER IN FELL AS I CONC. ROSE FROM 0.5 TO 2 MOLES-L. AT THE OPTIMAL CO,BR RATIO (2:1 TO 1:1), M,(HO SUB2 C) SUB2 C SUB6 H SUB4 (II) YIELDS WERE 86.9, 83.7, 71.2, 81.0, 79.0, 83.3, 85.8, AND 87.1PERCENT WHEN THE INITIATORS WERE NH SUB4 BR, CHBR SUB3, C SUB2 H SUB2 BR SUB4, P,(BRCH SUB2) SUB2 C SUB6 H SUB4, BR SUB2, HBRO SUB3, HBR, AND COBR SUB2, RESP. WHEN CO(OAC) SUB2 WAS REPLACED BY THE MN SALT, THE REACTION RATE WAS REDUCED AND II YIELDS WERE 49.9PERCENT, BUT WHEN MIXTS. OF THESE CATALYSTS WERE USED, REACTION RATES APPROACHED THOSE FOR CO(OAC) SUB2 CATALYZED OXIDN. AND II YIELDS WERE 80.8-7.0PERCENT.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ISOTHERMAL QUENCHING OF COLD WORKING DIES -U-
AUTHOR--SAVINDVSKY, G.K.
COUNTRY OF INFO--USSR
SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV, 1970, (2), 71-72
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--STEEL QUENCHING, STEEL PROPERTY, CHROMIUM BALL BEARING STEEL,
STEEL MICROSTRUCTURE, IMPACT STRENGTH, DIE STEEL, METAL EXTRUSION, COLD
WORKING, ALLOY STEEL, CHROMIUM MOLYBDENUM STEEL, TUNGSTEN STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0119 STEP NO--UR/0129/70/000/002/0071/0072
CIRC ACCESSION NO--AP0123891
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--13NDV70

CIRC ACCESSION NO--AP0123891

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ISOTHERMAL QUENCHING ON THE STRUCTURE AND MECHANICAL PROPERTIES OF THREE TYPES OF ALLOY STEEL (CR-MN, CR-W, AND BALL BEARING) REQUIRED FOR THE MANUFACTURE OF COLD EXTRUSION DIES WAS STUDIED. THE CR-W TYPE WAS PARTICULARLY SUITABLE FOR THIS PURPOSE. ON ISOTHERMALLY QUENCHING THIS MATERIAL TO ACHIEVE A BAINITE STRUCTURE ITS IMPACT STRENGTH AT A HARDNESS OF HRC 50-60 WAS INCREASED BY A FACTOR OF 1.5, INCREASING THE WEAR RESISTANCE OF THE CORRESPONDING DIES BY 20-30PERCENT.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--HEAT TREATMENT OF DIES AND MOULDS MADE OF CHROMIUM MANGANESE STEEL
7KHGSVM -U-
AUTHOR--(03)--YUZEFPOLSKY, Z. SH., RALKO, V. S., SAVINOVSKY, G. K.
COUNTRY OF INFO--USSR
SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV, 1970, (2), 70-71
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CHROMIUM MANGANESE STEEL, STEEL HEAT TREATMENT, STEEL
MANUFACTURE PROCESS, STEEL QUENCHING, MOLDING MATERIAL, DIE
STEEL/(U)7KHG2VM CHROMIUM MANGANESE STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0138

STEP NO--UR/0129/70/000/002/0070/0071

CIRC ACCESSION NO--AP0123910

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0123910

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADVANTAGES OF CR MN STEEL
7KHG2VM STEEL FOR THE MANUFACTURE OF DIES AND MOULDS, PARTICULARLY
COMPLICATED PATTERNS USED IN THE PRODUCTION OF POLYMER PARTS, ARE
DESCRIBED AND DISCUSSED. IN ORDER TO ENSURE GOOD QUALITY MATERIAL IT IS
ESSENTIAL TO PAY SPECIAL ATTENTION TO THE CONDITIONS OF HEAT TREATMENT.
THUS, FOR EXAMPLE, AFTER ORDINARY QUENCHING AND TEMPERING AN ADDITIONAL
PERIOD OF HEAT TREATMENT AT 300 DEGREESC FOR 3 H IS REQUIRED IN ORDER TO
ALLEVIATE MARTENSITE ENGENDERED INTERNAL STERSSES; NO RAPID COOLING
SHOULD BE ALLOWED.

UNCLASSIFIED

USSR

UDC 669.71.472(088.8)

SAVINSKIY, G. P.

"Device for Cleaning Ladles"

USSR Author's Certificate No 273381, Filed 27/03/68, Published 10/09/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G146)

Translation: A device for cleaning ladles, which includes a body and cutter device, is presented. To increase the service life of the protective lining of the ladles used for pouring Al from electrolyzers, the device is equipped with rods which rotate around the axis of the ladle and at the same time move along its walls, with cutting edges at the end of the rods.

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1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--STYRENE COPOLYMERS -U-

AUTHOR--(05)--PETROV, G.N., RAPPOPORT, L.YA., SAVINSKIY, P.A., MONAKHOVA,
L.A., MOLOTKOV, R.V.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,877
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STYRENE, COPOLYMER, POLYMER CROSSLINKING, ACRYLATE, ETHYL
CARBAMATE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/1082

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

CIRC ACCESSION NO--AA0116548

UNCLASSIFIED