

USSR

UDC 681.142

NEKRASOV, M. M., OSADCHIK, V. S., GIKAVYY, V. A.

"Problem of Inductive Behavior of Superhigh Frequency Transistors"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 74-76

Abstract: A study was made of the inductive nature of the behavior of the input impedance of a high-frequency transistor with variation of the feed conditions and the signal frequency. The possibility of controlling the active and reactive parts of the input impedance by means of the emitter current and the external base resistance is demonstrated experimentally. Curves are presented illustrating these conclusions. Both the active and reactive components of the input impedance of the transistor element increase with an increase in the instrument multiplier in the base circuit in accordance with the formula

$$Z = r_e + r_b \left[1 - \frac{\alpha_0}{1 + (\omega/\omega_\alpha)^2} \right] + j \frac{r_b \alpha_0 (\omega/\omega_\alpha)}{1 + (\omega/\omega_\alpha)^2}$$

where ω is the operating frequency, ω_α is the limiting frequency of the amplification coefficient with respect to current in a circuit with a common base, 1/2

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NEKRASOV, M. M., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 74-76

and α_0 is the low-frequency value of the current amplification coefficient;
 r_e is the emitter resistance and r_b is the high frequency base resistance. The investigated transistor element provided for adjustment of the inductance twice on variation of the emitter current from 0 to 14 milliamps. Adjustment of the inductance by varying the instrument multiplier in the base circuit is most effective.

2/2

USSR

UDC 621.382.012

OSADCHUK, V. S.

"Induction Characteristics of Some Semiconductor Devices"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 5, 1971,
pp 18-21

Abstract: A general discussion is given of transistors which can be used as inductive components of integrated circuits. The first device so considered is a transistor in a common base circuit in which the output is short-circuited for alternating current. Such a circuit is inductive with a maximum Q of unity. Curves are given for the inductance, Q , and active and reactive components of the input impedance for transistors of the type MP-37A as functions of the frequency. Similar curves are plotted for the P-418 transistor, a high-frequency device operating in the hundreds of megahertz. Like curves are also given for the P-15, MMT-8, MP-37A transistors. It is concluded that although transistors can be used as practical inductances in a broad frequency range, they are subject to temperature instability of Q values and, to a much lesser extent, temperature instability of inductance. The author is connected with the Kiev Polytechnical Institute.

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UDC 681.142

NEKRASOV, M. M., OSADCHUK, V. S., and GIKAVYY, V. A.

"Inductive Behavior of UHF Transistors"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971, pp 74-76

Abstract: Experiments are described to investigate the inductive characteristics of uhf transistors connected in a common base circuit. The block diagram of the equipment for the experiments is shown, in which the transistor output is short-circuited for alternating current through a capacitor. In a preliminary mathematical analysis, a formula for the input impedance of the transistor is derived, and it is shown that one of the terms in the formula indicates an inductive component. This conclusion is confirmed by the experimental data, in which the effect of the distributed impedances of the input leads and the transistor casing are taken into account. Curves plotted for the active and reactive components as functions of the base resistance indicate that the most effective means of tuning the inductance is by changing the external resistance of the base circuit. The authors are associated with the Kiev Polytechnical Institute.

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USSR

UDC 621.37/39+631.004

NEKRASOV, M. M., LAVRINENKO, V. V., OSADCHUK, V. S., KVITKA, N. A., KOVAL'CHUK, B. M.

"Low-Frequency Dielectric Transformers"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 69-70

Abstract: A study is made of the problems of creating low-frequency dielectric transformers. Several versions of the designs of such transformers are investigated, and data are presented for individual specimens. Conclusions are drawn regarding the prospects of utilization of low-frequency dielectric transformers. In the transformers, the transformation coefficient depends to a significant extent on the magnitude of the input signal. With a load of 10^6 ohms and an input voltage of 0.1 volts, it reaches values on the order of 20 for one of the investigated transformers manufactured on the basis of the type TsTS-23 ceramic. A formula is presented showing that the basic parameters affecting the resonance frequency of piezotransformers of the flexible type are the length and thickness of the plates. The parameters of several designs of piezotransformers and their operating frequencies are presented in a table.

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UDC 621.37/39+631.004

NEKRASOV, M. M., LAVRINENKO, V. V., OSADCHUK, V. S., KVITKA, N. A.,
and KOVAL'CHUK, B. M.

"Low-Frequency Dielectric Transformers"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971,
pp 69-70

Abstract: This short informative article amounts to an introductory treatment of the development of piezoelectric transformers with an operating frequency of 50 and 400 Hz, of the type widely used in technology. A schematic diagram of piezoelectric transformers of the bending type is shown and explained; it consists of two dielectric plates glued together with epoxy resin, and connected through copper or silver electrodes to the external circuit. The theory of operation of the transformer is explained in qualitative terms, and a formula for the fundamental frequency of the bending oscillations is given in terms of the Young's modulus, the density, the thickness, and the length of the second -- i.e., the output or bending -- plate of the transformer. Curves are plotted for the transformer characteristic as a function of the bending magnitude; they indicate that the transformation characteristic depends essentially on the

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NEKRASOV, M. M., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 69-70

input signal amplitude and the applied voltage. The data was taken for transformer type No 3, made from ceramics of the TsTS-23 brand. The authors are with the Kiev Polytechnical Institute.

2/2

- 14 -

Acc. Nr.: AP0029821

Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 102-105

ON THE THERAPEUTIC EFFICIENCY OF ELEUTHEROCOCCUS
Lyubomudrov, V.Ye.; Basamygina, L.Ya.; Bikezina, V.G.;
Mukhina, M.S.; Mikhaylova, T.I.; Ossadchuk, V.S.;
Shidlovskiy, Ye.F.; Bondarenko, G.A.; Demkovich, O.A. (Donetsk)

Eleutherococcus improves abnormal pulmonary ventilation, favours normalization of the arterial pressure, positively influences cardiac rhythm and His bundle conduction. It proved rather efficient in the treatment of patients with initial stages of vibration disease. It is promising in the treatment of chronic lead intoxication. The preparation favours more rapid acclimatization of pneumoconiosis involved miners.

It is concluded that eleutherococcus may be recommended for the complex treatment of patients with some professional diseases and more rapid acclimatization of patients to sanatorium conditions.

REEL/FRAME

19681507

mk

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USSR

UDC 612.791.014.482

OSANOV, D. P., YERSHOV, E. B., KLYKOV, O. V., and RAKOVA, V. A.

"Kinetics of Dose Distribution in Skin Contaminated by Radioactive Substances"

Moscow, Meditsinskaya Radiologiya, No 5, 1971, pp 44-50

Abstract: Solutions of tritium oxide, Sr^{89} , Pu^{239} nitrates, and other radioactive substances were applied to the backs of 8-week-old pigs (whose skin is morphologically and physiologically almost identical to human skin) in order to study the kinetics of penetration of the absorbed doses. The distribution of activity was investigated by the method of layer-by-layer radiometry of horizontal sections 15 to 20 μm thick. The substances remained on the skin from 1 hour to 2 days. Data were also obtained on the kinetics of elimination of the isotopes from the skin after a single 6-hour exposure. A correlation was observed between the absorbed doses in the basal layer that were formed by the thin surface contamination and the thick-layer source created in the skin by penetration of the isotopes through the horny layer.

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Radiation Chemistry

USSR

OSANOV, D. P., PANOVA, V. P., and AREF'YEVA, Z. S., Editorial Board of
Zhurnal Fizicheskoy Khimii (Journal of Physical Chemistry) of the Academy
of Sciences USSR

"Experimental Basis of Age Parameters for a Mathematical Model of the
Metabolism of Radioactive Strontium"

Ekspperimental'noye obosnovaniye vozrastnykh parametrov matematicheskoy
modeli metabolizma radioaktivnogo strontsiya (cf. English above), Moscow,
1970, 18 pp, ill, bibliography with 10 titles (No 2883-70 Dep) (from
RZh-Biologicheskaya Khimiya, No 8, 25 Apr 71, Abstract No 8F1310 Dep by
authors)

Translation: The work presents the results of an experimental investigation
of the rate of elimination of radioactive strontium from dog organism as a
function of age. Discharge functions are determined for five age groups.
A method is given for the interpolation of the discharge functions for any
age. The authors consider one of the possibilities of using the results of
this work in calculating doses for people of different ages.

1/1

1/2 - 025
TITLE--ANALOGS OF COCCIDINE -U- UNCLASSIFIED PROCESSING DATE--16OCT70
AUTHOR--(03)--PISKOV, V.B., OSANOVA, L.K., KOBLOVA, I.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3), 559-64.
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY
TOPIC TAGS--ORGANIC NITROGEN COMPOUND, BENZENE DERIVATIVE, AMIDE,
TOXICITY, BIRD, VETERINARY MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0552 STEP NO--UR/0366/70/006/003/0559/0564
CIRC ACCESSION NO--AP0108767
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108767

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING 6-(R, SUBSTITUTED)
-3,5-DINITROBENZAMIDES. (I) WERE PREPD. BY STD. REACTIONS (R GIVEN):
NHME, NME SUB2, NET SUB2, CL. OTHER SYNTHESIZED COCCIDINE ANALOGS WERE :
4 AMINO 3, 5 DINITROBENZAMIDE, 5 R SUBSTITUTED 2, 4 DINITROBENZAMIDE (R
IS H OR CONH SUB2), N, N MINUS R PRIME1 DERIVS. OF I (R EQUALS ME), (R
PRIME1 EQUALS ME RPRIME2 OR ET), 2 MINUSR, 3 MINUSR PRIME1, 6 MINUSR
PRIME2 TRISUBSTITUTED 5 NITROBENZAMIDES (R, R PRIME1, R GIVEN): H, NO
SUB2, H; NH SUB2, NO R SUB2, H; H, CL, CI), 2 METHYL 5 NITRO BETA
PICOLINAMIDE, AND 3 ACETAMIDO 5 NITROBENZONITRILE. THE TOXICITY OF
THESE COMPS. ON CHICKENS DOES NOT EXCEED THE TOXICITY OF I (R EQUALS
H); HOWEVER NONE HAS BETTER COCCIDIOSTATIC ACTIVITY THAN I (R EQUALS H).
FACILITY: GOS. NAUCH.-KONTR. INST. VET. 9.

UNCLASSIFIED

OSECHINSKIY, I. V.

TRANSFORMATION OF A NORMAL DIFFERENTIATED CELL OF THE ADULT ORGANISM INDUCED BY FUSION OF THIS CELL WITH ANOTHER NORMAL CELL OF THE SAME ORGANISM BUT WITH DIFFERENT ORGANIC OR TISSULAR SPECIFICITY

Article by I.B. Mekler, O.B. Dvina, I.V. Osechinskiy, M.A. Shadravskiy, Institute of Experimental and Clinical Oncology, USSR Academy of Medical Sciences, Moscow; Vsesoyuznyy Nauchno-Issledovatskiy Tsentr, Russian, No 4, April 1971, pp 75-80

SPS 53872
50: 616
02 June 71

UDC: 616-006-092.16

The central position of the theory of oncogenesis expounded by one of the present authors (I.B. Mekler, 1968, 1969, 1970) states that a normal cell becomes malignant, i.e. acquires the ability of anomalous growth and reproduction, invasion, metastases, and propagation only when, by virtue of some causes or other (I.B. Mekler, 1968, 1969, 1970) on its surface appear organ-specific or tissue-specific antigens inherent to cells of other tissues or organs of the same organism. According to this theory, such a change in antigenic topography of a normal cell surface is sufficient, on the one hand, to remove this cell from the control of adjacent similar normal cells, and, on the other hand, to render it capable of effecting specific contacts with adjacent or distant cells of another tissue or organ. This must result in loss by the altered cell of sensitivity to contact inhibition and acquisition of the capacity to invade and metastasize precisely the tissues or organs whose specific antigens this cell acquired.

This approach to interpretation of the causes of transformation of a normal cell into a malignant one is basically different from the conventional views of the cause of this phenomenon which consider appearance on the surface of the transformed cells of antigenic foreign to the organism induced by agents such as viruses or chemical carcinogens (L.A. Zil'ber, I.K. Kopylovskiy et al.) to be the basis of malignant transformation of the cell (referring first of all to malignant transformation induced by viruses or carcinogenic chemical substances).

Although the literature describes a number of factors indirectly confirming the above theory, there is no question but that direct evidence is needed to test its validity.

USSR

BURSHTEYN, A. I.; OSELEDCHIK, Yu. S.

"Absorption of Radiation Modulated Simultaneously with Respect to Phase and Amplitude"

Leningrad, Optika i Spektroskopiya; October, 1970; pp 772-5

ABSTRACT: The absorption of radiation of a wide spectral composition was studied. The radiation spectrum was broadened by a random modulation of the phase and amplitude. In the region of weak interaction the probability of absorption is found by the usual formula in perturbation theory. In a strong field coincidence with perturbation theory is attained only at the ends of the lines, whereas in the center of the spectrum the probability is proportional to the square root of the power. The calculations were made on the basis of a forced relaxation theory developed by the authors.

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OSANNIY, A.S.

Gloria

SO: JPRS 55937
09 MAY 1972

A METHOD FOR CONTROLLING THE HUMAN OPERATOR
Article by A. S. Osanniy and V. D. Romanov. Kiev, *Kibernetika i Vychisleniya*,
May 1971, No. 7, 1971, pp 56-57.

The problem of objective control of the state of the operator becomes more and more urgent in connection with the increasing complexity and responsibility of his functions. The need for controlling the activity and regulating structures in the human organism leads to the use of electrophysiological indicators characterizing the functional state of the working organs in the system. One of the most important of these indicators is the electrical activity of the brain (the encephalogram).

The principal peculiarity of this parameter is its nonstationary nature, accompanied by an essential instability. The use of the general principles of analysis of complex systems, developed by statistical dynamics, for treating electroencephalograms (EEG) permits the improvement of the accuracy of their analysis.

One such method, described in [1], proposes the use of a fast-acting computer in the control system of the human operator. This cannot always be done even in experimental practice. Besides, the method of EEG analysis presented in the physiological basis of the phenomena that are taking place.

The present paper proposes a new method for current statistical analysis of EEG from the numerical characteristics of the energy spectrum to permit the detection of the changes in the spectral makeup of the EEG. The method is based on the possibility of describing every distribution of its moments. The following are used in the process: the first absolute moment or the average frequency of the energy spectrum

$$m_1 = \frac{1}{2\pi} \int_0^{2\pi} \omega f(\omega) d\omega, \quad (1)$$

USSR

UDC 51:155.001.57:612.82

OSENNIY, A. S., ROMANOV, V. D.

"One Method of Testing a Human Operator"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Engineering, Republic Interdepartmental Collection], No 7, 1970, pp 50-53, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V660 by the authors).

Translation: A method is suggested for objective testing of the status of a human operator on the basis of statistical parameters of the electrical activity of the brain. The method is based on the possibility of describing any distribution of its moments. The studies showed the high information content of the simplest first moments of the distribution of the mean power of electrical activity of the brain with respect to frequency components.

USSR

UDC 621.822-72

OSEPYAN, L. S., SIPENKOV, I. YE.

"Determining the Angular Rigidity of a Cylindrical Gas Suspension Device"

Trudy Leningradskogo Politekhnikeskogo Instituta, Aerothermodynamika
(Works of the Leningrad Polytechnical Institute, Aerothermodynamics),
No 313, 1970, pp 110-116

Translation: This article contains a study of a radial air suspension device with two blowing lines to which a misalignment moment is applied. The pressure distribution in the lubricating layer is found by the perturbation method. The relative misalignment angle is taken as the small parameter. On the basis of the solution obtained, a formula is presented for calculating the angular aerodynamic rigidity of the suspension device which is valid with accuracy to second-order small values. It is demonstrated that if a misalignment moment and a radial load causing relatively small angular and linear displacements act on the suspension device simultaneously, then with accuracy to second-order small values, the linear displacements have no effect on the angular rigidity of the suspension device, and the angular displacements, on the linear rigidity.

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USSR

OSEPYAN, L. S., et al., Trudy Leningradskogo Politehnicheskogo Instituta, Aerotermodinamika (Works of the Leningrad Polytechnical Institute, Aerothermodynamics), No 313, 1970, pp 110-116

The results of calculating the angular (and, by the way, the linear) rigidities are presented for various values of physical and geometric parameters of the suspension device. There are 4 illustrations and a 4-entry bibliography.

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USSR

UDC: 621.313.522:538.4

BONDARCHUK, A. P., GARBUZOV, V. N., ZASLAVSKIY, B. I., OSERED'KO, Yu. S.,
KHANZHINA, Ye. I., YANTOVSKIY, Ye. I.

"An Open-Cycle MHD Electric Power Plant Based on Natural Gas With Chemical
Regeneration of Exhaust-Gas Heat"

Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii [Heat Engineering Problem
of the Direct Conversion of Energy -- Collection of Works], No 4, Kiev, Nauk.
Dumka Press, 1973, pp 10-19 (Translated from Referativnyy Zhurnal Turbostroyen-
iye, No 11, 1973, Abstract No 11.49.153)

Translation: Results are presented from analysis of various factors: magnetic
induction B, quantity of additive, and effects and air heating temperature on
the thermodynamic effectiveness η_{st} of an MHD electric power plant (MHDEPP)
with a frame channel of the MHD generator and a steam turbine and thermochemical
processing of the fuel (water conversion) using natural gas as the fuel. Cal-
culations of the MHD power plant are presented for a consumption of combustion
products of 2000 kg/sec using two types of magnetic system (MS): nonsupercon-
ducting and superconducting. For the nonsuperconducting MS, η_{st} of the
MHDEPP changes within limits of 50-49% and 51-52% as B is changed from 5 to

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USSR

BONDARCHUK, A. P., et al., Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii, No 4, 1973, pp 10-19

6.5 T at air temperatures of 1100 and 1500°K respectively. For a superconducting MS with $B=6$ T with a power plant capacity of 2500 Mw, η_{st} increases by 3.5-6.5% as air temperature is increased from 1100 to 1500°K. It is established that the presence of end sectors causes an increase in total length of the MHD generator and an increase in losses to cooling, reducing η_{st} . Injection of K_2CO_3 with 1 wt. % K decreases η_{st} by 1.5%. Problems of water conversion of methane are studied. It is concluded that the MHD power plant discussed is quite promising. 5 Figures; 13 Biblio. Refs. M. I. Osipov

2/2

Gyros

COMBINATION PARAMETRIC RESONANCE IN A CIRCULATORY
 NO / GYRO5
 NO Optimally
 ROZOV. Construction Engineering Institute;
 ROZOV. Constructive, Bunkar, No 6. 1973. Submitted

[Article: Living in the
Land 1972, pp 87-89]
al (sic) September 1972, pp 87-89]

A study was made of the problem of the suspension rings of a gyrocompass in the disturbed motion of the platform. It is demonstrated that in the case where the frequency of the vertical oscillations of the platform coincides with the sum of the frequencies of the platform oscillations of the frames of the instrument, the gyrocompass oscillations occur.

[illegible]

move CLARKSON
...
... CO'S ...

where

$\gamma = \frac{1}{2} + i\frac{1}{2}$

and oscillations of

The values of r_1 and r_2 are the small parameter.

the values of r_1 and r_2 are the radii of the rings, and c is a small parameter. Assuming that the rotor rotates with a constant angular velocity ω and the gyropendulum ($\gamma = \beta = 0$) is stable, let us communicate to the angles γ and β some small displacements defined by the angles γ and β .

20

Carol

①

So: JPRS 60001
11 SEP 73

UDC 531.353

1/2 016
TITLE--EXPERIMENTAL STUDY OF SOME MANIFESTATIONS
ACTION OF THE VITAMIN A -U-
AUTHOR--(03)-VEDROVA, I.N., ANISOVA, A.A., OSETROVA, S.YA.

PROCESSING DATE--23OCT71
CONSEQUENT TO BIOLOGICAL

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 37-40

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN DEFICIENCY, SKIN PHYSIOLOGY, HISTOLOGY, DIET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/2052

STEP NO--UR/0244/70/000/003/0037/0040

SESSION NO--AP0120695

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT7

2/2 016

CIRC ACCESSION NO--AP0120695
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECT OF DIFFERENT VITAMIN A
DOSES ON THE STRUCTURE OF THE EPITHELIAL TISSUE ELEMENTS BY COMPARISON
WITH THE DYNAMICS OF THE VITAMIN 1 CONTENT IN THE LIVER AND BLOOD WAS
STUDIED IN TESTS SET UP ON YOUNG RATS DIVIDED INTO 4 GROUPS KEPT ON A
VITAMIN A DEFICIENT DIET WITH DAILY ADDITION OF VITAMIN A IN AMOUNTS OF
20, 40 AND 80 MUG TO DIFFERENT GROUPS OF ANIMALS. IN THE AUTHORS'
INVESTIGATIONS 20 MUG OF VITAMIN A PROVED TO BE THE MINIMAL DIURNAL DOSAGE
ENSURING NORMAL HISTOLOGICAL STRUCTURE OF THE SKIN AND OF THE ORGANS
UNDER STUDY. THE DOSE OF 80 MUG WAS FOUND TO PRODUCE CHANGES IN THE
STRUCTURE OF THE EPIDERMIS FINDING THEIR EXPRESSION IN THE INHIBITION OF
HORNIFICATION PROCESSES, WITHOUT BEING ATTENDED BY ANY EXTERNAL SIGNS
TYPICAL OF A HYPERVITAMINOSIS. FACILITY: KLINIKA KOZHNYKH I
VENERICHESKIKH BOLEZNEY II MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. N. I
PIROGOVA AND LABORATORIYA PROFILAKTICHESKOGO DEYSTVIYA VITAMINOV N-1
INSTITUTA VITAMINOLOGII MINISTERSTVA ZORAVOOKHRANENIYA SSSR.

UNCLASSIFIED

Electromagnetic Wave Propagation

USSR

UDC: 621.371.332.3:551.463.7:538.3

NEDELYAYEV, A. M., PRAKHOV, V. P., OSETROVA, T. A.

"Determination of the Geometric Characteristics of the Surface of the Sea From the Signal Reflected by the Surface"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp. 110, pp 80-83 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8G50)

Translation: The paper is an exposition of a theory of scattering of electromagnetic waves from a complex rough surface which is a superposition of two kinds of unevenness -- large waves and the ripples covering them. The theory is based on the Kirchhoff approximation in combination with perturbation theory, which makes it more accurate than the theory based on the Kirchhoff approximation alone. The latter gives satisfactory results for incidence close to normal when the effect of the fine structure of the wave can be disregarded. Bibliography of three titles. N. S.

1/1

01/2 022

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—LUBRICANT -U-

AUTHOR—(05)—PASECHNIK, M.S., KAMINSKIY, N.A., OSEYKO, N.I., CHAMIN, I.A.,
PETROVSKIY, A.A.
COUNTRY OF INFO—USSR

SOURCE—U.S.S.R. 266,987
REFERENCE—OTKRYTIYA, IZOBRET., PROM. GBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED—01APR70

SUBJECT AREAS—MATERIALS

TOPIC TAGS—CHEMICAL—PATENT, SURFACTANT, METALWORKING LUBRICANT, COLD
WORKING, HOT WORKING, VEGETABLE OIL, ESTER

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAE—3003/1805

STEP NO—UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO—AA0130638

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0130638

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LUBRICANT FOR COLD AND HOT METAL WORKING WAS PREPD. FROM CORIANDER FATTY OIL BY HEAT TREATMENT AT 150-330DEGREES AND 5-500 MM AND MIXING WITH MINERAL OR VEGETABLE OIL OR WITH A SURFACTANT, SUCH AS A SYNTHETIC ESTER.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF HYDROGENATED CORIANDER FATTY OIL IN THE METALLURGICAL
INDUSTRY -U-
AUTHOR--USEYKO, N.I.
COUNTRY OF INFO--USSR
SOURCE--MASLO-ZHIR. PROM. 1970, 36(3), 39-41
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--METALLURGIC INDUSTRY, METAL LUBRICANT, HYDROGENATION, COLD
ROLLING, STEEL/(U)PKSI PALM OIL

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0925 STEP NO--UR/9085/70/036/003/0039/0041
CIRC ACCESSION NO--AP0121527
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121527

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FATTY ACID COMPN. OF THE LUBRICANT KORIANDR, BASED ON CORIANDER FATTY OIL, WAS EXAMD. AND THE LUBRICATING PROPERTIES OF THE CORIANDER FATTY OIL, OF ITS HYDROGENATE, AND OF PALM KERNEL OIL WERE DETD. AND COMPARED. THE EFFECTIVENESS OF ANY TECHNOL. FATTY LUBRICANT (SUCH AS KORIANDR, PKS-1, AND IMPORTED PALM KERNEL OIL) USED FOR RAPID COLD ROLLING OF THIN STEEL SHEETS, DEPENDS ON THE COMPN. AND CONSTITUTION OF ITS FATTY ACIDS. A SHIFT OF THE DOUBLE BOND FROM THE 9, 10 POSITION (OLEIC ACID) TO THE 6, 7 POSITION (PETROSELINIC ACID) AND A CHANGE OF THE CIS (OLEIC) TO THE TRANS FORM (ELAIDIC) INCREASES THE LUBRICATING PROPERTIES OF THE COMPS. EXAMD. THE DOMESTIC KORIANDR-2 (HYDROGENATED CORIANDER OIL) WAS A GOOD SUBSTITUTE FOR PALM KERNEL OIL. FACILITY: KIEV. TEKHNOL. INST. PISHCH. PROM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC: 621.3.049.75

SERCHUGOVA, A. G., OSHARIN, V. I., FILIP'YEVA, N. I., ORLOVA, L. N.

"A Method of Making Printed-Circuit Boards"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 5, Feb 71, Author's Certificate No 293312, Division H, filed 31 Mar 69,
published 15 Jan 71, p 182

Translation: This Author's Certificate introduces a method of making
printed-circuit boards with metallized holes by a positive combined method.
As a distinguishing feature of the patent, the quality and reliability of
the boards is improved and cost is reduced by electrophoresis polymer coating
of the printed-circuit drawing formed by chemical and galvanic copper plating.
This polymer coating is stripped off after removal of the photoresist and
etching of the copper foil.

1/1

- 106 -

USSR

Foundry

REC 664.13:021.726.55

OSHCHEPKOV, B. V., SKAZIN, Yu. V., BEGASHEV, V. Z., and ABRIMOVA, N. M.,
Zlatoustovskiy Metallurgical Plant

"Effect of the Quantity of Liquid Synthetic Slag on the Quality of Steel and Alloys"

Moscow, Stal', No 10, Oct 70, pp 909-911

Abstract: A method has been developed for determining the optimal height of the layer of liquid synthetic slag necessary during casting of alloys Kh15N60, Kh20N80, EI602, EI437BU and steels Kh16N6, EI835 and others into 0.5-2.7-t ingots in order to ensure good quality of surface and underfilm zone of the ingot. The depth of penetration of the pipe into the ingot body increases at extreme heights of the layer of liquid synthetic slag. The reduction in slag consumption from 17-20 to 8-10 kg/t of alloy considerably improved the quality of the microstructure and surface. The optimal height of the layer is directly proportional to the rate of casting.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SILICATE LINED CAST IRON PIPES -U--
AUTHOR-(04)-CHERNYAVSKIY, I.YA., MILLER, S.N., KVARNBERG, A.F.,
DSHCHEPKOV, G.I.
COUNTRY OF INFO--USSR
SOURCE--GER. 1,558,346
DATE PUBLISHED--02JAN70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CAST IRON, SILICATE, SAND, ORE, SLAG, CONCRETE, PROTECTIVE
COATING, PIPE, CHEMICAL COMPOSITION, METAL COATING, PROTECTIVE COATING,
CHEMICAL PATENT, MATERIAL HANDLING EQUIPMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/0928 STEP NO--GY/0000/70/000/000/0000/0000
CIRC ACCESSION NO--AA0101234
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AA0101234

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TUBES WHICH ARE USEFUL E.G. FOR THE TRANSPORT OF ABRADING MATERIAL (CONCRETE, SLAG, SAND, ORES) CONSISTS OF A CAST IRON SHEATHING AND AN INNER LINING OBTAINED BY APPLYING A SILICATE MELT CONTG. E.G. SIO SUB2 40-1, CAO 45-7, AL SUB2 0 SUB3 5-7, MGO 5-6, MNO 0.25, FEO 0.47, S 0.56PERCENT, THE SILICATE LINING EXTENDING OVER THE WHOLE LENGTH OF THE TUBE AND BEING TAPERED AT THE ENDS OF THE TUBE AT AN ANGLE OF 5-20DEGREES.

UNCLASSIFIED

USSR

UDC 621.383.82

DUN, L. M., OSHCHEPKOV, P. K., KARADZHALI, R. M., ROZIN, N. S.

"Electron Image Converter"

USSR Author's Certificate No 243096, filed 8 Aug 67, published 16 Sept 69 (from RZh--Elektronika i yeye primeneniye, No 7, July 1970, Abstract No 7A270P)

Translation: An electron image converter is proposed which contains an input window made of a glass-metal disk with anisotropic electrical conductivity, an electron gun, a system for electron beam scanning, a collector and a unit [blok] for the channels of electron multipliers located before the collector. The channels of the electron multipliers are located in concentric rows coaxial with the cylindrical surface of the container [ballon] and their ends turned to the input window are truncated at a 45° angle to the axis of the device. N.S.

1/1

USSR

OSHCHEPKOV, P. K., Honored Scientists and Technician, RSFSR, Director
Scientific Research Institute of Introscopy

"The Nontransparent Becomes Transparent"

Moscow, Golos Rodiny, No 9, Jan 70, p 2

Abstract: Having seated the patient in a comfortable chair, the physician clicks a knob on the control panel in a setting similar to that of the Roentgen apparatus, turns the focusing piece and we see a human heart on the screen. One more turn of the handle, and the anterior wall of the heart melts away and we see in the greenish light of the biointroscope the contracting ventricles and auricles of a living heart. Today we can photograph the living fetus within the womb by the introsopic method. The quality of many substances can be determined by this nondestructive method, and objective information can be obtained by looking within. How important it is to detect flaws in highly complex mechanisms, on which human safety depends.

1/2

USSR

OSHCHEPKOV, P. K., et al., Moscow, Golos Rodiny, No 9, Jan 70, p 2

Physically, transparency and nontransparency are relative terms. Ordinarily we see because the light is reflected from the surface of the object, the image falling on our eye. In introscopy the rays are reflected from the various levels of the opaque medium. At first introsscopes worked in the infrared range. Now, with the universal transformer - unicon - magnetic rays, radio waves, and all sorts of waves enable us to look through the opaque.

2/2

USSR UDC 619:616.9.022.7+636.2+636.3+636.4+636.52/.58

OSHCHEPKOV, V. G.

"Duration and Intensity of Immunity in Swine Vaccinated With
a Vaccine from Strain Br. suis No 61"

V sb. Sb. nauchn. rabot. Sib. n.-i. vet. in-t (Siberian Scientific
Research Veterinary Institute -- Collection of Scientific Works),
No 17, 1970, pp 73-76 (from RZh-Zhivotnovodstvo i Veterinariya,
No 3, Mar 71, Abstract No 3.58.597)

Translation: A rapid, pronounced immunobiological arrangement
of the organism takes place in swine vaccinated with a vaccine
from strain Br. suis No 61, as indicated by the production of
agglutinins and complement-fixing antibodies, a sharp rise in
phagocytic activity of leucocytes, and the emergence of an
allergic reaction to intracutaneous administration of Brucella-
hydrolysate. Vaccinated swine are resistant to artificial
infection with a virulent Brucella culture for nine months
(the observation period). Resistance depended on the amount
of stimulant introduced into the organism.

1/1

Rare Metals

USSR

EDC 669.14.015.31046.31:669.335

POVOLOTSKIY, D. Ya., MAL'KOV, M. V., OSHCHEPKOV, Yu. P., and FILATOV, S. K.,
Chelyabinsk Polytechnical Institute

"Influence of Rare-Earth Metals on the Structure and Technological Plasticity
of Chrome-Nickel Stainless Tube Steel"

Novokuznetsk, Izv. VUZ, Chern. Metallurgiya, No 10, 1970, pp 108-112

Abstract: The addition of 0.1% rare-earth elements (rem) to chrome-nickel steel has no influence on the structure of the ingot upon crystallization of the metal in the form of the ferrite, but decreases the transcrystallization zone and makes the grain finer upon crystallization as austenite. Addition of rem to austenitic chrome-nickel steel facilitates even distribution of nonmetallic inclusions through the cross section of ingots and rolled billets. Microalloying of chrome-nickel austenitic steel with rem causes a significant increase in technological plasticity of the metal at rolling temperatures.

USSR

UDC 531.01

OSHCHEPKOVA, G. D.

"Precision of the Calculation of Some Parameters of a Two-Component Pendulum-Type Gyrocompass"

Sborn, Nauch, Tr. Perm. Politekhn. In-t (Collection of Scientific Works of the Perm' Polytechnic Institute), No 99, 1971, pp 120-125 (from Referativnyy Zhurnal, Mekhanika, No2 Feb 72, Abstract No 2A111 by I. V. Novozhilov)

Translation: In the article are set down the linearized procession equations of a two-component pendulum-type gyrocompass. Consideration is given to a case in which damping is absent, and the base is motionless with respect to the Earth. It is shown that disregarding cross terms in the equations of motion brings about small errors in computation of the frequencies and amplitude of the natural oscillations of the system.

Abstracter's note. The concluding remark concerning resonance phenomena does not proceed from the content of the article, since such situations are not dealt with in the work.

1/1

USSR

UDC 537.311.33:532.642

OSHCHERIN, B. N., Leningrad Technological Institute imeni Leningra

"On the Surface Tension of Semiconductor Fusions at the Melting Point"

Moscow, Investiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 6, No 6,
Jun 70, pp 1165-1166

Abstract: A comparison is made of experimental and theoretical values of the surface tension of seven semiconductors at the melting point. The theoretical values were calculated from the equation $\sigma_1/\sigma_2 = (\theta_1/\theta_2)^2 = \exp(2L/3kT_M)$, where

σ_1 = surface tension of semiconductor crystals,

σ_2 = experimental surface tension of semiconductor fusions,

θ_1 and θ_2 : temperatures related to σ_1 and σ_2 .

L = melting temperature,

k = Stefan-Boltzmann constant, and

T_M = melting point.

The calculated surface tensions are in good agreement with experimental data.

The equation can be used for evaluating the surface tension.

1/1

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SURFACE TENSION OF CRYSTALS OF NON METALS -U-
AUTHOR--OSHCHERIN, B.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 547-8
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SURFACE TENSION, CRYSTAL SURFACE, SEMICONDUCTOR PROPERTY,
MICROHARDNESS, INDIUM ANTIMONIDE, SPECIFIC HEAT, THERMAL EXPANSION,
MELTING POINT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1143 STEP NO--UR/0076/70/044/002/0547/0548
CIRC ACCESSION NO--AP0124798
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124798

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SURFACE TENSION OF FREE GIBBS SURFACE SIGMA SUB(HKL) FOR SEMICONDUCTORS IS LINEARLY DEPENDENT ON MICROHARDNESS. THE VALUE OF SIGMA SUB(HKL) FOR INS8 ALLOY AT THE M.P. IS 1.9 TIMES LESS THAN IN THE CRYSTAL. A RELATION HAS BEEN GIVEN RELATING SIGMA SUB(HKL) TO THE SP. THERMAL CAPACITY, D., COEFF. OF VOL. EXPANSION, AND MOL. OR AT. WT. OF THE SEMICONDUCTORS. FACILITY: Leningrad. Tekhnol. Inst. im. Lensovet, Leningrad, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ENTHALPY OF ACTIVATION OF CARBON SELF DIFFUSION IN CUBIC CARBIDES
-U-
AUTHOR--OSHCHEIN, B.N.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 300-4
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--ENTHALPY, CARBIDE, METAL DIFFUSION, SODIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0393 STEP NO--UR/0126/70/029/002/0300/0304
CIRC ACCESSION NO--AP0126148
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 021

CIRC ACCESSION NO--AP0126148

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

ABSTRACT. THE ENERGY FACTORS WERE CONSIDERED FOR THE SELF DIFFUSION OF C ALONG THE STRUCTURAL VACANCIES IN CARBIDES WITH A NaCl STRUCTURE IN WHICH THE ACTIVATION ENTHALPY (E_{SUBA}) FOR THE DIFFUSION OF AN ION OR AN ATOM IS CONSIDERED AS THE WORK EXERTED AGAINST FORCES WHICH ENSURE THE STABILITY OF THE LATTICE. THE VALUES OF E_{SUBA} ARE TABULATED FOR ALKALI HALIDES AND FOR CUBIC CARBIDES. THE VALUES OF THE CHARACTERISTIC TEMPERATURES WERE CALCD. FOR THE CARBIDES AND TABULATED.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ENERGY OF ACTIVATION OF SELF DIFFUSION IN THE LIQUID STATE -U-

AUTHOR--OSHCHERIN, B.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 187-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUID DIFFUSION, ACTIVATION ENERGY, MELTING POINT, CRYSTAL
LATTICE STRUCTURE, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0054

STEP NO--UR/0076/70/044/001/0187/0188

CIRC ACCESSION NO--AP0105153

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTIVATION ENERGY OF SELF
DIFFUSION IN THE CRYSTAL AND IN THE MELT IN THE VICINITY OF THE M.P. IS
CONNECTED WITH THE TEMP. OF MELTING AND WITH THE COMPACTNESS OF THE
LATTICE IN THE CRYSTAL AND IN THE MELT. THE EQUATION WAS VERIFIED ON
MANY COMPOS. WITH SIMPLE AND COMPLEX COMPN. FACILITY:
LENINGRAD, TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 041 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ENTHALPY OF ACTIVATION OF HYDROGEN DIFFUSION IN METALS -U-
AUTHOR--~~OSHCHERIN, B.N.~~
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970. 29(1), 184-6
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ENTHALPY, HYDROGEN, GAS CONTAINING METAL, METAL CONTAINING
GAS, IRON ALLOY, TUNGSTEN ALLOY, CHROMIUM ALLOY, VANADIUM ALLOY,
TANTALUM ALLOY, ZIRCONIUM ALLOY, HAFNIUM ALLOY, NICKEL ALLOY, MOLYBDENUM
ALLOY, REFRACTORY METAL, GAS DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0940 STEP NO--UR/0126/70/029/001/0184/0186
CIRC ACCESSION NO--AP0121542
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121542

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ENTHALPY (E SUBA PRIMEH) OF
ACTIVATION IS CALCD. FOR THE DIFFUSION OF H INTO ALPHA-FE, GAMMA-FE, NI,
CU, AG, PD, TH, BETA-TI, BETA-ZR, BETA-HF, CR MO, W, V, NB, TA, SI AND
GE. THE RESULTS ARE TABULATED. FACILITY: LENINGRAD, TEKHNOL.
INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--POLARIZATION MEASUREMENTS OF THE HEAD OF THE COMET HONDA 1968C -U-
AUTHOR--OSHEROV, R.S.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK TADZHIKSKOI SSR, DOKLADY, VOL 13, NO. 1 1970, P
15-18
DATE PUBLISHED-----70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--COMET, LIGHT SCATTERING, ASTROGRAPH, LIGHT POLARIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FKAME--1989/2015 STEP NO--UR/0425/70/013/001/0015/0018
CIRC ACCESSION NO--AT0109341
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AT0108341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE RESULTS
OBTAINED BY POLARIZATION MEASUREMENTS OF THE HEAD OF THE COMET HONDA
1968C, USING A TRIPLE POLARIZATION ASTROGRAPH. IT IS FOUND THAT THE
POLARIZATION OF LIGHT ON THE HEAD OF THIS COMET CORRESPONDS TO THE LIGHT
SCATTERING ON DUST PARTICLES WHICH IN CERTAIN PARTS OF THE HEAD EXHIBIT
A PREFERRED ORIENTATION.

UNCLASSIFIED

USSR

UDC: 621.372.854

GAYNANOV, Kh. N., OSHIVALOV, V. D.

"Effect of Reflections on the Parameters of a Ferrite Band-Elimination Filter"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 43-51 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6B105)

Translation: The authors consider a band-elimination filter in the form of a waveguide section with a spherical element cut from a ferrite single crystal magnetized to saturation. Formulas are derived which define the principal parameters of the filter in the case of mismatched temperature and load. Consideration is given to its use as a frequency discriminator in the AFC system of SHF oscillators or in a frequency measurement system. Six illustrations, bibliography of seven titles.
N. S.

1/1

USSR

UDC 669.17

GRIDNEV, V. N., MESHKOV, YU. YA., MINAKOV, V. N., and OSKADEROV, S. P.,
Institute of Metal Physics, Academy of Sciences UkrSSR

"The Characteristics of High-Speed Austenization of Hypoeutectoid Steels"

Kiev, Metallofizika, No 31, 1970, pp 121-126

Translation: The characteristics of the process of formation of austenite in annealed, hardened, and highly tempered carbon steels of a hypoeutectoid composition in a heating rate interval from 20 to 7000 degrees per second were studied by overall investigation methods. It is shown that the temperature conditions of austenite formation in high-speed heating depend on the initial structural state. When steel with an annealed structure is heated at a rate of more than 500 degrees per second, the transformation occurs according to a two-stage pattern, when first the pearlite and then the ferrite steel components are transformed into austenite. Bibliography: 8 entries, 3 illustrations.

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USSR

UDC 669.017.3

GRIDNEV, V. N., OSHKADEROV, S. P., and SMIRNOV, A. M., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Features of Austenite Formation During Rapid Heating of Cold-Worked Steel KVK-42 (42Kh2NGSM)"

Kiev, Metallofizika, No 40, 1972, pp 37-45

Abstract: The effect of rapid heating rates (up to $3000^{\circ}/\text{sec}$) on the temperature conditions for the alpha-gamma transformation is drawn (up to 75% reduction) KVK-42 steel of the martensite class was studied. It was shown that with an increased degree of deformation there occurs a lowering of the critical point in comparison with the point for annealed steel, whereupon the effect of lowering is greater the higher the degree of deformation and heating rate. A temperature-time diagram was plotted for austenite formation in the given steel for conditions of continuous heating in the interval of heating rates from 50 to $2700^{\circ}/\text{sec}$. The obtained data are discussed from the viewpoint of the effect of structural defects on the kinetics of austenite formation. 6 figures, 5 bibliographic references.

1/1

USSR

UDC 669.017.3

GRIDNEV, V. N., IVASISHIN, O. M., and OSHKADEROV, S. F., Institute of Metal Physics, Academy of Sciences Ukr SSR

"Austenite's Inheritance of the Alpha-Phase Defect Structure in the Rapid Heating of U9 Steel"

Kiev, Metallofizika, No 39, 1972, pp 69-75

Abstract: The conditions of rapid annealing (1000°/sec) of U9 deformed steel (0-86%), done prior to deformation in the tempered, normalized, and annealed states, were studied by dilatometric and thermal analyses, which made it possible to obtain structures with different interplate distances. Removal of the effects of prior plastic deformation proceeds in three steps: in the temperature interval of the alpha-phase, in the alpha-gamma-phase transformation, and in the gamma-phase. The degree of prior deformation in the studied limits has only a quantitative effect, and does not change the overall picture of annealing.

During rapid heating the austenite inherits a defect structure of the deformed alpha-phase, whereupon the increased defectiveness of austenite is preserved almost to its recrystallization temperature. 5 figures, 7 bibliographic references.

1/1

USSR

UDC 547.666

ROTBERG, Yu. T., CHEPUKA, L. Ya., and OSHKAYA, V. P., Latvian State University
imeni P. Stuchka

"Condensation of Dicarboxylic Acid Anhydrides With Compounds Containing Active
Methylene Groups. XII. Direct Synthesis of Halogen-Substituted 2-Phenyl-1,3-
-indandiones"

Riga, Izvestiya Akademii Nauk Latviiskii SSR, Seriya Khimicheskaya, No 4, 1970,
pp 471-474

Abstract: Condensation of 3-bromo-, 4-bromo-, 3-iodo-, or 4-iodophthalic an-
hydrides with p-bromo- or (p-iodophenyl)acetic acids in acetic anhydride and
triethylamine yielded the corresponding dihalo derivatives of 2-phenyl-1, 3-
-indandione in good yields. Analogously, 3-bromo- or 4-bromophthalic anhydrides
condensed with (m-bromophenyl)acetic acid yielded 4-bromo-2-(m-bromophenyl)-1,3-
-indandione and 5-bromo-2-(m-bromophenyl)-1,3-indandione, respectively. A mix-
ture of 5-bromo-2-(o-bromophenyl)-1,3-indandione and 5-(or 6-)-bromo-3-(o-bromo-
benzylidenephthalide) was obtained from the condensation of 4-bromophthalic
anhydride with (o-bromophenyl)acetic acid. Some 14 dihalo-2-phenyl-1,3-in-
dandiones were prepared. All compounds were brominated to the 2-bromo deriva-
tives by dibromodioxane. The infrared spectra of the latter were recorded in
the 1500-1800 cm^{-1} region.

1/1

USSR

UDC 547.584+547.314+547.78

QSHKAYA, V. P. and KALVINSH, I. Ya., Latvian State University imeni P. Stuchka

"Condensation of Dicarboxylic Acid Anhydrides With Compounds Containing Active Methylene Groups. XII. Condensation of Phthalic Anhydride With 2-Thiothiazolidone-4 and Thiazolidene-2,4-dione"

Riga, Izvestiya Akademii Nauk Latviiski SSR, Seriya Khimicheskaya, No 4, 1970, pp 475-478

Abstract: Condensation of phthalic anhydride with 2-thiono-thiazolidone-4 and with 3-phenyl-2-thiono-thiazolidone-4 yields 5-phthalylidene-2-thiono-thiazolidone-4. These compounds are formed also in acetic anhydride in the presence of sodium acetate. Work up of 5-phthalylidene-2-thionothiazolidone-4 with concentrated sulfuric acid yields 5-phthalylidene-thiazolidene-2,4-dione which could be obtained also from the condensation of phthalic anhydride with thiazolidene-2,4-dione. The structure of the compounds was confirmed by infrared and ultraviolet spectral analysis.

1/1

- 30 -

USSR

UDC 547.665

ROTBURG, Yu. T., and OSHKAYA, V. P., Latvian State University imeni P. Stuchka

"Condensation of Dicarboxylic Acid Anhydrides With Compounds Containing Active Methylene Groups. XI. Some 2-Phenyl-1,3-indandione Derivatives Containing Nitro Groups"

Riga, Izvestiya Akademii Nauk Latviiskoi SSR, Seriya Khimicheskaya, No 4, 1970, pp 464-470

Abstract: A systematic study of using substituted phenylacetic acids for the direct synthesis of 2-phenyl-1,3-indandiones was undertaken. Condensation of (o-nitrophenyl)acetic acid with phthalic anhydride yielded 2-(o-nitrophenyl)-1,3-indandione in 31.5% yield. When 3-nitro- and 4-nitrophthalic anhydrides were used instead of phthalic anhydride, 4-nitro-2-(o-nitrophenyl)-1,3-indandione and 5-nitro-2-(o-nitrophenyl)-1,3-indandione were obtained in higher yields. Condensation of 3-nitro- and 4-nitrophthalic anhydrides with (m-nitrophenyl)acetic acid in acetic anhydride and triethylamine proceeded quite smoothly: intensely red crystals of 4-nitro-2-(m-nitrophenyl)-1,3-indandione and 5-nitro-2-(m-nitrophenyl)-1,3-indandione were obtained. The infrared spectra of the compounds were recorded in the absorption region of carbonyl groups. The diketone structure of the compounds could be established.

1/2

USSR

ROTBERG, Yu. T., and OSHKAYA, V. P., Izvestiya Akademii Nauk Latvinskoi SSR, Seriya Khimicheskaya, No 4, 1970, pp 467-470

Nevertheless, 4-(and 5-)-nitro-2-(m-nitrophenyl)-1,3-indandione are easily brominated.

2/2

- 31 -

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DETERMINATION OF SELENIUM AND TELLURIUM ACCORDING TO ION MOBILITY
-U-
AUTHOR--(03)-KONSTANTINOV, B.P., OSHURKOVA, O.V., CHEBOTAREVA, N.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 544-B
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SELENIUM, TELLURIUM, ION, METAL CHEMICAL ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1061 STEP NO--UR/0080/70/043/003/0544/0548
CIRC ACCESSION NO--AP0123054
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123054

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDITIONS OF THE IONS SEPN. ACCORDING TO THE ION MOBILITY ARE DISCUSSED. THE EXPTL. APP. CONSISTS OF TWO ELECTROLYTIC VESSELS FITTED WITH Pt ELECTRODES AND JOINED BY A HORIZONTAL CAPILLARY BRIDGE (LENGTH 18-25 CM, CAPILLARY BORE 0.1-0.3 MM). THE SAMPLE IS ELECTROLYZED IN THE CAPILLARY BRIDGE FOR 4 HR AT 1 MA. THE COMPLETE SEPN. OF SED SUB3 PRIME2NEGATIVE AND TED SUB3 PRIME2NEGATIVE IONS WAS ATTAINED BY USING 4N KCL AS ANOLYTE AND 1.8N NA SALICYLATE PLUS 0.07N NaOH CATHOLYTE. THE SED SUB3 PRIME2NEGATIVE AND TED SUB3 PRIME2NEGATIVE ARE DETD. BY DIVISIONS ON "SHADOW PICTURES".

FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

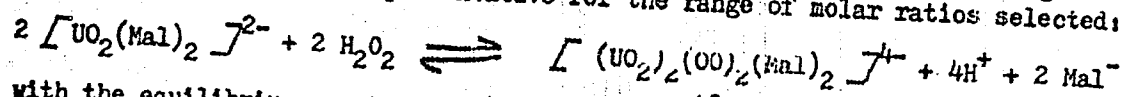
UDC 541.49:546.791.6

GUREVICH, A. M., POLOZHENSKAYA, L. P., OSICHEVA, N. P., and SOLNTSEVA, L. F.

"Reactions of Uranyl Malonate Complexes with Hydrogen Peroxide. II. Study of the Equilibria in the System $\text{UO}_2^{2+}-\text{H}_2\text{O}_2-\text{C}_3\text{H}_2\text{O}_4^{2-}-\text{H}_2\text{O}$ "

Leningrad, Radiokhimiya, Vol 13, No 5, 1971, pp 688-692

Abstract: Results are reported on the study of the reaction of uranyl malonate complexes with hydrogen peroxide employing the methods of light absorption and pH-metry. On the basis of the results of calculations, the following reaction is proposed as representative for the range of molar ratios selected:



with the equilibrium constant of $(3.3 \pm 0.6) \cdot 10^{-18}$. The complete formation of the complex ion $\left[(\text{UO}_2)_2(\text{OO})_2(\text{Mal})_2 \right]^{4-}$ with a 10^{-3}M concentration of uranium occurs at the pH range of $6 \approx 7$. The stability constant of the diperoxodimalonatodiyranil ion was determined to be $1.7 \cdot 10^{75}$. In the pH range 2-7.5 partial displacement of the malonate groups takes place with the formation of $\left[(\text{UO}_2)_2(\text{OO})(\text{Mal})_x \right]^{(2x-2)-}$ type

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GUREVICH, A. M., et al., Radiokhimiya, Vol 13, No 5, 1971, pp 688-692

oc complexes in the first phase, followed by the formation of $[(UO_2)_2(OO)_2]$
 $(Mal)_x]^{2x-}$ in the second phase. in weakly basic medium, various types of
 peroxo-malonato-hydroxyl-uranyl complexes may form, and at pH > 10 , with
 excess H_2O_2 the hydroxyl and malonate groups may be displaced with formation
 of peroxide complexes $[(UO_2)_2(OO)_2(H_2O)_n]^{2-}$ and $[UO_2(OO)_3]^{4-}$.

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UDC 543.251:546.799.3

GUREVICH, A. M., POLOZHENSKAYA, L. P., OSICHEVA, N. P., and SOLNTSEVA, L. F.

"Electrochemical Method of Isolating Neptunium From an Alkaline Peroxide Medium"

Leningrad, Radiokhimiya, Vol XIII, No 2, 1971, pp 239-245

Abstract: In connection with the urgency of the problem of separation and purification of transuranium elements and the difficulties of analyzing salt solutions containing micro amounts of transuranium elements, the possibility of separating these elements both jointly with uranium and in pure form (without a carrier) from alkaline peroxide media was studied on the example of ^{237}Np . The experimental procedure using the electrochemical method, and the data obtained are discussed. The applicability of the method to analysis of salt solutions of neptunium was demonstrated in a broad neptunium concentration range.

The yield of neptunium, introduced in the amount of 50-100 micrograms, reaches 99-100 percent, and its total losses vary from 0.5 to 1 percent under the following optimum conditions: $\text{pH} \approx 14.0$, $[\text{UO}_2] \geq 5.6 \cdot 10^{-3} \text{M}$ (1-2 milligrams in 75 ml), current density $\geq 1.0 \text{ milliamperes/cm}^2$, electrolysis time ≥ 60 minutes, 1/2

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GUREVICH, A. M., et al., Radiokhimiya, Vol XIII, No 2, 1971, pp 239-245

temperature 95-100°. Data indicating the effect of the amount of carrier introduced into the experiment on the neptunium yield show that with a decrease in carrier concentration below the indicated limit, the neptunium losses begin to increase in connection with an increase in the effect of the solubility factor of the uranium and neptunium compounds when washing the participates with water. The data on the effect of salts on the ^{237}Np yield with uranium as the carrier show that the acetate and nitrate ions (both separately and jointly in a concentration up to 2M); the oxalate ion (up to 0.5M), have almost no effect on the ^{237}Np yield (97-99 percent) with total losses varying within the limits from 1 to 3 percent.

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USSR

UDC 576.858.083.1:061.3(47)"1971"

OSIDZE, D. F., Candidate of Biological Sciences, and STEPANOVA, L. G.,
Candidate of Medical Sciences

"Interinstitute Symposium on the Use of Diploid Cells in Virology"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 507-508

Abstract: Sponsored by the Moscow Scientific Research Institute of Virus Preparations, the symposium was held 16-17 Nov 71 in Moscow. 23 reports were presented in 3 sessions. The 1st session dealt with the problems of obtaining, culturing, and controlling diploid cells, and their properties: O. G. Andzhaparidze et al., K. I. Kokovickhina et al., V. E. Marayeva et al., O. N. Ageyeva and Yu. Z. Gendon (Properties and uses of diploid human embryo cells); O. G. Andzhaparidze et al., S. D. Mitavskaya and A. V. Zhilevich, A. A. Pozdnjakov et al., and others (properties and uses of diploid animal embryo cells, chiefly cattle). The 2nd session dealt with the interaction between diploid cells and viruses: O. G. Andzhaparidze et al. (effect of physical, chemical, and biological factors on genetic apparatus of diploid human embryo cells), Yu. Z. Gendon et al. (interaction between human embryo cells and poliomyelitis virus), O. G. Andzhaparidze et al. (sensitivity of animal embryo cells to measles, smallpox, and other diseases), G. I. Kozinets et al. (use of human lymphocytes in virological research), and others. Transformations in diploid cells induced by some

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OSIDZE, D. F., Voprosy Virusologii, No 4, Jul/Aug 72, pp 507-508

viruses and material from leukemia patients were discussed in the 3rd session: O. G. Andzhaparidze et al (transformations of human embryo cells caused by agents from hemocytoblastosis patients and the use of such cultures in studying human leukemia), L. I. Nagayeva et al (interaction of mouse sarcoma virus and cow embryo cells). The participants formalized the definition of diploid cell strains and established the usability criteria for diploid cells in the production of vaccines.

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Veterinary Medicine

USSR

UDC 619:616.988.73-036.2:636.5

SYURIN, V. N., OSIDZE, N. G., CHISTOVA, Z. Ya., and RODIN, Yu. V., Moscow
Veterinary Academy

"The Epizootiological Potential of Fowl Influenza Virus"

Moscow, Veterinariya, No 8, Aug 72, pp 41-43

Many reports have appeared in recent years on the isolation of antigenically different variants of fowl influenza viruses, both pathogenic and weakly pathogenic, and not only from chickens but from ducks, turkeys, geese, quail, pheasants, seagulls and other species. At the same time it was reported that a large number of isolated influenza strains varied not only with respect to antigenic properties, but also with respect to pathogenicity for birds of various ages.

Bakos and Dinter in 1949 were the first to report the presence of fowl influenza virus with antigenic variants in such strains. They succeeded in isolating in Bavaria an antigenic variant of chicken influenza virus (strain N) which possessed a strong pathogenicity for chicks but was apathogenic for adult fowl. Ten years later a similar (chick) strain of influenza virus was isolated in Scotland and was called, in accordance with international classification, A/chicken/Scotland/59.

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In the Soviet Union an analogous strain was isolated in 1967 at one of the poultry farms during an outbreak which was characterized by a rapid course, infection of the respiratory organs and of the gastrointestinal tract and a high degree of fatality. The isolated strain was thoroughly studied and designated by us according to the nomenclature of the VOZ at that time as influenza virus type A -- A/chicken/USSR/314/67.

In the 1966-1970 period in a number of countries a number of influenza virus strains were found which differed from each other by a large number of indexes (A. L. Kornilova, 1960; Ye. M. Kozhevnikov, A. A. Bobrov, 1961; N. G. Osidze, V. N. Syurin, 1970; P. F. Tsimokh, 1966; Dinter, 1964; Frano et al., 1958). It became necessary to reclassify all of the isolated fowl strains.

The following classification of fowl influenza etiologic agents was proposed by the Council on the Classification of Influenza Viruses of the VOZ in 1971 (Table).

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Classification of Fowl Influenza Etiologic Agents

Provisional Designation
of Serotypes

Standard Strain*

A1	A/KehP/Dar/27
A2	A/chicken/Germany/49
A3	A/duck/England/56
A4	A/duck/Czechoslovakia/56
A5	A/Currassow/South Africa/61
A6	A/turkey/Massachusetts/65
A7	A/duck/Ukraine/1/63
A8	A/turkey/Ontario/6118/68

*Notation. The fowl influenza virus strain A/chicken/USSR/314/67 which we isolated in 1967 belongs to the serotype A5, the strain A/chicken/USSR/315/70, isolated in 1970 -- to the serotype A6. During an epizootic of fowl influenza in 1970-1972, 13 strains were isolated belonged to serotype A6 with strain A/chicken/USSR/315/70

This classification can hardly be considered complete. However, in the practical (diagnostic) sense, by using this table and having the diagnostic 3/11

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tools prepared from the standard strains it becomes easier to make one's way through the chaos of isolated virus strains that are growing in number with each year. Changes in the antigenic structure of fowl influenza virus strains under natural conditions occur continually, frequently in the absence of concrete antigenic differences, so that the classification of fowl influenza viruses into types that are different from influenza viruses shared by men and horses, is impossible.

Clinically, fowl influenza can appear in various forms. Classical fowl plague, whose etiologic agent is also related to influenza virus, is characterized by a short incubation period, elevated temperature, depression, cessation of ovulation, infection of respiratory organs and of the gastrointestinal tract, diarrhea, acute cyanosis of the comb and lobes, and a high fatality rate within 24-40 hours. The death rate in these cases reaches 80-100%. And in very acute cases it is not always possible to record the enumerated symptoms of the disease. At the present time recordings are being made of enzootic outbreaks of diseases whose etiologic agents are related to fowl influenza virus but which are less severe. Symptoms are limited to depression, reduced egg yield, infection of the respiratory or gastrointestinal tract (diarrhea) with subsequent recovery

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in two to three weeks (Lang et al., 1965; McQueen et al., 1968, Rogers, 1964). Death of infected fowl may not exceed 5-10%. Upon section of the killed sick bird one finds catarrhal infections of the mucous membranes of the respiratory pathways, catarrhal-hemorrhagic enteritis and nephritis. Influenza virus in similar cases can be comparatively easily isolated from many sick birds at the site of infection. However, in this case there is the difficulty of precisely reproducing experimental infections that are identical to the natural picture of the disease. Similar situations have been reported by many investigators. Thus, Roberts (1964) could not reproduce duck influenza with the strain A/duck/England/62, and proposed that in addition to the virus, specific stress factors are essential for the development of infection. In the experimental infection of turkeys by the strain A/turkey/Wisconsin/66, supercooling of the bird was an obligatory condition for reproducing the disease. In addition, success of an experimental reproduction of the disease often depends on the bird's age.

In 1970 at some poultry farms in Moscow Oblast, enzootic outbreaks of fowl disease were recorded almost simultaneously in populations immune to pseudo-pest. Outbreaks were highly contagious. The illness primarily affected
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egg-laying hens, and there were outbreaks of the disease among young hens also. Sick fowl were depressed, refused to eat; the egg yield was reduced and diarrhea was the primary clinical symptom. Although the death rate among infected fowl did not exceed 2-5%, forced slaughter of infected fowl reached 30%. The clinical course of the disease was from 12-20 days. Changes noted in dead and sacrificed fowl were in the form of catarrhal-hemorrhagic enteritis, ovaritis, and nephritis. In the majority of cases the bird recovered after two to three weeks of illness and its productivity was restored.

Fowl at one of the farms where the pathogen and its corresponding antibody were isolated were examined. The outbreak initially occurred among 180-day old chickens vaccinated against pseudopest with the La Sota and B₁ vaccines. After 10 days it spread to several young fowl. Pseudopest as well as bacterial infections and intoxications were excluded. Section of the dead and sacrificed fowl in the agony state disclosed catarrhal-hemorrhagic enteritis, ovaritis, and nephritis.

Hemagglutinating agents were isolated from the brain, internal organs and intestine of fowl on the third day of the disease. In subsequent studies, 6/11

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all of the isolated material was identical. Virus was isolated by infecting chick embryos in the allantoic cavity and in the chorio allantois membrane as well as in chick embryo kidney tissue. Hemagglutinating activity with respect to chick erythrocytes in titers of 1:8-1:64 was found on the first passage.

The virus multiplied during the first five passages, causing death and hemorrhagic diathesis. Its pathogenecity for the embryos decreased with an increase in the number of passages, and the number of dead fowl with clear symptoms of hemorrhagic diathesis began to fall. However, the hemagglutinating activity of the virus increased by the eighth passage (titer 1:512-1:1024). The isolated strain agglutinated arithrocytes of sheep and horses also.

The strain was examined in the hemagglutination reaction with specific sera against pseudopest, classical fowl plague and various fowl influenza strains, and human influenza virus. The isolated strain was antigenically different from the fowl influenza virus variant. In a complement fixation reaction with a rat type antiserum against human influenza type A, the strain showed a clear relationship in its S antigen to the human type A influenza virus, and
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in the neutralization and hemagglutination inhibition reaction, it resembled American turkey influenza strain A/turkey/Wisconsin/66. This strain was provisionally designated A/chicken/USSR/315/70.

Subsequently, the isolated strain was studied for pathogenic and antigenic properties. For the purpose of experimentally reproducing the infection, 19 180-day old chickens were infected with this strain by various methods: feeding a virus-containing suspension of the internal organs of sick fowl; administration of a viral suspension from the second passage intratracheally, intramuscularly, intrabursally and orally. Healthy fowl were placed with each infected group of birds for the purpose of infection. No precise clinical manifestations of the disease were noted. The experimental group was killed after 15 days. Antihemagglutinins against the homologous strain A/315/70 in titers of 1:10-1:320 were found in the blood serum of infected fowl as well as in those infected by contact. Section of 12 birds showed catarrhal-hemorrhagic enteritis and nephritis in 10 birds.

In order to study the immunobiological relationship between strain A/315/70 and the etiologic agent of Newcastle disease (strain T) and classical fowl
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plague (strain P₅), four 21-day old chicks, immunized against Newcastle disease, were infected with strain A/315/70 in a dose of 10⁶ EID₅₀/0.2 intramuscularly and were placed next to two birds for contact. Four more fowl were infected with a highly virulent Newcastle disease virus (strain T). All of them became ill in three days and perished with the pathoanatomical changes characteristic of this infection.

No clinical signs of the disease were noted in birds infected by the virus A/chicken/USSR/315/70. The birds were killed after 17 days. Upon sectioning, catarrhal-hemorrhagic enteritis was found in two of the infected birds and one in which infection was caused by contact. The antibody titers against the virus A/315/70 in infected fowl and those infected by contact ranged within the limits 1:40-1:160. A virus identical to strain A/315/70 was reisolated from two of the killed birds (infected and contact) with the most acute catarrhal-hemorrhagic enteritis. At the same time 49-day-old birds, vaccinated against Newcastle disease aged 20 and 33 days, and having an antibody titer (hemagglutination inhibition reaction) against Newcastle disease virus within the range of 1:40 to 1:320, were infected with virus A/315/70 or Newcastle disease virus and injected with a vaccine of strain P₅ of classical 9/11

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plague virus, and then also infected with virus A/315/70 intratracheally in the same dose. A slight depression was noted from the second to fifth day in fowl infected only with A/315/70 virus. After 14 days one of them perished with enteritis symptoms: A virus was isolated from its organs that was identical to strain A/315/70, and the antibody titers in the remaining birds against strain A/315/70 were 1:160-1:640. Characteristic pathological-anatomical changes were noted in one chick. A virus identical to A/315/70 was re-isolated from two vaccinated birds by strain P₅ (antibody titers 1:80-1:320) and infected by virus A/315/70 after 10 days.

An antigenic and immunobiological connection between the isolated strain of fowl influenza A/315/70, Newcastle disease virus and the virus of classical fowl plague was not demonstrated. The isolated virus turned out to be a new antigenic variant of fowl influenza.

An epizootic potential is indicated for fowl influenza viruses, which are little known to practicing physicians and scientific associates.
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USSR

SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

Abstract: The article cites a modern classification of the pathogens of fowl strain A/chicken/USSR/315/70, which turned out to be a new antigenic variant of fowl influenza virus. No antigenic or immunobiological connection was found between the isolated strain, Newcastle disease virus and the virus of classical fowl plague. The data indicate the epizootiological potential of fowl influenza virus.

11/11

1/2 037 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--METHOD OF MEASUREMENT OF THE TOTAL MAGNETIC VISCOSITY IN DIA AND
PARA MAGNETS -U-
AUTHOR--(03)--BRAGINSKIY, V.B., BRANDT, N.B., OSIKA, V.I.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), VOL. 11, NO. 1, P.
91-2 (1970)
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT
TOPIC TAGS--MAGNETIC VISCOSITY, MAGNETIC FIELD, DAMPING MOMENT,
OSCILLATION, PENDULUM, PENDULUM MECHANICS, PENDULUM MOTION, QUARTZ,
MEASUREMENT, RELAXATION PROCESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FKAME--1998/1685 STEP NO--UR/0188/70/011/001/0091/0092
CIRC ACCESSION NO--AP0122015
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 037

CIRC ACCESSION NO--AP0122015

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

ABSTRACT. THE MAGNETIC VISCOSITY IS MEASURED
IN TERMS OF THE DAMPING OF OSCILLATIONS OF A PENDULUM PLACED IN A
MAGNETIC FIELD. THE MEASURING INSTRUMENT IS DESCRIBED AND SOME RESULTS
ARE QUOTED ON RELAXATION TIMES AND MAGNETIC VISCOSITY OF QUARTZ
SPECIMENS.

UNCLASSIFIED

1/2 036 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EXPERIMENTAL STUDY OF THE INTEGRAL MAGNETIC VISCOSITY DIELECTRICS
-U-
AUTHOR--(03)-BRAGINSKIY, B.V., BRANDT, N.B., OSIKA, V.I.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(2) 351-6
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MAGNETIC VISCOSITY, DIELECTRICS, PENDULUM MECHANICS, QUARTZ,
CORUNDUM, TEFLON, FERROMAGNETISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0094 STEP NO--UR/0191/70/012/002/0351/0356
CIRC ACCESSION NO--AP0048386
UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0048386

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

ABSTRACT. A METHOD WAS DEVELOPED FOR MEASURING MAGNETIC VISCOSITY OF DIELECS., BASED ON USE OF A STRONG MECH. SYSTEM (TWISTING PENDULUM). THE DEPENDENCES OBTAINED OF THE MECH. RELAXATION TIME ON THE INTENSITY OF THE MAGNETIC FIELD FOR QUARTZ, CORUNDUM, AND TEFLON ARE GIVEN. FOR MOLTEN QUARTZ, MEASUREMENTS WERE CARRIED OUT AT 10-1200DEGREESK AND IN MAGNETIC FIELDS SMALLER THAN OR EQUAL TO 23 KOE. ANOMALOUSLY LONG RELAXATION TIMES WERE OBSD. IN THE INVESTIGATED SUBSTANCES. THIS IS APPARENTLY RELATED TO THE PRESENCE IN THE SPECIMENS OF SMALL FERROMAGNETIC IMPURITIES IN THE FORM OF DOMAINS. THE METHOD USED ALLOWS ONE TO OBSERVE FERROMAGNETIC IMPURITIES IN AMTS. OF 10 PRIME NEGATIVE8 OF THE SPECIMEN VOL.

USSR

UDC: 535.373.2

OSIKO, V. V., PROKHOROV, A. M., and SHCHERBAKOV, I. A.

"Transmission of Excitation Energy Among Three-Valent Ions of Rare Earth Elements in Ion Crystals"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 4, 1973, pp 768-771

Abstract: Results are given of an investigation into the interaction effectiveness of Nd^{3+} ions as a function of the temperature. While there are various ideas in the literature regarding the temperature effect on energy transmissions among TR^{3+} ions in crystals and glasses, the authors of the present paper have chosen as the subjects of their investigation CaF_2 with the paired M-centers of Nd^{3+} - Nd^{3+} , YAlO_3 - Nd^{3+} , and LaF_3 - Nd^{3+} . In the investigation of the first pair, involving a single ion system, the migration process of donor ions was excluded and the act of cross relaxation was directly observed. For the second crystal, the dependence of the interaction probability on temperature is determined by the increase in probability of multiphonon transitions with acoustical excitation and by the difference in probability of electron-phonon interaction transitions from basic and excitation Stark components. The third crystal is treated in somewhat the same way as the CaF_2 . It is

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OSIKO, V. V., et al., Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 4, 1973, pp 768-771

concluded that the dependence of the cross relaxation on temperature is the result of the population in the basic and excitation Stark component levels, the inclusion of new interacting transitions, and the thermal stimulation of electron-phonon transitions.

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Lasers & Masers

USSR

UDC: 535.343+535.371

VORON'KO, Yu. K., OSIKO, V. V., PROKHOROV, A. M., SHCHERBAKOV, I. A.

"Some Questions of Spectroscopy of Laser Crystals With Ionic Structure"

Moscow, Trudy Ordena Lenina Fizicheskogo Instituta imeni P. N. Lebedev
Akademii Nauk SSSR. Spektroskopiya Lazernykh Kristallov s Ionnoy Struk-
turoy, Vol 60, 1972, pp 3-30

Abstract: The paper analyzes the basic spectroscopic characteristics of ionic laser crystals (structure of absorption and luminescence spectra, quantum yield, kinetics of intracenter relaxation, processes of excitation energy transfer) which have a direct influence on emission parameters. The authors discuss the effect which the distribution of impurity ions of rare-earth elements with respect to centers of different structure has on these characteristics. Methods are outlined for analyzing the complex Stark structure of the absorption and luminescence spectra of trivalent rare-earth ions.

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USSR

ALEKSANDROV, V. I., VORON'KO, YU. K., MIKHALEVICH, V. G., OSTKO, V. V.,
PROKHOROV, A. M., Academician, TATARINTSEV, V. M., UDOVENCHIK, V. T., and
SHIPULO, G. P., Physics Institute imeni P. N. Lebedev, USSR Academy of
Sciences, Moscow

"Spectroscopic Properties and Generation of Nd^{3+} in Crystals of ZnO_2 and HfO_2 "
Doklady Akademii Nauk SSSR, Vol 199, No 6, 1971, pp 1282-1283

Abstract: The spectroscopic properties of Nd^{3+} are known in various crystals and glasses. Materials such as crystals of $\text{V}_2\text{Al}_5\text{O}_{12}$ and silicate glasses activated with neodymium have been widely used in lasers. The authors of this article first describe the spectroscopic properties and generation of Nd^{3+} in cubic crystals of ZrO_2 and HfO_2 . These materials have a fluorite type crystal lattice in which the Nd^{3+} ions replace the tetravalent ions of zirconium or hafnium. In addition to the Nd^{3+} the crystals contained impurities of CaO or V_2O_3 for the purpose of stabilizing the cubic structure of the ZrO_2 and HfO_2 . The authors describe the experiment and give 1 figure and 1 table to illustrate the results. The figure graphically shows the optical spectra of $\text{HfO}_2\text{-Nd}^{3+}$ crystals, including the spectrum of absorption, the

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USSR

ALEKSANDROV, V. I., et al., Doklady Akademii Nauk SSSR, Vol 199, No 6, 1971,
pp 1282-1283

absorption group, and the spectrum of luminescence transition. The table
gives two structural types of crystals with their properties. The article
contains 1 figure, 1 table, and 9 bibliographic entries.

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USSR

VORON'KO, Yu. K., OSIKO, V. V., PROKHOROV, A. M., and SHCHERBAKOV, I. A.,
Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Study of the Mechanism of an Elementary Act of Excitation Energy Transfer
Between Rare Earth Ions in Crystals"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 3,
Mar 71, pp 943-954

Abstract: The micromechanism of the interaction of impurity ions in crystals with one another and with the crystal lattice matrix is investigated. The variation with temperature of the probability of excitation energy transfer between rare earth ions was studied using doubly activated fluorite to exclude the effect of energy migration along donor ions. It is shown that the transfer process varies directly with temperature, even in the case of the absence of spectral resonance of electron transitions of the donor and acceptor. It is concluded that the results indicate that the probability of excitation energy transfer in the absence of overlapping of donor and acceptor spectra is determined by the density of phonon states in the frequency region corresponding to the Stokes resonance detuning. The mechanism of temperature activation is associated with the population of the phonon state
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VORON'KO, Yu. K., et al. Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 3, Mar 71, pp 943-954

corresponding to the acoustical branch of the dispersion diagram. It is noted that these effects also appear in the infrared absorption spectra as a function of temperature, both of crystals of the fluorite type and of crystals of alkali-halide and other compounds.

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1/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INORGANIC LASER MATERIALS WITH IONIC STRUCTURES -U-
AUTHOR--(02)-KARINSKIY, A.A., OSIKO, V.V.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIYA NAUK SSSR, IZVESTIYA, NEORGANICHESKIE MATERIALY, VOL 6,
APR. 1970, P. 629-696
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--CRYSTAL LASER, LASER ACTIVE MATERIAL, IONIC CRYSTAL, CRYSTAL
GROWING, FLUORIDE, OXIDE, GARNET, RUBY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0367 STEP NO--UR/0363/70/006/G00/0629/0696
CIRC ACCESSION NO--AP0131454

2/2 033

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131454

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. REVIEW OF RECENT LITERATURE CONCERNING INORGANIC LASER MATERIALS CONTAINING IONIC CRYSTALLINE STRUCTURES. AMONG THE TOPICS COVERED ARE THE LATEST DEVELOPMENTS IN THE PHYSICS OF SOLID STATE LASERS (NONLINEAR ACTIVATED CRYSTALS, COMBINED ACTIVE MEDIA, SOLID SOLUTIONS WITH DISORDERED STRUCTURES, AND ENERGY TRANSFER IN LASER CRYSTALS), THE PROPERTIES OF A LARGE NUMBER OF IONIC LASER MATERIALS, AND TECHNIQUES FOR PREPARING THEM. FLUORIDES, OXIDES, RUBY CRYSTALS, GARNET CRYSTALS AND OXYGEN CONTAINING COMPLEX COMPOUNDS ARE DISCUSSED SPECIFICALLY. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT KRISTALLOGRAFI, MOSCOW, USSR. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

1/2 019
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--ACTION OF ELECTROPHILIC AGENTS ON POLYFLUORO AROMATIC COMPOUNDS.
III. SUBSTITUTION AND ADDITION REACTIONS DURING THE ACTION OF
AUTHOR--(04)--SHTEYNGARTS, V.D., OSINA, O.I., KOSTINA, N.G., YAKOBSON, G.G.
COUNTRY OF INFO--USSR
SOURCE--ZH.-ORG. KHIM. 1970, 6(4), 833-40
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SUBJECT AREAS--CHEMISTRY
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ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE REACTION OF
2H,HEPTAFLUORONAPHTHALENE (I) WITH OLEUM, HSO SUB3 CL, (CLCH SUB2) SUB2
O IN HSO SUB3 CL SOLN., OR C SUB6 F SUB5 CH SUB2 CL IN HSO SUB3 CL SOLN.
GAVE SOLELY 2,(R SUBSTITUTED) I DERIVS. (II) (R EQUALS SO SUB3 H, SO
SUB2 CL, CH SUB2 CL, OR CH SUB2,C SUB6 F SUB5). THE REDN. OF II (R
EQUALS CH SUB2 CL) WITH ZN-HCL GAVE II (R EQUALS ME). HOWEVER, THE
NITRATION OF I GAVE
4,NITRO,3,4,5,6,7,8,HEXAFLURO,1,OXO,1,4,DIHYDRONAPHTHALENE (III). THE
REDN. OF III WITH ZN-HCL GAVE
3,4,5,6,7,8,HEXAFLURO,1,HYDROXYNAPHTHALENE WHICH WAS CONVERTED WITH CH
SUB2 N SUB2 TO ITS ME ETHER. HEATING III AT 80DEGREES GAVE
2,5,6,7,8,PENTAFLURO,1,4,NAPHTHOQUINGNE. FACILITY:
NOVOSIBIRSK. INST. ORG. KHIM., NOVOSIBIRSK, USSR.

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PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp **160-168**

**MOTION OF A CURRENT COLUMN IN A MAGNETIC FIELD
IN SEMICONDUCTORS WITH AN S-LIKE
VOLT-AMPERE CHARACTERISTIC**

Zvezdin, A. K.; Osinov, V. V.

The electrical properties of semiconductors with an S-like volt-ampere characteristic in crossed magnetic and electric fields are considered. The uniform current distribution in electric fields corresponding to a negative differential resistance is unstable. It is shown that under these conditions and for a certain sample geometry a solitary current density wave (current column) is formed which moves with a constant velocity in a direction perpendicular to the electric and magnetic fields. The wave is stable for a given total current passing through the sample. This phenomenon leads to oscillations of the electric field in the outer circuit. Variation of the volt-ampere characteristic of the sample due to movement of the current column is considered. Estimates of the column velocity are made for various mechanisms of formation of the S-like volt-ampere characteristic.

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VENGEROV, A. A., OSINOVSKIY, L. Ye.

"Estimating the Statistical Sensitivity of Systems with Variable Structure"

Tr. IV Vses. Soveshch. po Avtomat. upr., 1968. Teoriya Avtomat. upr. [Works of Fourth All-Union Conference on Automatic Control, 1968. The Theory of Automatic Control], Moscow, Nauka Press, 1972, pp 88-93, Discussion 137-144 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V276 by the authors).

Translation: A system is studied with variable structure, containing random parameters and under the influence of random perturbations. Analysis of the sensitivity of the system is represented as a task in transformation of random functions by random operators making up the variable structural plan of the system studied. The methods of analysis of statistical sensitivity of systems with variable structure developed are used as a basis for stochastic modeling of the corresponding sensitivity equations.

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USSR

UDC 532.694:669.046.542

KRIVOGLAZ, M. A., MAYDEK, V. L., OSINOVSKIY, M. YE., and PERELOMA, V. A.,
Institute of Metal Physics, Academy of Sciences Ukr SSR and Institute of Foundry
Problems, Academy of Sciences Ukr SSR

Kiev, Metallofizika, No 39, 1972, pp 26-37

Abstract: A drop of liquid with a low boiling point in a fused metal is surrounded by a gas layer of their vapors, owing to vaporization. A liquid-gas inclusion is formed. The mechanisms of heat exchange between the metal and inclusion are discussed. It is shown that the basic mechanism of heat transfer through the gas layer can be determined by the turbulence which occurs near the boiling drop. Boundary conditions for the surface problem of thermal conductivity were formulated. The distribution of temperatures around the rapidly moving inclusion, having the shape of an arbitrary rotating figure, at these boundary conditions was determined. The case of a sphere and a strongly flattened ellipsoid were investigated in more detail. The effect of the surface-active film on the movement of an inclusion and heat exchange is discussed. Diffusion of impurity atoms from the fused metal to an inclusion and the chemical reactions at the inclusion-metal interface was examined. The results obtained were used for investigating the interaction of a drop of liquid oxygen with molten Fe-C alloys. 6 bibliographic references.

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USSR

UDC 612.1-06:612.865/.867

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NAVAKATIKYAN, A. O., KUNDIYEV, Yu. I., LYSINA, G. G., TOMASHEVSKAYA, L. I.,
DERKACH, V. S., KAPSEUK, A. P., KOVALEVA, A. I., STATISLAVSKAYA, TS. D.,
OSINSKAYA, L. S., and PARLYUK, A. F., Kiev Institute of Industrial Hygiene and
Occupational Diseases

"Effect of Mental Work Accompanied by Nervous and Emotional Stress of Varying
Degrees on the Cardiovascular System"

Moscow, Kardiologiya, No 3, 1973, pp 50-56

Abstract: In addition to making a statistical analysis of 1,535 cases of
myocardial infarction among Kiev workers, the authors ran physiological studies
on engineers, typesetters, mathematicians, and neurosurgeons. They found that
the effects of mental work on the cardiovascular system vary with the degree
of nervous tension and some other factors. The manifestations range from incip-
ient functional disturbances of regulation to severe pathology. Moderate ten-
sion elevates blood pressure, the increase in systolic and diastolic pressures
being related. Great tension, however, tends to disrupt the relationship
probably because the centers regulating vascular tonus become uncoordinated.
Intense nervous and emotional strain increases the heart beat as well as the
"slow" waves among the periodic constituents of the correlation function of

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NIVAKATIKYAN, A. O., et al., Kardiologiya, No 3, 1973, pp 50-56

the cardiac rhythm, an indication of an intensification of central neuroendocrine influences on cardiac activity. As the tempo of work and degree of emotional stress increase, the amount of catecholamines and 17-hydroxycorticoids excreted with urine also gradually increases. Thus, tense mental work markedly affects the cardiovascular system. The resulting changes correlate with the functions of the sympathico-adrenalin system and adrenal cortex.

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Mechanical and Optical

USSR

UDC 620.193.5:/621.793.6.669.14/

OSINTSEV, V. D., GOREUNOV, N. S., LAVRENKO, N. A., LITVINOVA, N. YE., and
SIDEL'NIKOVA, E. A., VNIKTI (All-Union Sci Res, Design and Technological
Institute of the Pipe Industry, Dnepropetrovsk)

"Effect of Diffusion Chromium Plating and Heat Treatment on the Corrosion
Resistance of Chromium Plated Steel in Hot Sulfurous Gases"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 2, 1973, pp 17-19

Abstract: The effect of chromium plating temperature, carbon content in the steel, cooling rate and heat treatment on the corrosion resistance of a contact-diffusion chromium coating in the gases of an industrial tubular heat exchanger used in the production of elementary sulfur was investigated. Steels 10, 20, 45, armco iron and steel 1 ϕ with titanium (0.14% C and 0.74% Ti) were used in this study. Chromium plating was done at 1100° and 1150° C for six hours in a vacuum of 0.01-0.001 mm Hg. Samples were placed inside a tube in a flow of gas containing almost 4% by volume) sulfur (sulfur dioxide, hydrogen sulfide, sulfur vapors and sulfur-organic compounds). Gas temperature was kept at 270-290°C and test time was 12,240 hours. Samples of steels Kh25T, Kh18Ni9Ti and St. 3 (not plated) were also tested for comparison. Steel 10 + Ti after plating at 1150°C and steel 10, annealed or normalized after plating, had the least

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OSINISEV, V. D., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 1973, pp 17-19

corrosion ($0.002-0.003 \text{ g/m}^3\text{-hr}$) when they were rapidly cooled ($600-1000^\circ \text{ C/hr}$) owing to the smaller amount of carbides able to enter the alpha-solid solution. 1 figure, 5 bibliographic references.

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