

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/3 024

CIRC ACCESSION NO--AP0104042

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AL, NI, MO HYDROCRACKING CATALYSTS WERE PREPD. BY THE PPTN. OF THE AL HYDROXIDES FROM THE AL(NO₃)₃ SUB3 SOLNS. WITH NaOH AT ROOM TEMP. AND PH EQUALS 10.5. THE PPT. WAS WASHED WITH H₂O TO REMOVE NaOH, MIXED WITH THE NI AND MO HYDROXIDES, FORMED, DRIED AT 150DEGREES AND CALCINED AT 650DEGREES FOR 3 HR. THE CATALYST CONTAINED SIMILAR TO 10PERCENT NiO AND MOO SUB3. THE INDIVIDUAL CATALYST SAMPLES CONTAINED 0.43, 0.47, 0.72, 0.90, AND 2.50 WT. PERCENT Na₂O FOR THE SAMPLES DENTED WITH NDS. 19C, 20C, 21C, 22C, AND 23C, RESP. THE PROPERTIES OF THE SAMPLES WERE AS FOLLOWS: BULK D. 0.92, 0.92, 0.91, 0.82, AND 0.80 G-CM PRIME3, APPARENT D. 1.41, 1.45, 1.34, 1.34, AND 1.32 G-CM PRIME3, REAL D 3.45, 3.50, 3.41, 3.38, AND 4.02 G-CM PRIME3, PORE VOL. 0.42, 0.41, 0.45, 0.49, AND 0.51 CM PRIME3-G, SP. AREA 147, 177, 187, 178, AND 200 M PRIME2-G, TENSILE STRENGTH 1050, 1150, 1160, 0, AND 0 G-MM, AND THE ABRASIVE WEAR RESISTANCE 74, 56, 45, 0, AND 0 PERCENT, FOR THE SAMPLES 19C, 20C, 21C, 22C, AND 23C, RESP. THE ACTIVITY OF THE CATALYSTS WAS TESTED IN THE HYDROCRACKING PROCESS OF THE ARLAN CRUDE OIL (D TAKEN BETWEEN THE VALUE 4 OF THE VARIABLE AND ITS VALUE 20 0.895, S 3.1 WT. PERCENT, DISTILLATES 8. SMALLER THAN 300DEGREES, 35.8 WT. PERCENT) AT 450DEGREES, 30 ATM, FEED THROUGHOUT 1 KG-1. HR, AND H CIRCULATING RATE SIMILAR TO 1000 L.-KG HR.

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PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104042

ABSTRACT/EXTRACT--THE VOL. OF THE CATALYST IN THE APP. WAS SIMILAR TO 100 ML AND THE OPERATING TIME 2 HR. THE FOLLOWING RESULTS WERE OBTAINED: YIELD OF THE LIQ. PRODUCTS 89.8, 89.9, 89.1, 90.5, AND 89.8 PERCENT ON FEED, THE DEGREE OF THE DESULFURIZATION 90.2, 89.6, 85.7, 83.6, AND 81.2 PERCENT, THE DEGREE OF DECOMP. 37.0, 36.6, 38.4, 36.5, AND 37.0 PERCENT, D. OF THE LIQ. PRODUCTS 0.841, 0.836, 0.837, 0.840, AND 0.840, S IN THE LIQ. PRODUCTS 0.34, 0.36, 0.50, 0.56, AND 0.64 WT. PERCENT, I NO. 5.7, 6.4, 7.0, 8.3, AND 8.1, AND THE SULFONATING RESIDUE 61.2, 58.0, 58.4, 58.1, AND 57.5 VOL. PERCENT, FOR CATALYSTS SAMPLES 19C, 20C, 21C, 22C, AND 23C, RESP. THEREFORE, THE NA IMPURITIES REMAINING IN THE AL, NI, MO CATALYSTS AS A RESULT OF INSUFFICIENT H SUB2 O WASHING OF THE AL HYDROXIDES CAUSE A DECREASE IN THE ACTIVITY OF THE HYDROCRACKING CATALYSTS. THE PHYS. AND CHEM. INVESTIGATIONS SHOWED THAT THE NA IMPURITIES DO NOT CONC. ON THE CATALYST SURFACE BUT FORM CHEM. COMPS. IN THE BULK OF THE CATALYST. JERZY KRAMARZ.

UNCLASSIFIED

1/2 007
 TITLE--ROLE OF ELECTRICAL DOUBLE LAYER IN THE SETTING OF SLAG PORTLAND CEMENT
 CEMENT -U-
 AUTHOR--(05)-VED, E.I., BAKLANDOV, G.M., ZHAROV, E.F., NITCHENKO, V.S.,
 SIDOROVA, J.A.
 COUNTRY OF INFO--USSR
 SOURCE--BUDICEL'NI MATER. KONSTR. 1970, (1), 31-2
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
 TOPIC TAGS--CEMENT, CALCIUM CHLORIDE, COHESION STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1995/1478

STEP NO--UR/0635/70/000/001/0031/0032

CIRC ACCESSION NO--AP0116915
 UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--230LT70

CIRC ACCESSION NO--AP0116915

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SETTING PROCESS IS EXPLAINED IN TERMS OF THE SHAPE OF THE ZETA POTENTIAL CURVES. ADDN. OF SMALL AMTS. OF CACL SUB2 CAUSES SHARP DROP IN ZETA POTENTIAL, INDICATING COMPRESSION OF ELEC. DOUBLE LAYER AND LIMITED MIGRATION OF NEG. CHARGED OH AND CL IONS. RISE IN ZETA POTENTIAL WITH INCREASING ADDN. OF CACL SUB2 INCREASES IN DIFFUSION REGION OF ELEC. DOUBLE LAYER OF NEG. CHARGED OH AND CL IONS AND ACCELERATION IN SETTING. COHESION FORCES RISE AND STRENGTH INCREASES.

UNCLASSIFIED

USSR

UDC 632.4

SIDOROVA, T. D., Stavropol Scientific Research Institute of Agriculture

"Losses From Smut"

Moscow, Zashchita Rasteniy, No 10, 1970, pp 11-12

Abstract: Wheat smut, which is caused by the fungus *Ustilago tritice*, has become widespread in Stavropolskiy Kray. When seeds are infected, the plants grown from the seeds are stunted and sometimes completely destroyed, with a corresponding reduction in the harvest. An estimate is presented of the degree of infection of wheat fields in Stavropolskiy Kray with smut during the period 1957-69. The common effects of infection of seed on the characteristics of four selected varieties of wheat plants were determined. The All Union Institute of Plant Protection has calculated indices, by means of which the decreases in yield due to infection with smut (including latent infection) can be determined. For the total 1967 wheat crop of 20,403,000 tons in Stavropol'skiy Kray, losses due to smut reached 1,571,000 tons. Field tests demonstrated that, after a degree of infection of the wheat crop amounting to 100% had been reached, selection of seeds according to size and specific weight, disinfection of seeds according to procedures developed for the Bezostaya 1 variety, and isolation of the seed crops to prevent infection made it possible to reduce infection with smut to a minimum.

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USSR

UDC: 669.018

SAMSONOV, G. V., KOSENKO, V. A., RUD', B. M., and SIDOROVA, V. G.

"Some Characteristics of Palladium Boride"

Tomsk, Izvestiya VUZ--Fizika, No 6, 1972, pp 146-147

Abstract: Asserting that there is little data on the characteristics of the phases of Pd-B systems, the authors of this brief communication investigate the conditions for obtaining palladium borides by synthesizing the elements and measure the electrical resistivity and thermal emf in the 20-800° C range. The original material used for synthesizing the borides were amorphous boron with a purity of 99.6% and palladium powder 99.99% pure. It was established, by thermal, x-ray, metallographic, and chemical analyses, that the synthesis process for Pd₃B had to be done in a temperature interval of 700-900° for 5-6 hours, while the interval of 800-950° for 60-70 hours was required to synthesize Pd₅B₂. Curves are plotted for the resistivity of the Pd₃B and Pd₅B₂ phases and for the thermal emf of those phases as functions of the temperature. The authors are associated with the 50th Anniversary of the Great October Socialist Revolution Polytechnical Institute at Kiev.

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USSR

UDC 612.017.1.014.43-085.2

SIDOROVA Ye. V., Laboratory of Antibody Chemistry and Biosynthesis, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR

"Synthesis and Secretion of Antibodies and Nonspecific Immune Globulins in vitro at Different Temperatures"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 12, 1971, pp 55-58

Abstract: The synthesis of antibodies and nonspecific immune globulins in suspensions of spleen cells from hyperimmune rabbits and the synthesis of nonspecific immune globulins in suspensions of spleen cells from normal animals are already evident at 20 to 22°C (below the animals' body temperature). The synthesis of both proteins increases as the temperature rises to 42°C, after which it slows and after 46 and 56°C decreases sharply. The rate of synthesis of both proteins changes equally with rise in temperature. High temperatures also increase the rate of secretion of antibodies and especially immune globulins. The rate of secretion of immune globulins by the spleen cells of normal rabbits and its temperature dependence are similar to those phenomena among antibodies in hyperimmune rabbits.

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1/2 040

UNCLASSIFIED

PROCESSING DATE--02JCT70

TITLE--SYNTHESIS, STRUCTURE, AND BEHAVIOR OF POLYMERS OF THE METHYL
ISOPRENE CARBOXYLATE OBTAINED BY ANIONIC AND RADICAL POLYMERIZATION -U-
AUTHOR--(05)--ARBUZOVA, I.A., YEFREMOVA, V.N., YELISEYEVA, A.G., NIKITIN,
V.N., SIDOROVICH, A.V. S
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 697-704

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ISOPRENE, CARBOXYLIC ACID ESTER, POLYMERIZATION, LOW
TEMPERATURE EFFECT, ORGANOLITHIUM COMPOUND, POLYMER STRUCTURE, PHASE
TRANSITION, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1992/0311

STEP NO--UR/0459/70/012/003/0697/0704

CIRC ACCESSION NO--AP0111505

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--02DCT70

CIRC ACCESSION NO--AP0111505

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANIONIC POLYMN. OF H SUB2 C:CHCME:CHCU SUB2 ME (I), CARRIED OUT AT NEGATIVE60DEGREES TO NEGATIVE70DEGREES IN PHME SOLV. CONTG. 0.02 MOLE-L. BULI GAVE 80PERCENT I POLYMER (II) IN LESS THAN OR EQUAL TO 60 MIN. THE FREE RADICAL BULK POLYMN. OF I IN THE PRESENCE OF 0.2 WT. PERCENT (ON I) BZ SUB2 O SUB2 REQUIRED 90 HR AT 60-80DEGREES TO GIVE 75-8PERCENT I POLYMER (IIA). HEATING THE AMORPHOUS IIA CONVERTS IT TO A CRYST. FORM. I IS CRYST. AT ROOM TEMP. BOTH II AND IIA HAVE A PHASE TRANSITION POINT AT 90DEGREES AND GLASS POINT AT 20DEGREES. BY IR SPECTROSCOPY THEY BOTH HAVE 1,4 TRANS CONFIGURATION.

UNCLASSIFIED

Polymers and Polymerization

USSR

UDC 678.743(001-139.074.012.012)

POMICHENVA, M. N., LUNINSTEK, A. M., SIDOROVICH, YE. A., and GRENIGAT, M. I.,
All Union Scientific Research Institute of Synthetic Rubber Invent S. V. Loshakov

"Properties of Heat-Frost Resistant Organofluorine Rubbers and Resins Made
from Them"

Moscow, Kautchuk i Rezina, No 3, 1972, pp 5-7

Abstract: Vitrification temperature of vinylidene fluoride (VF) copolymers
with perfluoromethylvinyl ether (PFMVE) containing less than 50% of the ether
is stabilized at about -45°C ; when PFMVE content exceeds 50%, the temperature
is raised to about -30 to -32°C . The strength and frost-resistance of the
resins become poorer with increasing content of PFMVE. High tension values
during the 100% elongation of the resins containing less than 25% of the
ether indicate the existence of a crystalline phase in the copolymer. The
vulcanizates from these copolymers are of comparable quality with those from
Viton rubber, regarding their resistance to thermal aging.

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USSR

UDC 678.4.074:53

MAREY, A. I., SIDOROVICH, Ye. A., and NOVIKOVA, G. Ye., All Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev

"Dependence of the Physical Properties of Elastomers on Their Chemical Composition and Molecular Structure"

Moscow, Kauchuk i Rezina, No 2, 1971, pp 9-12

Abstract: For a number of years the All Union Scientific Research Institute of Synthetic Rubber has been performing research on the effect of peculiarities of the molecular structure and chemical nature of rubbery polymers on their glass transition temperature, elastic dynamic properties and crystallization ability. It has been found that the glass transition temperature is a linear function of the reciprocal value of the molecular weight of the polymer and linearly depends on the concentration of functional groups asymmetrically or statistically arranged in the polymer chain, the degree of this dependence being proportional to the interaction energy of the functional groups. The mechanical behavior of elastomers is primarily due to their relaxation properties, which depend on the internal mobility of the polymer chains. While the chemical structure of a polymer mainly determines the lower bound of the

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MAREY, A. I., et al, Kauchuk i Rezina, No 2, 1971, pp 9-12

manifestation of elastic properties, such parameters as molecular weight, molecular-weight distribution, space network density determine the viscoelastic behavior in the region of the highly elastic state. Elastomers may have a different degree of structural order according to the character of the macromolecular chain construction (e. g., in a cis or trans configuration) and chain stereoregularity. These factors also affect the temperature-frequency dependences of the viscoelastic properties of elastomers. The character of crystallization processes in elastomers is affected by microstructure purity, vulcanization network density and other factors. Accelerated methods have been developed for the kinetic study of crystallization, and the determination of the equilibrium crystalline state of vulcanizates by measuring their modulus of elasticity in compression and permanent tensile elongation. A study of the crystallization of polysiloxanes established that, in contrast to the general rule, the creation of a space vulcanization network up to a certain limit accelerates their crystallization. Only vulcanizates with a dense network crystallize more slowly than the initial polymers. As a result of findings on the effect of different molecular-structure parameters and molecular chain orientation in crystallization on the mechanical properties

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Rubber and Elastomers

USSR

UDC 678.032.8:678.762.2:678.01:
539.3

SIDOROVICH, YE. A., MAREY, A. I., and KUVSHINSKIY, YE. V., All-Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev

"Effect of the Molecular Weight of Rubber on the Temperature Dependence of the Dynamic Mechanical Properties of Its Vulcanizates"

Moscow, Kauchuk i Rezina, No 8, 1970, pp 3-6

Abstract: The authors undertook to study variations in the dynamic mechanical properties of rubberlike polymers of varying molecular weight, with a varying degree of cross-linking, in a wide temperature range. Cis-1,4-butadiene rubbers SKD and natural rubber were used as the objects of study. It was found that in the region above the transition temperature the molecular weight of rubber is the principal factor governing the dynamic behavior of the vulcanizates. The influence of the initial molecular weight of the rubber becomes insignificant only with rather high degrees of cross-linking (considerably above the optimal degrees). An increase in the initial molecular weight increases the rebound elasticity of the vulcanizates and decreases its temperature coefficient. Inversion of the elasticity temperature coefficient
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SIDOROVICH, YE. A., et al., Kauchuk i Rezina, No. 8, 1970, pp 3-6

is observed with a change in the thickness of the vulcanization network. An increase in the molecular weight increases the degree of cross-linking at which the inversion occurs. The character of the observed regularities is not affected by the type of rubber or cross-linking.

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1/2 025 UNCLASSIFIED PROCESSING DATE--15OCT70
TITLE--NEROBOL AND PREDNISOLONE ACTION ON THE DEVELOPMENT OF INTERARTERIAL
ANASTOMOSES IN EXPERIMENTAL MYOCARDIAL INFARCTION -U-
AUTHOR-(02)-SELIVENSTOV, S.A., SIDOROVICH, YE.I. S
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 48-51
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HORMONE, ARTERIAL ANASTOMOSIS, MYOCARDIUM, HEART DISEASE, CAT,
ELECTROCARDIOGRAPHY, CORONARY BLOOD CIRCULATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1176 STEP NO--UR/0390/70/033/001/0048/0051
CIRC ACCESSION NO--AP0115195
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115195

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEROTOL (10 MG-KG ORAL) AND, TO A LESSER EXTENT, PREDNISOLONE (5 MG-KG I.M.) ADMINISTERED DAILY FOR 25 DAYS TO CATS WITH EXPTL. MYOCARDIAL INFARCTION (INDUCED BY LIGATION OF THE ANTERIOR DESCENDING BRANCH OF THE LEFT CORONARY ARTERY) STIMULATED THE DEVELOPMENT OF INTERARTERIAL ANASTOMOSES IN THE MYOCARDIUM. THIS IMPROVED COLLATERAL BLOOD CIRCULATION IN THE CARDIAC MUSCLE, IMPROVED THE ELECTROCARDIOGRAM DYNAMICS, AND DECREASED THE SEVERITY OF ADHESIONS DEVELOPING BETWEEN THE PERICARDIUM AND NECROTIC AREAS IN THE MYOCARDIUM.

FACILITY: LAB. FARMAKOL. SERDECHNO SCSUDISTOI SISTEMY. INST. FARMAKOL. KHIMIOTER., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 577.12

LYASHENKO, V. A. and SIDOROVA, Ye. V., Institute of Vaccines and Sera, USSR Ministry of Health, and ~~MOSCOW~~ Institute of Epidemiology and Microbiology, Academy of Sciences USSR, Moscow

"Study of 'Immune RNA' by the Specific Immunosorption Method"

Moscow, Biokhimiya, No 1, 1973, pp 178-184

Abstract: Injection of mice with "immune" RNA isolated from the spleens of animals immunized with polysaccharide O or Vi antigens induced the formation of specific O or Vi antibodies. Treatment of O-RNA with ribonuclease resulted in almost complete disappearance of its capacity for antibody formation, whereas similar treatment of the O antigen did not affect its immunizing properties. RNA from animals immunized with radioactive O or Vi antigens contained a radioactive substance that proved to be an antigen bound to RNA. Antigen in a complex with RNA was unable to react specifically with antibodies fixed on an immune sorbent (cellulose with globulin from a nonimmune rabbit). However, it could combine nonspecifically with the sorbent owing to the high sorption capacity of the ribonucleic part of the antigen -- RNA complex. After the complex was treated with ribonuclease, the antigen present in the RNA preparation acquired a capacity for specific immunosorption.

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USSR

UDC:541.6 541.124+661.718.1

LEVIN, Ya. A., GOZMAN, I. P., and SIDOROVA, Ye. Ye., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Structure and Mechanism of Formation of Oligophosphonates from Dialkyl Chlorophosphites and Aldehydes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 70, pp 173-175

Abstract: Two oligomers (1 and 2) were prepared by similar reactions of $(EtO)_2 PCl$ with $PrCHO$ or $PhCHO$, respectively. The reaction with $PrCHO$ was exothermic and resulted in loss of $EtCl$. Subsequently, the reacting mixture was heated 4 hr. at 100° , then for 1 hr at 170° in vacuo. The product was an extremely viscous liquid. The product of the reaction with $PhCHO$ was a glassy solid. A third oligomer (3), a yellow powder, was prepared by a similar reaction from $(iso-BuO)_2 PCl$ and $p-(NO_2)C_6H_4CHO$. The polyphosphonate structure $[-P(O)(OR)CHR'O-]_n$ was attributed to the alternating link of the oligomers from their hydrolysis and pyrolysis data. The 1 and 2 oligomers heated with concentrated HCl for 4 hr. yielded 95% $Pr CH(OH)PO_3H_2$ and 90% $Ph CH(OH)PO_3H_2$, respectively. Pyrolysis of 1 oligomer at $250-270^\circ$ in vacuo gave 10% of a cyclic

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LEVIN, Ya. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 70, pp 173-175

dimer containing the same bonds as 1. An unusual, stepwise polycondensation mechanism was proposed to explain formation of the oligophosphonate molecules with the ester-chloride end groups.

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1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--USE OF INDUSTRIAL APPARATUS TO STUDY THE PREPARATION TECHNOLOGY FOR
HIGH INDEX AVIATION OILS FROM UST BALKYKSKII PETROLEUM, AND A STUDY OF
AUTHOR--KORELYAKOV, L.V., KVETKOV, B.A., SIDORSKAYA, L.F.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (1), 12-14
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--TEST METHOD, PHYSICS LABORATORY INSTRUMENT, QUALITY CONTROL,
INDUSTRIAL PRODUCTION, AIRCRAFT LUBRICANT, LUBRICATING OIL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1147 STEP NO--UR/0318/70/000/001/0012/0014
CIRC ACCESSION NO--AP0107636
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--A0107636

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH GRADE AVIATION OIL WITH
VISCOSITY INDEX LARGER THAN OR EQUAL TO 100 WAS OBTAINED BY APPLYING
ROUTINE METHODS, BUT USING SUITABLE PROPORTIONS OF SOLVENTS FOR
DEASPHALTING, SELECTIVE REFINING, AND DEWAXING. CHARACTERISTICS OF THE
OILS AND EXPTL. RESULTS WERE REPORTED.

UNCLASSIFIED

USSR

UDC 355.3/613.644

TROYANSKIY, M. P., SIDORTSOV, I. P., and PETROVA-GOLUBENKO, L. B.

"Effect of Noise on Blood Cholinesterase Activity"

Moscow, Voenno-Meditsinskiy Zhurnal, No 2, 1971, pp 47-49

Translation: The effect of industrial noise on workers' health has been investigated in quite a few scientific studies which mention the changes that take place in the body as a result.

Our purpose was to study indexes that would not only testify to the presence of noise but also serve as a criterion of its adverse effect. One such index, at least in part, is whole blood cholinesterase activity and the state of the autonomic nervous system in persons working in diesel and blower stations. Their work is light to moderate and does not involve much nervous or mental strain. The noise levels ranged from 94 to 97 db, with medium and high frequencies and an energy peak at 400 to 1,250 hz. None used ear plugs. A work shift was 12 hours long and there was an interval of 24 hours between shifts. During the examination period a temporary change in the schedules of some groups resulted in shortening the interval between shifts to 12 hours. The workers, especially those on the job after a 12-hour break, complained of ready fatigability, headaches, general weakness, irritability, and so forth.

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USSR

TROYANSKIY, M. P., et al., *Voyenno-Meditsinskiy Zhurnal*, No 2, 1971, pp 47-49

Cholinesterase activity was determined by Hestrin's method before work and every 3 hours during work, at the end, and 12 and 24 hours afterward. The results were expressed in units of extinction. Baseline neurological examination given at the same time included: interrogation, neurological status, Aschner's phenomenon, dynamic observation of the pulse, arterial pressure, and dermographic reaction. The examination were given right at the work places.

A total of 55 persons were examined: 16 worked 12-hour shifts (after a 24-hour break (group 1) and 24 worked 12-hour shifts after a 12-hour break (group 2)). The other 15 worked under the same conditions but were not exposed to noise (control).

The neurological examination revealed a significant lengthening of the latent period of the dermographic reaction ($p=0.01$) and a rather pronounced slowing of the pulse in Aschner's test ($p=0.05$) at the end of the workday.

Analysis of the dynamics of blood cholinesterase activity showed that it decreased significantly in those who came to work after a 24-hour break in the course of the shift, the maximum decrease occurring toward the end. Although the decrease was gradual, it was manifested after only 3 hours of

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USSR

TROYANSKIY, M. P., et al., Voenno-Meditsinskiy Zhurnal, No 2, 1971, pp 47-49

work ($p=0.05$). Cholinesterase activity returned to the original level 24 hours after the work was over, but in some cases it was higher.

Cholinesterase activity was found to be lower in group 2 (worked 12-hour shifts after a 12-hour break) than in the first and control groups. After 3 hours' work it decreased more sharply than in group 1, although by the end of the shift the rate of decrease slowed and cholinesterase activity was almost indistinguishable from that in group 1.

Systematic incomplete restoration of cholinesterase activity can eventually lead to decompensation. A significant decrease therein during restoration puts great stress on the compensatory mechanisms and it may cause them to break down. Therefore, we are justified in stating that a 12-hour interval between shifts is insufficient.

Thus, the extent of decrease and time of restoration of cholinesterase activity can be used to judge the degree of harm done by noise and the completeness of restoration of physical fitness. These indexes can serve as the basis for establishing sound standards of work and rest time. Complete restoration of cholinesterase activity to the original level before the start of the next shift is the criterion for judging the soundness of the standards. The mere fact that cholinesterase activity decreases is not an invariable sign of pathology. It can be regarded as an index of adaptation of the body to new conditions, especially in cases where its activity is completely

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TROYANSKIY, N. P., et al., Voenno-Meditsinskiy Zhurnal, No 2, 1971, pp 47-49

restored. A decrease in cholinesterase activity and change in neurological status (lengthening of the latent period of the dermographic reaction, pronounced slowing of the pulse in Aschner's test) are indicative of a parasympathetic trend in the changes that take place in persons working under noisy conditions.

Conclusions

1. Workers exposed to noise when examined directly at the work places showed a statistically significance decrease in blood cholinesterase activity, increase in the latent period of the dermographic reaction, and rather pronounced slowing of the pulse in Aschner's test, the lowest value being recorded at the end of a shift.
2. Cholinesterase activity was restored when the workers were no longer exposed to noise. After a 12-hour shift complete restoration took 24 hours.
3. The extent of decrease and time of restoration of cholinesterase activity can serve as a criterion for judging the degree of injury done by noise and the nature of the body's response.

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USSR

UDC 8.74

ILOVAYSKIY, I. V., SIDRISTYY, B. A.

"Formalization of the Process of Planning and Designing Digital Devices"

V sb. Vychisl. sistemy (Computation Systems -- collection of works), vyp. 47, Novosibirsk, 1971, pp 73-86 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V557)

Translation: An approach is formulated for the problems of planning and designing digital devices in the logical synthesis step (using the terminology of V. M. Glushkov in the book Teoriya konechnykh i veroyatnostnykh avtomatov [Theory of Finite and Probability Automata], Moscow, Nauka Press, 1965).

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1/2 007

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--IMPROVEMENT IN THE WAXING OF CANVAS TENT FABRICS -U-

AUTHOR--(051)-ALTEPESOTSKIY, F.L., ARTEMOVA, L.A., INVAKOVA, V.E., PUZYREV,
M.F., SIDROVA, Z.A.

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COUNTRY OF INFO--USSR

SOURCE--TEKST. PROM. (MOSCOW) 1970, 30(2), 53-4

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MILITARY SCIENCES

TOPIC TAGS--CANVAS EQUIPMENT, TENT, WAX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1120

STEP NO--UR/0342/70/030/002/0053/0054

CIRC ACCESSION NO--AP0128547

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 007

CIRC ACCESSION NO--AP0128547
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECT OF THE RATIO OF FABRIC LEVEL RATE (V SUBR) TO THE COATING ROLLER SURFACE TRAVEL (IN THE SAME DIRECTION) RATE (V SUBR) ON THE AMT. (Q) OF PARAFFIN DEPOSITED TO TENT FABRIC WAS DETD. THE OPTIMUM ANGLE (PHI) SUBTENDED BY THE CLOTH CONTACTING AND LEAVING THE ROLLER WAS SIMILAR TO 15DEGREES, THE DEPTH (H) OF THE ROLLER IMMERSION IN PARAFFIN, KEPT AT 80-95DEGREES, WAS 40-5 MM, THE CLOTH TEMP. 110-15DEGREES, AND THE ROLLER TEMP. 114-17DEGREES. Q INCREASED WITH INCREASING V SUBF-V SUBR, AND COULD BE REGULATED BY CHANGING BOTH H AND PHI.

UNCLASSIFIED

Acc. Nr: **AP0043673**

S

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp.573-581
CALCULATION OF THE POLARIZATION CONTRIBUTION
TO THE ENERGY OF INTERACTION BETWEEN A CHARGE
AND METAL SURFACE

A. V. Sityakin

The polarization part of the energy of interaction between a stationary point charge and a semirestricted metal is calculated in the high density approximation as a function of the distance from the surface. At the surface of the metal this quantity is about $\frac{2}{3}$ the value inside the metal; with increase of the distance between the charge and metal it asymptotically goes over to the «image potential». The polarization contribution to the electron energy is identical with the calculated value if the major contribution to the electron mass operator is due to a «colorab hole». The results of the calculations are employed for calculating the field emission current from a metal. It is shown that the effect of broadening of the barrier relative to that used in deduction of the Fowler — Nordheim formula is to a large extent compensated by the effect of field penetration into the metal. Allowance for both effects does not yield significant corrections to the Fowler — Nordheim formula.

1/1

REEL/FRAME
19770077

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AA0040779

S

UR 0482

1-76

Soviet Inventions Illustrated, Section I Chemical, Derwent,

240889 RESISTANCE SPOT WELDING was improved by continuous measurement of resistance between welding electrodes 1. In this method two sheets of metal are pressed between the electrodes with a force P and subjected to ultrasonic vibrations using a generator 4. The resistance between the electrodes is continuously measured by a unit 2 which at the optimum value of this resistance actuates a controller 6 to switch welding current for a given time interval. The value of the optimum resistance and other parameters of the welding process depend on the type and state of the welded sheets and on the welding equipment used.

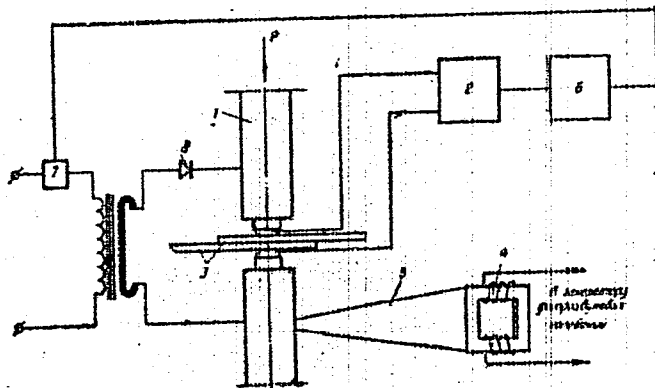
15.9.67 as 1186067/25-27, S.F. GUSEV et al. (22.8.69) Bul 13/1.4.69. Class 21h. Int.Cl.B 23k.

AUTHORS: Gusev, S. F.; Koryakovskiy, O. A.; and Sidyakin,

V. A.

19750485

AA0040779



2/2

19750486

LD

USSR

SIDYAKIN, V.G.

UDC 621.317.799:537.311.3

"Optimum Method Of Measurement Of The Hall Effect"

Vestn. Kiyev. politekhn. in-ta. Ser. radioelektron. (Bulletin Of Kiev Poly-technical Institute. Radioelectronics Series), 1970, No 7, pp 141-144 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B103)

Translation: An experimental examination of the usefulness of various schemes for measuring the Hall constant was conducted on semiconductor specimens of n-Ge and n-type α SiC. A scheme with one Hall sonde and a scheme according to the Van der Pauve method with four sondes on the periphery of the specimen are compared with the classical three sonde scheme for measuring the Hall effect. It is shown that the one sonde scheme (technically simpler and requiring less technological preparation of the specimen to be measured) is completely suitable. The Van der Pauve scheme requires special preparation and selection of specimens; otherwise it gives an error of measurement of mobility which can reach 40 and even 100%. 2 ill. 1 tab. 10 ref. Summary.

1/1

Single Crystals

UDC 546.26'28 : 548.55

USSR

SIDYAKIN, V. G., and RUDEENKO, V. N., Kiev Polytechnical Institute

"Thermal Conductivity of Single-Crystal SiC"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy,
Vol 6, No 10, Oct 70, p 1861

Abstract: The authors studied the thermal conductivity of specimens of single-crystal α -SiC type 6H with compensating impurities ($N_D - N_A \approx 10^{17} \text{ cm}^{-3}$). The temperature dependence of the thermal conductivity of α -SiC (6H) (proportionality $\sim T^3$ at low temperatures and $\sim T^{-1}$ at high temperatures) was found to be in good agreement with the theory of heat conduction in semiconductors.

1/1

USSR

SEMENOVA, S. A., SIFOROVA, T. A., and NIKOLAYEVA, T. A., VNIKHSZR
"Dynamics of the Elimination of Residual Systemic Acaricides from Leaf
Surfaces"

Moscow, Khimiya v Selskom Khozyaystve, No 2, 1971, pp 24-27

Abstract: Toxic residues of the acaricides remaining for a long time on leaf surfaces are of definite danger to field workers and to bees and various insects which destroy or parasitize mites and other pests. Laboratory and field tests were run on the following systemic acaricides to determine the dynamics of their elimination from leaf surfaces: phosphamide, phythios, antio, vamidotion and methylmercaptophos. These were found to disappear from leaves in the following order: methylmercaptophos = vamidotion, phythios, phosphamide, antio. The latter three, since they disappear more slowly than the others, represent the greater danger to field workers and to valuable insect life.

1/1

- 67 -

USSR

UDC 632.95

SEMENOVA, S. A., SIFOROVA, T. A., GAR, K. A., MANDEL'BAUM, Ya. A., ITSKOVA, A. L., FETISOVA, V. F., NIKOLAYEVA, T. A., and SELEZNEVA, V. P.

"Acaricide"

USSR Author's Certificate No 265611, filed 3 Jul 68, published 7 Apr 72
(from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II), 1973,
Abstract No 1N450P by T. A. Belyayeva)

Translation: Compound of a general formula $(RO)(R'O)P(X)SCH_2CON(R'')SO_2(R''')$
(where R, R', R'', R''' = C₁ - C₄-alkyl, X = O or S) is suggested for use as
acaricide. Experimental data are presented on its aqueous emulsions under
laboratory conditions and the duration of its protective effect.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FORMATION CONSTANTS FOR ANIONIC HYDROXO COMPLEXES OF SOME GROUP III
ELEMENTS -U-
AUTHOR--(04)-IVANOVEMIN, B.N., YEGOROV, A.M., ROMANYUK, V.I., SIFOROVA,
YE.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1224-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COMPLEX COMPOUND, INDIUM COMPOUND, THALLIUM COMPOUND, YTTRIUM
COMPOUND, YTTERBIUM COMPOUND, LUTETIUM COMPOUND, ERBIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1144 STEP NO--UR/0078/70/015/005/1224/1228
CIRC ACCESSION NO--AP0136564
UNCLASSIFIED

272 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEX FORMATION CONSTS. OF ANIONIC HYDROXO COMPLEXES OF IN, TL, SC, Y, ER, YB, AND LU ARE CALCD. AND THE RESULTS ARE TABULATED. FACILITY: UNIV. DRUZHBY NAR. IM. LUMUMBY, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 512.25/.26+519.3:330.115

SIGAL, I. Kh.

"Sequential Analysis of Variants is the Solution of Extremum Problems"

V sb. Sistemy raspredeleniya resursov na grafakh (Systems of Distributing Resources on Schedules--collection of works), Moscow, Vychisl. tsentr AN SSSR (Computing Center, Academy of Sciences of the USSR), 1970, pp 63-84 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V619)

Translation: The paper deals with a scheme for sequential analysis in solving extremum problems of discrete mathematical programming which may be called problems on designations. The work consists of two parts. The first part (§1) outlines the general scheme for analysis of variants. The second part (§§2-5) describes a method of solving the traveling salesman problem according to the general scheme. N. N. Moiseyev proposes the idea of constructing a tree of variants as well as analyzing the variants on this tree. Author's introduction.

1/1

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USSR

UDC: 681.3.06:51

VLASOV, N. L., LAZAREVA, I. A., and SIGAL, I. Kh.

"Approximating Tabular Functions of Two Variables"

Kiev, V sb. Mashiny dlya inzh. raschetov (Machines for Engineering Calculations--collection of works) No 7, 1973, pp 45-56 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B97)

Translation: Most of the algorithms for approximating tabular functions of two variables developed at the present time are limited to the construction of a polynomial of fixed degree in two variables: problems of approximation with a specified accuracy remain practically untouched. It is shown that in the construction of these algorithms, it is best to use two-dimensional orthogonal polynomials.

Use of such polynomials permits construction of an effective computational algorithm, the meaning of which is that in each last step all the results of the preceding computation are preserved. This last statement is especially important in view of the low operation speed and limited memory of the MIR type of computer.

1/2

USSR

VLASOV, H. L., et al., V sb. Mashiny dlya inzh. raschetov, No 7, 1973,
pp 45-56

A description is given of the program "Approximation of a function of two variables by the method of least squares through orthogonal polynomials of a specified accuracy." Its program and operational order are given. A control example of the computations on the MIR-2 type of computer is presented. Bibliography of three. N. V.

2/2

- 14 -

USSR

SIGAL, I. YA., and BABENKO, YU. A.

"Toxic Emissions in the Atmosphere"

Kiev, Energetika i Elektrifikatsiya, No 4 (70), Jun/Jul 73, pp 6-8

Abstract: One of the most effective ways of reducing the air pollution is to substitute gas fuel for solid or oil fuel. It has been established that after such a change is made, the emissions into the atmosphere from a municipal power plant with boiler capacity of 22 t/hr are lowered on the average by a factor of five. At power stations with energy blocks of 300 Mw this decrease is about 50%. It is recommended to consider these findings in selection of fuels for the power stations.

1/1

USSR

UDC 621.78.001+06

VIL'YAMS, O. S., Candidate of Technical Sciences, BOL'SHOVA, N. M., Engineer, SADOKOVA, T. G., Engineer, and SIGAL, T. L., Engineer, Nizhpol' Southern Pipe Plant

"Effect of Vacuum Heat Treatment on the Grain Size and Properties of Pipes Made of Austenitic Steel"

Moscow, Stal', No 10, Oct 70, pp 938-941

Abstract: During heating of Kh18N10T, Kh18N9, and EI847 austenitic steels in a vacuum furnace at a residual pressure of 10^{-3} mm Hg the process of recrystallization occurs at temperatures 100 degrees lower than during heating in an ordinary electric furnace in an air atmosphere. Vacuum-furnace-heated steel possesses large-grain structure and higher ductility than that of ordinary-furnace-heated steel, and also higher density. The intensive growth of grain during heating of steel in vacuum can be explained by the accelerated diffusion of carbide and carbonitride phases and degassing of the metal, and also, apparently, by the intensification of diffusion movement of atoms, vacancies, and dislocations. The vacuum heat treatment of pipes at temperature of 900°C (instead of 1000°C under ordinary conditions) was tested under production conditions and produced good results.

1/1

USSR

UDC: 513.88:513.88+517.948

MARKUS, A. S., SIGAL, Ye. I.

"On the Multiplicity of the Characteristic Number of an Analytic Operator Function"

V sb. Mat. issledovaniya (Mathematical Research—collection of works), T. 5, vyp. 3, Kishinev, Academy of Sciences of the Moldavian SSR, 1970, pp 129-147 (from RZh-Matematika, No 5, May 71, Abstract No 5B790)

Translation: Some formulas are derived for the multiplicity of the characteristic number of an analytic operator function. In particular, the following generalization of the classical theorem of a logarithmic residue is proved: Let Γ be a simple closed rectifiable curve bounding the region G , while $A(\lambda)$ is an operator function which is analytic in $G \cup \Gamma$. If the operator $A(\lambda)$ is reversible for all $\lambda \in \Gamma$ and Fredholmian for all $\lambda \in \Gamma$, then the sum of the multiplicities of the characteristic numbers of $A(\lambda)$ lying in G is

$$\frac{1}{2\pi i} \int_{\Gamma} A'(\lambda) A^{-1}(\lambda) d\lambda.$$

By means of these results, simple proofs are found for the main properties of multiplicity of the characteristic number which were established by V. M. Yeni (RZh-Mat. 1970, 4B688) and Ye. I. Sigal (RZh-Mat. 1970, 10B588). Authors' abstract. 1/1

- 24 -

1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CONCERNING ANALYSIS OF NONLINEAR SYSTEMS BY METHOD OF EQUATIONS OF
MOMENTS -U-
AUTHOR--SIGALOV, G.G.
COUNTRY OF INFO--USSR
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 6, PP 37-47
DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--NONLINEAR SYSTEM, ERROR ANALYSIS, DIFFERENTIAL EQUATION
SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1019

STEP NO--UR/0103/70/000/006/0037/0047

CIRC ACCESSION NO--AP0124678

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124678'

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF CONSTRUCTION THE EQUATIONS OF MOMENTS DIRECTLY BY THE NONLINEAR SYSTEM DIFFERENTIAL EQUATIONS IS CONSIDERED. THE CONNECTION OF THE EQUATIONS OF MOMENTS WITH THE EQUATION OF FOCKER, PLAN, COLMOGOROFF IS SHOWN. THERE IS ANALYZED THE POSSIBILITY OF SUING THE EQUATIONS OF MOMENTS FOR THE ESTIMATION OF THE MATHEMATICAL EXPECTATION AND THE ERROR DISPERSION AS WELL AS OF THE THRESHOLD CONDITIONS OF THE FRUSTRATION OF TRACKING. THE MATERIAL PRESENTED IS ILLUSTRATED WITH THE EXAMPLES OF SOLUTIONS OF WHICH ARE COMPARED WITH THE RESULTS OBTAINED BY MEANS OF SUINUSING OTHER METHODS OF THE ANALYSIS OF NONLINEAR SYSTEMS.

UNCLASSIFIED

USSR

UDC: 621.372.822(088.8)

SIGALOV, V. M.

"A Device for Bending a Rectangular Waveguide"

USSR Author's Certificate No 259196, filed 18 Jul 68, published 28 Apr 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B207 P)

Translation: The proposed device contains a bending head, pneumatic clamps and a drive mechanism. The bender leaves the inner surface of the waveguide exceptionally clean and ensures constancy of the inside cross section at the bending point. One illustration.

1/1

USSR

UDC 620.193.41

KAZARIN, V. I., SIGALOVSKAYA, T. M., and ANDREYEVA, V. V., All-Union Scientific Research Institute of Light and Textile Machine Building

"The Influence of the Chloride and Antimony Ions on the Behavior of Titanium in Solutions of Hydrochloric Acid"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 36-39

Abstract: The corrosion behavior of type VT1-0 titanium and AT6 alloy in 1-5% solutions of hydrochloric acid in the presence of sodium chloride and antimony was studied in order to determine the possibility of using titanium and titanium alloys as structural materials for painting and finishing equipment. The results of the studies showed that the presence of ions of antimony, even in relatively small quantities, facilitates passivation of titanium in solutions of hydrochloric acid with high chloride concentration. The results indicate that in hydrochloric acid media containing salts of antimony in quantities of 0.03 g·ion/l and higher, titanium is not activated and should have good corrosion resistance.

1/1

USSR

UDC: 620.194

S
SIGALOVSKAYA, T. M., and ZARETSKIY, Ye. M., Moscow Institute of Chemical Machinery

"Tendency of AMg6 Alloy to Corrosion Cracking"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 428-429

Abstract: The dependence of aluminum corrosion rate and potentials on pH is correlated with a Pourbaix diagram (E. Detombe, M. Pourbaix, Corrosion, 1958, 14, 496) to study the tendency to corrosion cracking (TCC). The data show that in strongly alkaline solutions the potential of AMg6 alloy is very negative and the corrosion is total; corrosion cracking is observed within pH 6.5--9.5 (depending on chlorine ion concentration). Within pH 2.8--2.0, TCC slightly decreases. In strongly acid solutions the total corrosion is followed by a high rate of corrosion cracking. The TCC of the AMg6 alloy is typical of the left and central regions of Pourbaix diagram where it varies slightly (the chlorine-ion concentration being constant); it is not typical of the right part of the diagram despite the high corrosion rate in both right and left parts of the diagram. The values of the pH of the solution and the stationary potential in themselves affect the cracking corrosion much less than chlorine-ion concentration.

1/1

- 24 -

Epidemiology

USSR

UDC 616.988.5-053.2-036.15-036.22

SIGAYEVA, L. A., NEGINA, A. I., and GRACHEVA, K. G., First Moscow Medical Institute imeni Sechenov and Sanitary Epidemiological Station of the Fourth Main Administration

"The Role of Adenoviruses in the Development of Group Diseases Among Children"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 11, 1971, pp 140-144

Abstract: Investigations were performed during two outbreaks of upper respiratory diseases: among nursery children aged 1-3 in Nov-Dec 1966, and among hospitalized children aged 3-11 in Feb-Mar 1968. In each group, the outbreak was precipitated by a child with an acute respiratory infection and lasted 21-23 days, involving 14 out of the 19 nursery children and 15 out of the 16 hospitalized children. The disease had an acute onset with fever, inflammation of nasal and pharyngeal mucosa, and sometimes vomiting and diarrhea; the course was mild and recovery complete. Adenovirus type 5 was identified in nose and throat smears of all sick children but was no longer found after recovery. Titers of complement-fixing antibodies were significantly elevated (1:40-1:160) even on the 30th day after the onset of the disease. Adult personnel taking care of the children remained well, and serological and virological tests yielded negative results in all cases.

1/1

USSR

UDC: 621.375.826+621.039.64

SIGEL, R., WITKOWSKI, S., BAUMHACKER, H., BÜCHL, K., ELDMANN, K.,
HORA, H., MENNICKE, H., MULSER, P., PFIRSCH, D., SALZMANN, H.

"Survey of Studies of Laser-Produced Plasmas at the Max Planck
Institute of Plasma Physics in Garching, West Germany"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972,
pp 37-44

Abstract: The paper is a survey of experimental and theoretical
research on laser-produced plasmas done at the Max Planck Insti-
tute of Plasma Physics in Garching. Experiments are described
on heating of a plasma by emission from a neodymium laser with
energy of 30 J and pulse duration of approximately 30 ns. The
plasma temperature was measured by a filter method; the time of
flight and average kinetic energy of the ions were measured by
probes. A laser with a single pulse lasting a few picoseconds
is described. The results of theoretical studies done on com-
puters are presented. [The article is a brief version of a paper
presented to the editors by the organizational committee of the

1/2

USSR

SIGEL, R. et al., Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 37-44

International Conference on Laser-Produced Plasmas, Moscow, 1970. Translation by A. S. Shikanov.] Nine illustrations, bibliography of seven titles.

2/2

- 40 -

Acc. Nr: **AP0047633**

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
4R0080

S

104512w Solubility in ammonium nitrate-ammonium mono-
hydrogen phosphate-water and ammonium monohydrogen
phosphate-ammonium carbonate-water systems at 10°.
Belyaev, I. N.; Sigida, N. P.; Stepanenko, T. D
(USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 178-81
(Russ). Soly. diagrams of NH_4NO_3 - $(\text{NH}_4)_2\text{HPO}_4$ - H_2O and
 $(\text{NH}_4)_2\text{HPO}_4$ - $(\text{NH}_4)_2\text{CO}_3$ - H_2O systems at 10° are constructed.
Both systems are of eutonic type, having eutonic point shifted
toward the region of the most-sol. components, NH_4NO_3 and
 $(\text{NH}_4)_2\text{HPO}_4$, resp.
HMTR

1/1

REEL/FRA
19791205

187K

USSR

UDC 62.-752.4:53.082.52

KOVAL', S. T., Candidate of Sciences, KLIMCHUK, L. S., OSMOLOVSKIY, Yu. F.,
SIGIDA, Yu. A.

"Influence of Rotary Picture on the Accuracy of a Photoelectric Angle Meter
in a Nongimbal Electrostatic Gyroscope"

Optiko Mekhanicheskaya Promyshlennost', No 12, 1972, pp 8-11.

Abstract: The use of the so-called "exotic" gyroscopes is primarily related to the problem of coupling of the body of the gyroscope to an isolated spherical rotor, which can be successfully solved using photoelectric devices. Among the many photoelectric devices for determination of information on the relative position of the axis of rotation of the spherical rotor in a non-gimbal gyroscope, pulse-width systems provide comparative simplicity of determination of the direction cosines $\cos \lambda$, $\cos \mu$ and $\cos \nu$. This article produces a general formula which can be used to determine the accuracy of a photoelectric system. Various rotor pictures are analyzed using this formula. With otherwise equivalent conditions, the minimum error in calculation of the latitude angle is provided where $\cos \lambda = t_\lambda/T$, $F(\lambda) = -1/T$, $V_\lambda = 1/\sqrt{1 + 4\pi^2 \sin^4 \lambda}$, $\Delta \cos \lambda = \tau k/\rho T \sqrt{1 + 4\pi^2 \sin^4 \lambda}/\sin \lambda$.

1/1

- 56 -

USSR

SHIROKOV, F. V. and SIGNAYEVSKIY, V. A.

"Minimal Coverings of a Finite Set. Connected Coverings. II"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 22, Novosibirsk, 1973, pp 57-78 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V353)

Translation: Minimum covering α of set X is called connected if we can go over from any subset to any other by means of a chain of pairwise intersecting subsets. An arbitrary covering breaks down into connected components which are connected minimum coverings of their carriers. The system of all minimum coverings is subjected to further decomposition and analysis. The numbers $D(n|q, r)$, the numbers of minimum coverings with q elements and r connectedness components, are introduced. This work produces many direct and recurrent relationships for the numbers $D(n|q, r)$. The concept of the generalized generating function is introduced, as a function for which the center of the expansion of the corresponding Taylor series can be placed on the boundary of the analytical area. It is shown that certain generating functions arising in this problem have exactly this nature. This work also produces a general exponential formula relating the generating functions of a certain class of systems to the generating functions of the corresponding connected subsystems. Applications of this formula to the determination of the number of topologies in a finite set are indicated. Author's view

II. Combinatory Analysis and Graph Theory
A. General Combinatory Analysis Theory

USSR

SHIROKOV, F. V., SIGNAYEVSKIY, V. A.

"Minimal Coverage of a Finite Set. 1."

Diskretn. Analiz [Discrete Analysis -- Collection of Works], No 21, Novosibirsk, 1972, pp 72-94 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V318, by the authors).

Translation: A combinatorial denumeration problem is stated and solved. The minimum coverage of a finite set refers to a class of its subsets which is a coverage, but stops being coverage if any one of the subsets included is discarded. The problem is stated of determining the number of all minimum coverages of a set with n points. The system $\Delta = \Delta(X)$ of all minimum coverages of set X breaks down into subsystems Δ_q , $q = 1, 2, \dots, n$, with the number of elements of the coverage. This work produced direct and recurrent relationships for the corresponding numbers $D(n/q)$. Two formulas are produced, expressing $D(n/q)$ through Stirling numbers of the second kind. The computations are accompanied by direct combinatorial analysis of the objects studied.

1/2 005 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--UNIFICATION AND STANDARDIZATION OF ELECTRIC DRIVE UNITS IN WHEELED
VEHICLES -U-
AUTHOR--(03)-DOMBROVSKIY, N.G., SIGODIN, V.V., SRIBNER, M.M.
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 49-50
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL
SCIENCES
TOPIC TAGS--WHEELED VEHICLE TRANSMISSION, TECHNICAL STANDARD

CONTRL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1555 STEP NO--UR/0422/70/000/005/0049/0050
CIRC ACCESSION NO--AP0120334
UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120334

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DISCUSSES THE PROBLEM OF UNIFICATION AND UNITIZATION OF WHEELED VEHICLES DRIVEN THROUGH AN ELECTRICAL TRANSMISSION. STANDARDS ARE CITED WHICH SPECIFY THE PROSPECTIVE PROPERTIES OF, AND REQUIREMENTS TO, THE ELECTRIC DRIVES OF WHEELED VEHICLES. THESE STANDARDS ARE UNDER DEVELOPMENT AT THE ALL UNION RESEARCH INSTITUTE OF STANDARDIZATION IN ENGINEERING (VNIINMASH), ALL UNION RESEARCH INSTITUTE FOR CONTRACTOR'S MACHINERY (VNIISTROYDORMASH), AND THE MINISTRY OF ELECTROTECHNICAL INDUSTRY OF THE USSR. FACILITY: ALL UNION RESEARCH INSTITUTE OF STANDARDIZATION IN ENGINEERING (VNIIMASH), ALL UNION RESEARCH INSTITUTE FOR CONTRACTOR'S MACHINERY (VNIISTROYDORMASH), AND THE MINISTRY OF ELECTROTECHNICAL INDUSTRY OF THE USSR.

UNCLASSIFIED

USSR

SIGORSKIY, V. P.

"Modeling of Electronic Circuits in the Space of State Variables. I. Structure of Equations"

Izv. Vyssh. Ucheb. Zavedeniy. Radioelektronika [News of Higher Educational Institutions. Radio Electronics], 1972, Vol 14, No 9, pp 1059-1065 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V686, by the author).

Translation: A procedure is presented for formation of initial equations for an electronic circuit in a degenerate coordinate basis containing no topologically dependent differential variables. Problems related to conversion of these equations to state variable equations are discussed.

1/1

USSR

UDC: 621.372.061

SIGORSKIY, V. P.

"Modeling Electronic Systems in a Space of Variables of State"

Kiev, Izvestiya VUZ SSSR--Radioelektronika, No 9, 1972, pp 1059-1065

Abstract: Mathematical modeling in the space of variables of state is based on the representation of an electronic circuit by the following equations in canonical form:

$$\frac{dx}{dt} = Ax + Bv; \quad y = Cx + Dv,$$

where x is the vector for the variables of state, v is the vector for the input quantities of specified voltages and currents, and y is the vector for the output quantities. The purpose of the analysis of this paper is to determine the output quantities of y as functions of the input v ; i.e., to obtain the relationships characterizing the system behavior. An explanation of how the equations of the variables of state are obtained is given, and the procedure for modeling nonlinear circuits is outlined. Instructions in

USSR

UDC: 621.372.061

SIGORSKIY, V. P., Izvestiya VUZ SSSR--Radioelektronika, No 9, 1972,
pp 1059-1065

setting up the graph for the structure of the circuit to be modeled
are presented for two-terminal and multiterminal networks.

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- 9 -

USSR

UDC: 681.327.11

DENBHOVETSKIY, S. V., LESKIN, V. F., MEDVEDENKO, B. I., SEMENOV, G. F.,
~~SIGORSKIY, V. P.~~, TSYGANOK, B. A., PETRENKO, A. I., Kiev "Order of Lenin"
Polytechnical Institute imeni the Fiftieth Anniversary of the Great October
Socialist Revolution

"A Device for Mapping Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,
No 10, Apr 72, Author's Certificate No 332455, Division G, filed 22 May 70,
published 14 Mar 72, p 193

Translation: This Author's Certificate introduces a device for mapping
information. The device contains a cathode ray tube with deflecting system,
and amplifiers. As a distinguishing feature of the patent, the clarity and
contrast of the reproduction are improved by adding a deflecting micro-
coil placed in the throat of the CRT and connected through a shaper ampli-
fier to the output of the video amplifier.

1/1

USSR

UDC: 621.374.32

ARTYUKHOV, V. G., DENBNOVETSKIY, S. V., and SIGORSKIY, V. P.

"Multifunctional Counting Device Using Pulse-Position, Multi-stable Elements"

Novosibirsk, Avtometriya, No 5, 1971, pp 57-67

Abstract: This article is partially based on an earlier article, in which the second and third above-named authors participated (S. V. Denbnovskiy, et al, Zapominayushchiye mnogofunktsional'nyye ostsillografiy (Multifunctional Memory Oscillographs) Izmeritel'naya tekhnika, No 1, 1968). The earlier article discussed the structure of multifunctional devices for performing a set of measurements; the present article discusses the basic theory of such a device using digital equipment based on the direct count of pulses. The basic element of such a multifunctional counting device is a decade counting cell fulfilling such functions as pulse counting, frequency division of signal trains, and intermediate memorization. Schematics of two such circuits are given together with various block diagrams showing combinations of such circuits for performing various functions. A final block diagram of the entire instrument is provided. Miniaturization of the equipment is also discussed.

1/1

USSR

UDC 621.372.0.61

SIGORSKIY, V. P., PETRENKO, A. I., SLIPCHENKO, V. G.

"Algorithm and Program for Setting up Equations of State for a Circuit With Optimum Subdivision of Mutually Defined Branches of the Circuit Graph"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 52-68

Abstract: The authors consider a universal algorithm for setting up equations of state for an electronic circuit using a mixed coordinate basis. The algorithm is suitable for analyzing linear and nonlinear continuous and discrete circuits with dependent sources. The program enables derivation of an equation of state in the form of a system of first-order differential equations. One table, four illustrations, bibliography of four titles.

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- 21 -

USSR

UDC 621.372.0.61

SIGORSKIY, V. P., PETRENKO, A. I.

"Theoretical Principles of Mathematical Modeling of Electronic Circuits"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 3-11

Abstract: Procedures are outlined for deriving circuit equations on the basis of component and topological equations in various systems of coordinates. Equations in a nonhomogeneous coordinate basis with the minimum possible number of variables are derived on the basis of phenomena of degeneration of coordinates. Problems involved in the derivation of equations of state in normal form are considered. Bibliography of 23 titles.

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USSR

UDC 681.3

SIGORSKIY, V. P., PETRENKO, A. I.

"Algorithms for Analysis of Electronic Circuits"

Algoritmy Analiza Elektronnykh Skhem, [English Version Above], Kiev, Tekhnika Press, 1970, 394 pages, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V601 K, unsigned).

Translation: Algorithms for analysis of linear and non-linear electronic circuits, both transistor and tube type, are presented. The principles of matrix-topological description of circuits are studied, as well as models of electronic components for small and large signals, algorithms for formation of equations of state of circuits in normal form and calculation of circuit functions, analysis of circuit functions in the frequency-time area and solution of equations of state in general form or by numerical methods, algorithms for estimating the sensitivity and stability of circuits to changes of individual components, determination of tolerances and tuning (optimization) of circuits.

1/1

USSR

UDC 621.372.061

SIGORSKIY, V. P., Doctor of Technical Sciences, PETRENKO, A. I., Doctor of Technical Sciences, DENBNOVETSKIY, S. V., Candidate of Technical Sciences, TSURIN, O. F., Candidate of Technical Sciences, KOLESNIK, A. A.

"Experimental System for Operator-BESM-3M Computer Interaction"

Kiev, Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 1, Jan/Feb 72, pp 24-26

Abstract: A brief description of an experimental model for a system for the graphical interaction between an operator and the BESM-3M computer is given. The model was developed at Kiev Polytechnical Institute and is currently being tested at the Scientific Research Institute of Automated Systems for Planning and Control in Construction (Kiev). The designation and characteristics of units in the experimental model are described, including a block diagram of the system and a diagram of the structure of words used in constructing graphical information. The controlling word switches on individual units of the machine such as the light pencil and the rotation unit. The control word can also give an image recorded in the memory of the machine to which a 21-32 bit word corresponds and can also organize a ring structure for the construction of complex images.

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USSR

SIGORSKIY, V. P., et al., Mekhanizatsiya i Avtomatizatsiya Upravleniya,
No 1, Jan/Feb 72, pp 24-26

If the image is recorded by a method invariant to the position on the screen of the indicator device in the data bank to which the transfer in processing the controlling word is made, multiplication of a given image without additional losses is possible and the given structural data bank can be represented as a symbol in the character generator. An image is regenerated by periodic interrogation of the magnetic memory of the BESM-3M with a frequency of 33 Hz. The raw data for images is stored in 1000 locations of the working storage. Digital portions of the operation are carried out on logical elements of the MIR-1 complex.

2/2

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USSR

UDC 669.1:538.248

TELESNIN, R. V., SHISHKOV, A. G., OSUKHOVSKIY, V. E., SIGOV, A. S., and OSUKHOVSKAYA, L. P., Moscow State University imeni M. V. Lomonosov; Far-Eastern State University

"Coercive Force and Creeping of Domain Walls in Permalloy Films 200-1000 Å Thick"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 959-967

Abstract: Using Permalloy films (79M4A alloy) of various thickness, an attempt was made to show that creep intensity is a function of film thickness. Films were deposited under vacuum (10^{-5} mm Hg) on polished glass substrates at 250°C in the presence of a magnetic field of 150 oersteds. Creep of domain walls was practically absent in films $d < 200$ Å. Maximum creep was observed in films 500-600 Å thick. Films $d > 1200$ Å showed a gradual increase in creep with thickness. A definite relation exists between the creep and the density of cross links in films. The creep of domain walls in films $d \sim 700$ Å took place as the result of sagging of long wall sections containing the largest number of cross links. In general, the creep rate in films 900-1000 Å was slower than that in films with $d \sim 700$ Å. The coercive force of the Heel

1/2

USSR

TELESNIN, R. V., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 959-967

sections between the cross links did not depend on the film thickness and was ~ 0.1 oersted. As was evident from the powder patterns, the sagging of Neel sections between cross sections takes place uniformly on the film surface. The coercive force (H_{cH}) for films 200, 500, and 800 Å was 0.06, 0.08, and 0.12 oersted, respectively. The coercive force of sections between the sagging points on cross links was $H_c = 0.2-0.3$ oersted (minimum) for 500-700 Å films. It was lower for 200-500 Å films because of intensive scattering of fields which facilitate the breaking of cross links. The macroscopic coercive force of the domain boundary displacement (the starting field of the boundary, H_{cst}) did not change with the film thickness within 200-1000 Å. The value of H_{cst} characterizes the maximum height of potential barriers in front of the domain boundaries. These barriers are represented by points, and they are chaotically distributed on the film surface at a distance of 40-100 μm from each other. Their height varied within several critical values in the interval of 0.3-1.0 oersted. The distance between neighboring points of the domain boundary attachment was responsible for the maximum creep in ~ 600 K films.

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1/2 020 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--MATHEMATIC DESCRIPTION OF THE FORMATION PRINCIPLES OF
M,DIISOPROPYL BENZENE OXIDATION PRODUCTS -U-
AUTHOR--(02)--SIGOV, O.V., VOLKOV, R.I.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 888-90 (PHYS CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION KINETICS, PEROXIDE, PYROLYSIS, MATHEMATIC
MODEL, ALKYL BENZENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1895 STEP NO--UR/0020/70/190/004/0888/0890
CIRC ACCESSION NO--AT0101939
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AT0101939
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT. KINETIC DATA WERE REPORTED FOR THE REACTION OF MONO AND DIHYDROPEROXIDES OF C₆H₆ (CH₃)₂ IN THE 110-40 PERCENT INTERVAL. THE REACTION WAS 1ST ORDER OVER A WIDE RANGE OF CONCN. OF THESE AS WELL AS OF HOCME SUB₂ C₆H₆ CME SUB₂ D SUB₂ H ARE SUBJECT TO A SIMPLE STATISTICAL RATIO RULE. EMPIRICAL EQUATIONS WERE SUGGESTED FOR THE FORMATION OF PYROLYSIS OF THESE COMPS., AS A SIMPLER METHOD OF EXPRESSING THE OVERALL KINETIC PICTURE THAN OBTAINABLE VIA THE USUAL SET OF DIFFERENTIAL EQUATIONS WHICH ARE DIFFICULT TO SOLVE FOR SPECIFIC SITUATIONS.

UNCLASSIFIED

USSR

UDC: 681.3.519.2 (3)

OTKHMEZURI, G. L., GOGIBERIDZE, A. Sh., GURULI, V. V., ZUBIASHVILI, Sh. M., SIRADZE, Sh. M., SIGUA, V. F., DATUASHVILI, A. N., Tbilisi Affiliate of the All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleev

"A Device for Determining the Mathematical Expectation of Random Processes"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 48, Dec 73, Author's Certificate No 409244, Division G, filed 4 May 72, published 30 Nov 73, pp 120-121

Translation: This Author's Certificate introduces a device for determining the mathematical expectation of random processes. The device contains a pulse generator, source of input information, an amplifier, diodes, a rectifier, and a shifter. The pulse generator is connected to a modulator directly and to the first input of an interrupter through an accumulator. The source of input information is connected to the modulator through a comparison circuit. The shifter is connected through a multiplier to the output of the device. As a distinguishing feature of the patent, the working precision of the device is improved by adding magnetic accumulator elements.

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USSR

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OTKHMEZURI, G. L. et al., USSR Author's Certificate No 409244

The inputs of these accumulator elements are connected to the corresponding diodes, and the diode inputs are connected to the output of the interruptor. The output of the rectifier is connected to the shifter and to the comparison circuit. The modulator output is connected through the amplifier to a second input of the interruptor.

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1/2 024 UNCLASSIFIED
TITLE--BROADBAND RADIO COMMUNICATION -U-

PROCESSING DATE--13NOV70

AUTHOR--(02)-SEMENOV, A.M., SIKAREV, A.A.

S

COUNTRY OF INFO--USSR

SOURCE--SHIROKOPOLDSNAYA RADIOSYVAZ', MOSCOW, VOYENIZDAT, 1970, 277 PP

(SL:2459)
DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--BROADBAND COMMUNICATION, SIGNAL INTERFERENCE, CORRELATION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0036

STEP NO--UR/0000/70/000/000/0001/0277

CIRC ACCESSION NO--AM013916

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0133916

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

INTRODUCTION 9. CHAPTER I

RADIO COMMUNICATION 11.

METHODS OF RADIO RECEPTION 41.

SYSTEMS OF RADIO COMMUNICATION 126.

SYSTEMS 191. V DISCRETE ADDRESS SYSTEMS OF BROADBAND RADIO

COMMUNICATION 218. VI COMPARATIVE EVALUATION OF VARIOUS BROADBAND

SYSTEMS OF RADIO COMMUNICATION 253. CONCLUSION 272. LITERATURE

274. BROADBAND RADIO COMMUNICATION HAS VALUABLE PROPERTIES: GREAT

SECURITY AND INTERFERENCE KILLING FEATURE (IN COMPARISON WITH ORDINARY

RADIO COMMUNICATION), OPTION OF INFORMATION, ETC. THE BOOK, WRITTEN ON

OPEN DOMESTIC AND FOREIGN MATERIALS, EXAMINES BASIC PRINCIPLES OF

CONSTRUCTION AND SPECIAL FEATURES OF BROADBAND SYSTEMS OF COMMUNICATION,

PRESENTS EXAMPLES OF REALIZATION OF SUCH SYSTEMS, SHOWS PROSPECTS OF

THEIR FURTHER DEVELOPMENT AND USE IN RADIO COMMUNICATION. THE BOOK WAS

WRITTEN FOR STUDENTS OF MILITARY SCHOOLS, AUDIENCES OF MILITARY

ACADEMIES AND OFFICERS OF SIGNAL CORPS. IT MAY ALSO BE USEFUL TO A WIDE

CIRCLE OF READERS, INTERESTED IN PROBLEMS OF CONTEMPORARY COMMUNICATION

TECHNOLOGY.

ABSTRACT. TABLE OF CONTENTS. PREFACE 3.
I GENERAL INFORMATION OF BROADBAND SYSTEMS OF
II RADIO COMMUNICATION INTERFERECEN. OPTIMUM
III INTER CORRELATION BROADBAND
IV AUTOCORRELATION BROADBAND
V DISCRETE ADDRESS SYSTEMS OF BROADBAND RADIO
VI COMPARATIVE EVALUATION OF VARIOUS BROADBAND
CONCLUSION 272. LITERATURE
BROADBAND RADIO COMMUNICATION HAS VALUABLE PROPERTIES: GREAT
SECURITY AND INTERFERENCE KILLING FEATURE (IN COMPARISON WITH ORDINARY
RADIO COMMUNICATION), OPTION OF INFORMATION, ETC. THE BOOK, WRITTEN ON
OPEN DOMESTIC AND FOREIGN MATERIALS, EXAMINES BASIC PRINCIPLES OF
CONSTRUCTION AND SPECIAL FEATURES OF BROADBAND SYSTEMS OF COMMUNICATION,
PRESENTS EXAMPLES OF REALIZATION OF SUCH SYSTEMS, SHOWS PROSPECTS OF
THEIR FURTHER DEVELOPMENT AND USE IN RADIO COMMUNICATION. THE BOOK WAS
WRITTEN FOR STUDENTS OF MILITARY SCHOOLS, AUDIENCES OF MILITARY
ACADEMIES AND OFFICERS OF SIGNAL CORPS. IT MAY ALSO BE USEFUL TO A WIDE
CIRCLE OF READERS, INTERESTED IN PROBLEMS OF CONTEMPORARY COMMUNICATION
TECHNOLOGY.

UNCLASSIFIED

USSR

SIKAREV, A. A.

"Optimal Space Diversity Coherent and Noncoherent Reception in Channels with Fluctuating and Concentrated Noise"

Probl. peredachi inform. [Problems of Information Transmission], 1973, 9, No 1, pp 57-65 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V432 by E. Gabidulin)

Translation: Space-diversity reception with coherent addition of rays is studied for the case when concentrated noise is present in addition to white noise in some of the diversity branches. Processing algorithms are presented for coherent and noncoherent reception. The difference of these algorithms from algorithms without concentrated noise is, roughly speaking, that in branches with concentrated noise the equivalent signal/noise ratio is used, dependent on the statistical properties of the noise. The probabilities of error are calculated. It is indicated that the use of wide band signals provides effective suppression of concentrated noise.

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USSR

5
UDC: 621.396.2

SEMENOV, A. M., SIKAREV, A. A.

"Broad-Band Radio Communications"

Shirokopolosnaya radiosvyaz' (cf. English above), Voenizdat, 1970, 278 pp, ill. 63 k. (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A119 K)

Translation: Wide-band radio communications has a number of valuable characteristics: high speed and interference to resistance (as compared with conventional radio communications), the possibility of data sampling, etc. In this book, which is based on Soviet and non-Soviet materials, consideration is given to the fundamental principles of construction and the singularities of wide-band communications systems, examples of the realization of such systems are given, and the prospects for their further development and use in radio communications is demonstrated. Resumé.

1/1

USSR

SIKAREV, A. A.

UDC 621.396.626

"Noise Immunity of a Coherent Receiver Under Noise and Mixed Signal Conditions"
Moscow, Radiotekhnika, Vol 25, No 8, Aug 70, pp 22-28

Abstract: This article analyzes the immunity to noise of a binary system coherent receiver using orthogonal and opposite signals with active pauses. The author begins his analysis by considering the problem of noise immunity under concentrated or pulse noise, offering the mathematical condition for the reception of a binary symbol in the transmission of a time-varying signal and a priori equiprobable symbols. Setting up the block diagrams of two variants of systems for realizing the solution rule for the condition, he determines the complete probability of erratic reception of a signal element in the two system variants under the further assumption that the random parameters for the transfer factor of the signal and noise as well as the random factor for the phase of the noise are constant. He also finds an expression for the probability of error in the reception of a nonfading signal in fading noise. The approach used in this analysis can also be applied to the case of combined fluctuating and single-pulse noise.

1/1

L/2 009

TITLE—CYCLLOHEXANONE -U-

UNCLASSIFIED

PROCESSING DATE—30OCT70

AUTHOR—(03)—ARESHIDZE, KH.I., SIKARULIDZE, N.G., DZHAOSHUILI, O.A.

COUNTRY OF INFO—USSR

SOURCE—USSR 215,199

REFERENCE—OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED—09MAR70

5

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—CYCLOHEXANONE, CHEMICAL PATENT, HYDROGENATION, PHENOL,
PALLADIUM, CATALYTIC ORGANIC SYNTHESIS

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAE—3002/1452

STEP NO—UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO—AA0128851

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AA0128851

UNCLASSIFIED

PROCESSING DATE--30OCT70

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

ABSTRACT. CYCLOHEXANONE IS PREPD. BY

HYDROGENATING PHENOL IN VAPOR PHASE IN THE PRESENCE OF AN PD FORM X TYPE

ZEOLITE CATALYST WITH PD CONTENT 0.8PERCENT.

UNCLASSIFIED

USSR

UDC [537.226+537.311.33]:[537+535]

3

BIKTIMIROVA, V. V., VUL', A. YA., POLYANSKAYA, T. A., ~~SIBIRSKAYA, G. A.~~,
TURKEVICH, V. M., UKHANOV, YU. I., and SIBIRSKAYA, YU. V.

"Production and Electrical Properties of Semiconducting Compound CdSnAs₂"

Tr. Leningr. politekhn. in-t (Works of Leningrad Polytechnic Institute), 1971,
No 325, pp 3-9 (from RZh-Fizika, No 1, Jan 72, Abstract No 1ME1443 by authors)

Translation: The authors describe a method of growing large single crystals of the ternary semiconducting compound CdSnAs₂ by zonal recrystallization with seed under special temperature conditions. The existence of holes with high mobility is inferred from the investigation of the dependence of specific resistance and Hall coefficient on magnetic field induction in p-specimens. The dependence of magnetoresistance on the angle between current-density and magnetic-induction vectors in n-specimens confirms the assumption regarding the sphericity of isoenergetic surfaces in the conduction band.

1/1

USSR

BOGDANOV, S. V., PANAZDYR', V. V., SIKIRYAVYY, V. Ya., SUBBOTOVSKIY, D. Kh.,
SHEMARIN, V. N.

UDC: 66.076.001.12+002.2

"Selection of Design and Thermal Insulation of Covers for Underground Com-
pressed Gas Containers"

Moscow, Stroitel'stvo truboprovodov, No. 8, 1972, pp 16-18

Abstract: Underground isothermal containers for storage of compressed methane may use various structural versions of covers. The two most frequently encountered in world practice, the spherical cover and the standard roof with sealing base, are studied in this article. Analysis shows that the standard roofing with sealing base is more economical than the spherical roofing, due largely to the lower capital investments required. Comparison of two types of insulation of this cover indicate that they are equally economical.

1/1

1/2 026

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THEORY OF ANHARMONIC CRYSTALS III. THREE DIMENSIONAL LATTICE -U-

AUTHOR--(02)-PLAKICA, N.P., SIKLOS, T.

S

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 1, PP 171-180

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHELL STRUCTURE STABILITY, CRYSTAL LATTICE DISLOCATION,
PRESSURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1438

STEP NO--GE/0030/70/039/001/0171/0180

CIRC ACCESSION NO--AP0112432

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0112432
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. THE PROPERTIES OF THE F.C.C. LATTICE WITH CENTRAL NEAREST NEIGHBOUR INTERACTION ARE INVESTIGATED ON THE BASIS OF THE DYNAMICAL THEORY OF THE ANHARMONIC CRYSTAL DEVELOPED IN (1). IT IS SHOWN THAT IN THE CASE OF CONSTANT EXTERNAL PRESSURE THE LATTICE BECOMES UNSTABLE AT SUFFICIENTLY HIGH ZERO POINT ENERGY OR TEMPERATURE. THE BEHAVIOUR OF THE PHYSICAL QUANTITIES IN THE VICINITY OF THE UNSTABILITY POINT IS INVESTIGATED. FACILITY: JOINT INSTITUTE FOR NUCLEAR RESEARCH, LABORATORY OF THEORETICAL PHYSICS, MOSCOW.

UNCLASSIFIED

USSR

UDC: 621.875

GANTSEV, V. A., NEMCHINOV, V. M., SIKOLENKO, S. F.

"Input Stages of DC Amplifiers Based on Unipolar Transistors"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz'", 1971, pp 178-195 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D103)

Translation: The authors consider amplification stages based on a combination of field-effect and bipolar transistors. It is shown that the temperature drift of the load current or the instability of the amplification factor can be appreciably reduced by proper selection of the parameters of the transistors and their operating conditions. A method is presented for calculating hybrid amplification stages with minimum temperature drift of the load current and high stability of the amplification factor. The results of the calculation are experimentally confirmed. Seven illustrations, three tables, bibliography of three titles.

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- 4 -

USSR

UDC 535.22+621.317.36.081:621.375.826

LEYKIN, A. YA., SIKORA, S. V., SOLOV'YEV, V. S., and FERTIK, N. S.

"On Measuring the Speed of Light and Setting Up Frequency Measurements in the Submillimeter Band"

Khar'kov, Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972 -- sb. (Ukrainian Republic Scientific and Technological Conference Honoring the 50th Anniversary of the Ukrainian SSR's Metrological Service, 1972 -- Collection of Works), 1972, pp 18-19 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No 2.32.53)

Translation: One of the most precise methods for measuring the velocity of electromagnetic wave propagation was developed under the leadership of G. S. Simkin, and consists of simultaneously measuring the frequency and wave length of radiation in the 8-mm band. It is a well known fact that, in this case, the largest component of the total error is caused by the indeterminacy of the wave front during the measurements of the wave length. The diffraction correction, which must be computed under these circumstances, is determined by calculating the field at a number of points on the radiator's aperture. The natural way of reducing or even eliminating this error is to approximate the radiator's long-range zone, for the purpose of creating a quasiplane wave in

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USSR

LEYKIN, A. YA., et al., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972 -- sb, pp 18-19

the area of the measurements. In this case, an approach based on the shorter (on the order of 0.05-0.5 mm) wave lengths proves to be promising. The existence of lasers operating in this band made it possible to develop a set of equipment and to make preliminary measurements on the 0.337 mm wave length. This made it possible for the following to be accomplished: 1) research in the characteristics of lasers; 2) research in frequency transformers operating in the submillimeter band; 3) the creation of frequency synthesizers operating in the submillimeter band; 4) measurement of the wave lengths of lasers operating in the submillimeter band; 5) the creation of a standard for optical band frequencies. The complex of projects that the authors carried out made it possible to make the first measurements of the speed of light in a vacuum for waves with $\lambda = 337$ microns.

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USSR

SIKORA, S. V., and LUKIN, I. V.

UDC 538.51:389

"Pressing Metrological Problems in the Field of Distance Measuring"

Khar'kov, Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby
USSR, 1972 -- sb. (Ukrainian Republic Scientific and Technological Conference
Honoring the 50th Anniversary of the Ukrainian SSR's Metrological Service,
1972 -- Collection of Works), 1972, p 102 (from Referativnyy Zhurnal --
Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.447)

Translation: In a number of new fields of technology (space technology,
nuclear physics, geophysics, and so forth), when installations with large
dimensions (antenna systems, accelerators, seismic strain gauges, and so on)
are erected, the error in measuring distances during the adjustment or control
of these structures must be no greater than $(1-5) \cdot 10^{-7}$. The most promising
systems for achieving this accuracy are laser phase range finders. Over
small distances (0.1-10.0 km), reducing the measurement error to 10^{-7} is rela-
ted to the problem of increasing the modulating frequency of the laser radia-
tion to 500 Mc; that is, to an order that is comparable to the capacities of
existing systems. For distances in the 10.0-100.0 km range, reducing the
measurement error is related to the problem of precisely measuring the atmos-
phere's average refractive index. KhGNIIM [Khar'kov State Scientific
1/2

USSR

SIKORA, S. V. and LUKIN, I. V., Ukr. resp. nauch.-tekhn. konf., posvyashch.
50 letiyu metrol. sluzhby USSR, 1972, p 102

Research Institute of Metrology] is conducting a series of projects aimed at
creating a special length standard for distances up to 10 km that has an error
of less than $5 \cdot 10^{-7}$.

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USSR

UDC 669.24-12:548.7

SIKOROV, V. N., UMANSKIY, Ya. S., and EPSHTEYN, G. N., Moscow
Institute of Steel and Alloys

"Reduction of Some Properties of Nickel by Annealing After
Cold Deformation "

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metal-
lurgiya, No 11, 1971, pp 143-147

Abstract: The reduction after deformation of the electric re-
sistance, microhardness, and the physical line broadening
(311)_α in Ni (purity 99.98 %) was investigated. The presence
of the 3rd and the 5th stages of annealing was established. The
5th stage is dependent on the recrystallization. The microhard-
ness of specimens does not change before beginning recrystalli-
zation. The activation energy of the 3rd stage
 $E_a^{3rd} = 1.03 \pm 0.05$ ev , corresponding to 60 % of the reduction of
electric resistance of the 3rd stage, is characterized by the
function
 $\Delta R_{3rd} / \Delta R = e^{k\sqrt{t}}$. The further change complies

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SIKOROV, V. N., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 11, 1971, pp 143-147.

with kinetics of the 2nd order. It is supposed that the 3rd stage is effected by annealing of complexes of inter-lattice points of atoms by means of annihilation with monovacancies and on dislocations. Four illustr., nine biblio. refs.

2/2

Instrumentation and Equipment

USSR

UDC 536.62

SIKOROV, V. N., UMANSKIY, Ya. S., and EPSHTEYN, G. N., Moscow Institute of Steel and Alloys

"High-Temperature Microcalorimeter for Studying Thermal Phenomena in Metals and Alloys"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1132-1134

Abstract: A number of models of heat-conducting differential microcalorimeters of the Calvet type designed for operation at 20-300°C are known. However, in studying thermal phenomena in many metals and alloys, heating to higher temperatures is required. The authors have built and used a Calvet microcalorimeter for operation under isothermal conditions in the temperature range of 20-800°C. The structure and operating characteristics of this device are discussed.

The microcalorimeter can be used to study the thermal effects of the processes of recrystallization, recovery, aging, phase conversions, and other physical and physico-chemical phenomena. The diameter of the calorimetric cell is 28 mm, which permits samples of large cross section to be used. The ratio 1/2

USSR

SIKOROV, V. N., et al, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp
1132-1134

of the cell diameter to the height is 1:2.5 instead of the ratio of 1:8
recommended by Calvet, but the sensitivity of the calorimeter is very high
for platinum rhodium and gold palladium or chromel-alumel thermopiles.
The accuracy of determining the thermal effects is 2-2.5%.

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USSR

IMSHENETSKIY, V. V., et al., USSR Author's Certificate No 264771, filed 18 Jul 66, published 17 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B230P)

same frequency as the first train and shifted relative to the first by a time interval corresponding to the number entered in memory; in the input pulse copy mode, the numbers are entered on the next reference to one of the set of cycle pulse trains sequentially and uniformly shifted in time relative to each other.

2/2

- 74 -

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002203020006-6"

USSR

IMSHENETSKIY, V. V., KUZ'MIN, Yu. I., and SIKORSKIY, Yu. M.

"Procedure for Recording Information in a Memory with Pulse-Phase Representation of Numbers"

USSR Author's Certificate No 264771, filed 18 Jul 66, published 17 Jun 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B230P)

Translation: The proposed invention belongs to computer engineering and is designed for recording information in memory with pulse-phase representation of numbers. A procedure for recording information in pulse-phase multistable elements is well known. The purpose of the invention is the creation of a procedure which permits reduction of the time required to record the information in the pulse-phase elements and also to simplify it. The proposed procedure is distinguished from the well-known one by the fact that in the initial state the memory input is excited from the source of the first cycle pulse train corresponding to entering a "0"; for entering a number, the source of the first train of cycle pulses is shut off and the memory input is excited from the source of another train of cycle pulses of the

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USSR

INSHENETSKIY, V. V., et al., Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 9, 1970, p 127
Patent No 264771, filed 18 Jul 66

but shifted with respect to the first by a time interval corresponding to the number to be recorded in the memory device. In the input pulse scaling mode, recording is done by successive reference to one of a set of phasing pulse trains which are uniformly time-shifted in sequence with respect to each other.

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UNCLASSIFIED

PROCESSING DATE--11DEC70

TITLE--CHANGES IN ATPASE ACTIVITY IN ATHEROSCLEROTIC RABBITS -U-

AUTHOR--(05)-ASATIANI, V.S., KARCHKHADZE, R.G., SHAMKULASHVILI, G.G.,
DZHUGELI, I.S., SILAGADZE, L.S.
COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RABBITS THE HIGHEST ATPASE
ACTIVITY IS IN THE MITOCHONDRIA OF CARDIAC MUSCLE. ON COMPARING VARIOUS
IONS (K, NA, MG, CA), ONLY MG ACTS AS AN ACTIVATOR OF ATPASE IN HEART,
BRAIN, AND LIVER. IN ATHEROSCLEROTIC RABBITS, THE ATPASE ACTIVITY IS
LOWER IN MITOCHONDRIA BUT HIGHER IN THE SUPERNATANT FRACTION.
FACILITY: TBILIS. GOS. MED. INST., TBILISI, USSR.

UNCLASSIFIED

SILAKOV, A.V.

Gas analysis (N)

USSR DIVISION/CRS
Aug 31 3 31 PM '72



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Joyce

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FS TCHT-23-830-72
DIA Task No. T70 23 01

Date: 26 June 1972

P. H. ...
B. C. R. W.

ENCLOSURE TITLE: Use of a High-Temperature Fuel Cell in Gas Analysis

TRANSLATION

FOREIGN TITLE: Ispol'zovanie vysoкотемпературного топливного элемента в анализе газов

S. I. Dylov
A. A. Popov

AUTHOR: A. V. Silakov
L. A. Yurikova

LANGUAGE: Russian

SOURCE: Zavodskaya laboratoriya

TRANSLATOR: Leo Kanner Assoc.
No. 12, pp 148-1451, REQUESTOR: ARMT-GE Mr. Bush (1970)

(1970)

ABSTRACT: Gases may be analyzed in apparatus containing a high-temperature fuel cell. Carbon dioxide, hydrogen, carbon monoxide, and hydrocarbons can be determined under certain conditions.

DESCRIPTORS: Gas Analyzer
Fuel Cell

Gas Analysis
Polarographic Analyzer
Polarographic Analysis

CONTAINS CBI REPRODUCIBLE

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