

USSR
Automatic Control: Instruments

UDC: 621.314.2

USSR

GERASIMOV, I. M., DEMIDOV, G. S., and ROSTOVTSSEV, A. M. [Moscow Higher
Technical School]

"Device for Automatic Control of Switches"

Avt. sv. SSSR. kl. G 06 f 7/00, No 332458, zayavl. 27.03.70, opubl. 25.04.72
(Author's Certificate, USSR, class G 06 f 7/00, No 332458, claimed 27 March 1970
published 25 April 1972) (from RZh--Avtomatika, telemekhanika i vychislitel'-
naya tekhnika, No 2, 1973, Abstract No 2A403P)

Translation: A device is proposed for automatic control of switches which con-
tains a shift-code converter, an activating device, a course recorder, and
switching contacts. One illustration

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GERASIMOV, I. P. (Editor), Academician, Academy of Sciences USSR

Resursy Biosfery na Territorii SSSR (Resources of the Biosphere in the Territory of the USSR), Moscow, "Nauka," 1971, 295 pp

Translation: Annotation: In the first part of the book, the scientific conception of the biosphere is considered. The second part is devoted to a description of the basic resources of the biosphere in the USSR and to the scientific principles of utilizing these resources rationally. It considers the energy base of the biosphere and its use of plant life. An evaluation is given of water, soil, plant, and animal resources, and their special features, and the prospects of economic utilization are described.

The third part is devoted to questions of protecting nature. In it, state and public measures in this area are summarized and a description of the network of preserves is given. The state of protection for flora and rare, disappearing animals is characterized. In the fourth part of the book, principles of human bioclimatology and related problems of pollution of air, water, and soil by radioactive substances are considered. In addition, the problem of foci of communicable diseases is discussed.

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GERASIMOV, I. P. (Editor), Resursy Biosfery na Territorii SSSR (Resources of the Biosphere in the Territory of the USSR), Moscow, "Nauka," 1971, 295 pp

In conclusion, there is a discussion of the main results of work of the UNESCO International Conference on Resources of the Biosphere, which was held in Paris in September 1968.

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Ecology

USSR

UDC 910.1(208).001.11

GERASIMOV, I. P., Institute of Geography, Academy of Sciences
USSR

"Man and Environment: Present-Day Aspects of the Problem:

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya,
No 1, 1971, pp 5-13

Abstract: Following a brief review of some major writings by Soviet and Western scientists on the threat to the environment posed by man's activities and a discussion of international concern over the problem as manifested by the 1968 UNESCO conference in Paris and the Swedish proposal to the United Nations Economic and Social Council (ECOSOC) for a conference on the subject to be held in 1972, the author outlines five general lines of research to be pursued by geographers in cooperation with geophysicists, geochemists, and biologists: (a) continued efforts to locate and inventory natural resources for use in the economy; (b) study of elemental phenomena and development of methods for predicting and controlling them; (c) establishment of the scientific principles for combating pollution; (d) transformation of
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USSR

GERASIMOV, I. P., Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya, No 1, 1971, pp 5-13

the natural environment to ensure rational exploitation of natural resources and elimination or weakening of the injurious effects of man on the environment; and (e) preservation of natural areas for purposes of research and recreation.

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USSR

UDC 612.017.2(47-17)1+571

GERASIMOV, I. P., (Editor)

Problemy Severa. Trud i Zdorov'ye Cheloveka na Kraynem Severe (Problems of the North. Human Work and Health in the Far North), Vyp. 14, Moscow, "Nauka", 1970, 220 pp

Translation:

Annotation: The collection of works is dedicated to the problems of work, health, and creation of a scientific basis for normal human life under the severe natural conditions of the North. Problems of man's acclimatization to the north, allergies, the effect of climatic conditions of the north on man's cardiovascular system, regional pathology, and the state of health of the minority peoples of the north are examined in the articles of this collection of works. Considerable attention is given to the state of children's health. Hygiene problems, the medical-geographic aspects of the hygiene sciences in particular, hygienic rules for the planning of housing blocks for the north, hygienic evaluation of thermo-protective clothing prepared from synthetic materials for the north, problems of ultraviolet solar radiation, control of blood-sucking insects, labor hygiene at the ore-mining enterprises, and others are discussed in the articles. A special article deals with the problem of rational nutrition in the north. Published data

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GERASIMOV, I. P., "Nauka", 1970, 220 pp

obtained in scientific investigations of the work of miners and metallurgists under permafrost conditions are highly important. The collection of works is intended for scientists, physicians, engineers, agronomists, economists, and all persons who are interested in the mastery of the north.

Foreword: Aspects of human acclimatization to conditions of the north and problems of regional pathology were developed in the works of the Scientific Research Institutes of the USSR Academy of Medical Sciences, Northern Affiliates of the USSR Academy of Sciences, and in the investigations conducted at the Krasnoyarsk and Arkhangelsk Medical Institutes, at the Yakutsk Tuberculosis Institute, and other Institutes of the Ministry of Health. Under the leadership of the latter, the scientific work of practicing physicians developed extensively. This collection of works is dedicated to problems concerning the work and health of the population, and the social-hygienic foundations of a normal life under conditions of the Asiatic North. The basis of the collection of works are the latest augmented data on the proceedings of the Joint Session of the USSR Academy of Medical Sciences and the RSFSR Ministry of Health held in Noril'sk. Included also are new works, particularly those related to research prospects in control of blood-

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GERASIMOV, I. P., "Nauka, 1970, 220 pp

sucking insects; also the data on the proceedings of the Scientific Conference of Therapeutic Specialists held in Arkhangel'sk in 1968. Of particular importance are studies of occupational pathology in miners, metals industry workers and forestry and water transport workers. The collection of articles contains useful recommendations concerning problems of the hygienic basis for the building of towns, and the construction of housing, and so on. Comparative studies of the reactivity of newly arrived and indigenous populations are of great theoretical and practical interest considering the characteristics of the genetic acclimatization of the aborigines.

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COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER BEARS ON THE THEORETICAL INTERPRETATION OF THE AGE OF SOILS OBTAINED AT THE PRESENT TIME BY MEANS OF THE RADIOCARBON METHOD. THE COINCIDENCE OF THE RADIOCARBON METHOD ANALYSIS AND THE RESULTING CONCLUSIONS WITH A SERIES OF KNOWN THEORETICAL OPINIONS OF THE AGE OF SOILS AND THEIR GENESIS LEAVES NO PLACE FOR DOUBT. FACILITY: INSTITUTE OF GEOGRAPHY, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

USSR

UDC 533.99

BAYKOV, A. P., BELAGO, V. A., ISKOL'DSKIY, A. M., GERASIMOV, L. S.,
and NESTERIKHIN, Yu. Ye.

"Investigation of the Electrical Explosion of Foils"

Novosibirsk, Fizika gorennya i vzryva, No 2, 1973, pp 286-291

Abstract: For certain applications of the electrical explosion of metal foils, it is advisable to investigate the conditions for uniformity of such explosions -- a topic which, in the authors' opinion, has not been given sufficient attention. The purpose of this paper, therefore, is to make that investigation and to look into the possibility of using the foil as a distributed detonator. An earlier paper by the first-named of the authors above (ZhTF, 1973, vol 43, 1) showed that for wires with $d \geq 10^{-3}$ cm, the explosion is uniform for initial current densities $j \geq 10^8$ A/cm. Thus, in the experiments of the present paper, the parameters of the LC circuit setting off the explosion were chosen for a current density of 10^7 - 10^8 A/cm². The subject was aluminum foil, 10^{-3} cm thick, 15 cm long, and 2-4 cm wide, exploded in air. The circuit for the experiment is shown, involving oscillographical, optical, and x-ray observation methods. The authors thank A. A. Deribas and A. N. Dremm for their useful comments.

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USSR

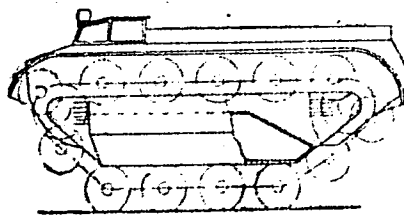
UDC: 621.1.011/.012

VOL'SKIY, S. G., TERNOVSKIY, B. I., GERASIMOV, N. I.

"An Amphibian Body"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 331941, Division B, filed 13 Jan 69, published 14 Mar 72, p 52

Translation: This Author's Certificate introduces an amphibian body with races for a pneumoroller traction unit. As a distinguishing feature of the patent, the dirt track thrown up by the rollers is improved by beveling the side and rear (stern) surfaces of the races.



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USSR

UDC: 550.834:622.241

FROYMOVICH, B. N., POMERANTS, L. I., GERASIMOV, N. N., UR'YASOVA, L. I., All-Union Scientific Research Institute of Geophysical Prospecting Methods; Special Design Office of Electrical Measuring Instruments

"A Method of Measuring the Apparent Resistance of Rocks"

Moscow, Otrkytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, 1970, p 71, patent No 261590, filed 24 Nov 66

Abstract: This Author's Certificate introduces a method of measuring the apparent resistance of rocks on alternating current by means of an electromagnetic mirror ratiometer-insert in a light-beam oscilloscope. The procedure consists of sending the signal of apparent resistance to the measurement loop of the ratiometer, and part of the supply current to the current loop of the ratiometer. As a distinguishing feature of the patent, measurement accuracy is improved by rectifying the measurement signal of the apparent resistance and the fraction of the supply current before feeding them to the ratiometer loops.

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USSR

GERASIMOV, S. P., and DMITRIYEV, V. I.

"A Device for Transmitting Frequency Telemechanical Information"

Moscow, Otkrytiya izobreteniya promyshlennyye obraztsy tovarnyye znaki, No 23,
23 May 73, p 216

Translation: (11)228755(21)1193113/18-24(22)25.10.67(51)G 06c 11/00;G 08c 13/00
(53)621.398;654.94(71) Moscow Power Institute

A device for transmitting frequency telemechanical information containing a flipflop, a cycle generator, a 1's recording unit and a control unit, a shift register, a binary counter, and a low-frequency filter is distinguished by the fact that the stability of sinusoidal oscillations is improved by connecting the flipflop input to the output of the binary counter connected with the inputs of the shift register and the control unit, while the flipflop output is connected through the low-frequency filter to the communication channel.

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USSR

UDC: 621-398

SERGOVANTSEV, V. T., GERASIMOV, S. P., and SHCHERBINA, V. Ye.

"Device for Reception and Transmission of Signals Along a Tubular Conducting Channel"

USSR Author's Certificate No 278819, filed 28 Nov 68, published 20 Nov 70 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A227P)

Translation: A device is patented for the reception and transmission of signals along a tubular conducting channel containing a filter whose input is connected to the tubular conductor; an amplifier; a controller of signal repetition periods; a recorder; an oscillator; AND, OR elements; an "inhibit"; storage devices; a cutoff circuit; controlling and modulating flip-flops; a modulator; and switches. For the purpose of simplifying and improving the reliability of operation of the device, the outputs of the switches are connected to the inputs of the OR element, the output of that element is tied to the input of the controlling flip-flop, and the output of the latter is connected to the input of the "inhibit" element and through the AND element to the recorder input and the first inputs of the cutoff circuit and controller of the signal repetition

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USSR

SERGOVANTSEV, V.T., et al, USSR Author's Certificate No 278319

periods; the second inputs of the cutoff circuit and the controller are connected to the recorder output, and the output of the controller is connected to the second input of the controlling flip-flop; the outputs of the recorder are then connected through the proper switch contacts to the input of the modulating flip-flop.

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USSR

UDC: 621.398.63:654.93

SERGOVANTSEV, V. T., GERASIMOV, S. P., SHCHERBINA, V. Ye.

"A Device for Sending and Receiving Signals Through a Conduit Channel"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 278819, Class 21, filed 28 Nov 68, pp 51-52

Abstract: This Author's Certificate introduces a device for sending and receiving signals through a conduit channel. The unit contains a filter whose input is connected to the conduit, an amplifier, a signal repetition frequency setter, a register, an oscillator, AND, OR and "inhibit" elements accumulators, a dump unit, control and modulating flip-flops, a modulator and keys. As a distinguishing feature of the patent, the device is simplified and operational reliability is improved by connecting the outputs of the keys to the inputs of the OR element, connecting the output of the OR element to the input of the control flip-flop, connecting the output of the control flip-flop to the input of the "inhibit" element, and through the AND element -- to the input of the register and to the first inputs of the dump unit and the signal repetition frequency setter. In addition, the second inputs of the dump unit and the signal repetition frequency setter are connected to the output of the register, the signal repetition frequency setter output is connected to the second input of the control flip-flop, and the register outputs are connected through the corresponding key contacts to the input of the modulating flip-flop.

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GERASIMOV, V.

Rubber Industry

17 MAY 71
JPRS 53145

NEW TIRE PRODUCTION EQUIPMENT AT OMSK

Article by B. Ivanov and K. Maydin; Moscow, NIJ-SSEB, Russian, No 3, 1971, pp 30-31

An Automatic Tire Machine

The preparation of mixtures is one of the hardest and most laborious processes in making rubber. However, whereas the process of mixing the components was accomplished in machines, until recently all the remaining work -- weighing, transporting, loading -- required extensive manual labor. Then the personnel of the preparatory processing section of the Omsk Scientific Research and Technological Design Institute of the Rubber Industry, led by V. Kiyucharov, V. Gerasimov, and G. Ostapukov, of the All-Union Chemical Society Joint Data Center, developed a system with the help of which all of the above-indicated operations are performed automatically.

A set of this equipment has been made at the Institute and has been installed at the Krasnoyarsk Tire Plant. Test runs gave positive results and the technical documentation for an automatic assembly line was transmitted for series production.

The introduction of the innovation at the Barnaul and Tselinograd tire plants saved the work and freed part of the workers. The savings from only one such line amounted to about 50,000 rubles.

The making of motor vehicle tires consists of a considerable number of operations, many of which are manual and laborious. A group headed by All-Union Chemical Society Joint Data Center, V. Kiyucharov, V. Gerasimov, A. Khomyakov, M. Timovskiy, and V. Yilik decided to simplify this process and propose new technology.

Now they are using a detachable base drum with two auxiliary ones. Cord is wound mechanically onto the side rings. The side rings and rubber-cord diaphragm are fitted with the help of mechanized patterns. In this way the assembled tire is pressed together. All

this has made it possible to create the design of assembly machines which have a high degree of mechanization and are 1.5-2 times more productive than existing ones.

At the Institute the members of the All-Union Chemical Society, as a rule, are inventors. For example, A. Khorozkov, Yu. Kar-dzinskiy, M. Stepin, V. Vilyk, M. Poyinskiy, F. Verlykaiy, I. Antonyev, and others each have several patents. In all they have received 32. This is a large contribution to the development of production. Technological solutions which are backed by patents are interpreted in newly developed production processes, machines, and instruments, thereby raising the technological and economic indices and the level of production. For example, the SK-2 machine which has been developed at the Institute is on a par with the best in the world. All the motor vehicle tires produced in the country today are made on these machines, and for each tire there is a savings of 40-60 kopecks.

The instrument and equipment developed at the Institute to measure and repurate the width of the rubberized cord were introduced last year at two tire plants and have already saved hundreds of thousands of rubles. Through the use of the inventions of the personnel of the Institute who are members of the All-Union Chemical Society the enterprises of the branch of industry saved 3.5 million rubles in 1979.

The Omsk Tire Plant

Among the millions of tires which are produced at Omsk there are tires for large dump trucks, bicycles and motorcycles, and farm vehicles, most of which are intended for use on the roads of Siberia and the Urals and areas of the North Caucasus and Central Asia.

The Omsk workers were the first to master individual vulcanizers and the form method of making tire tubes; they utilized active carbon black and Greek synthetic rubber together with Siberian petroleum workers they developed and introduced new anti-oxidants which were called "Omka-10" and "Omka-7m" in honor of the city; they were the first in the country to make tires from widened layers of cord.

At our plant we organized the production of rubberized metal cord, without which it would be impossible to make tires of radial design. This then provided the basis for the mass production of type "M" tires in the country.

The first Soviet shaped vulcanizers were approved at Irtysh, and the Omsk workers became the pioneers in introducing this new technique in industry.

The plant has frequently participated in the Exhibition of Achievements of the Economy of the USSR and has received a first degree certificate; it has a number of personnel who have won gold, silver, and bronze medals. Among them are L. Litvinova, fabricator P. Garbatskiy, vulcanizer I. Redikop, engineer I. Gnydukov, and many others.

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PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AN0102244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE REPORTS ON THE OPERATIONS OF THE "POSITRON", A RESEARCH INDUSTRIAL COMPLEX ESTABLISHED IN LENINGRAD IN 1969. THE COMPLEX, OR CORPORATION, COMPRISES A SCIENTIFIC RESEARCH INSTITUTE WITH A PILOT PLANT, THE CENTRAL DESIGN BUREAU OF TECHNOLOGY AND EQUIPMENT (TSKBTO) WITH ITS OWN PILOT PLANT, AND INDUSTRIAL PLANTS WITH THEIR BRANCHES OUTSIDE LENINGRAD. PREVIOUS TO ITS ESTABLISHMENT, TWO OF THE POSITRONS, PLANT, THE "MESON" AND THE "KULON", OPERATED IN THE "RADIODETAL" CORPORATION. THE GENERAL DIRECTOR OF THE CORPORATION HEADS THE RESEARCH INSTITUTE AND ITS PILOT PLANT. HIS FIRST DEPUTY DIRECTS THE RESEARCH PROGRAM OF THE INSTITUTE AND HOLDS THE POST OF CHIEF ENGINEER OF THE RESEARCH INSTITUTE. ANOTHER DEPUTY DIRECTOR FOR PRODUCTION IS AT THE SAME TIME THE CHIEF ENGINEER OF THE INSTITUTE'S PILOT PLANT, WHILE THE THIRD DEPUTY FOR MECHANIZATION ALSO HOLDS THE POST OF THE DIRECTOR OF THE TSKBTO AND ITS PILOT PLANT. THE CORPORATION AS A WHOLE IS MANAGED BY THE RESEARCH INSTITUTE THROUGH ITS DEPARTMENTS. THE DEPARTMENTS PREPARE THE DIRECTIVES, SUCH AS FINANCIAL AND PRODUCTION PLANS, OR MANPOWER AND WAGES, TECHNICAL AND ORGANIZATIONAL INNOVATIONS, ETC. THE PRODUCTION PLAN OF THE "POSITRON" IS PREPARED BY ITS PLANNING ECONOMICS DEPARTMENT AND IS APPROVED BY THE MINISTRY. ON THE BASIS OF THIS PLAN THE DEPARTMENTS DRAFT PLANS FOR EACH INDUSTRIAL PLANT OF THE CORPORATION. THE DEPARTMENTS OF CHIEF MECHANICAL ENGINEER, CHIEF TECHNOLOGIST, AND SCIENTIFIC TECHNICAL INFORMATION ALSO MANAGE THEIR COUNTERPARTS AT PLANTS.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AN0102244

ABSTRACT/EXTRACT--IN CONTRAST TO A PURELY INDUSTRIAL CORPORATION, THE "POSITRON" HAS SPECIAL TEAMS FOR DIRECT MANAGEMENT OF RESEARCH EFFORTS. FOR EXAMPLE, A SPECIAL TEAM OF THE FINANCIAL ECONOMICS DEPARTMENT COLLABORATES WITH THE ENGINEERING DEPARTMENT IN OPERATIONAL AND LONG RANGE PLANNING OF RESEARCH AND DEVELOPMENT AND ITS FUNDING, AS WELL AS THE COORDINATION OF ACTIVITIES OF RESEARCH SECTIONS. THE TSKBTO OF THE CORPORATION AND ITS PILOT PLANT ARE RESPONSIBLE FOR THE DEVELOPMENT OF SPECIAL EQUIPMENT, NEEDED FOR PRODUCTION, MECHANIZATION, AND AUTOMATION OF PRODUCTION. THE RESEARCH AND PRODUCTION POLICIES OF THE "POSITRON" ARE SET BY ITS SCIENTIFIC TECHNICAL COUNCIL. ASSOCIATES OF THE INSTITUTE, DIRECTORS OF PLANTS AND DEPARTMENT HEADS ARE MEMBERS OF THE COUNCIL.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MYSTERIES OF THE FROZEN CONTINENT -U-

AUTHOR--GERASIMOV, V.

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYIY, AUGUST 11, 1970, P 4, COLS 7-8

DATE PUBLISHED--11AUG70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ANTARCTIC STATION, SCIENTIFIC RESEARCH INSTITUTE, ANTARCTIC
GEOLOGY, DRILLING MACHINE, MINING ENGINEERING/(U)VOSTOK ANTARCTIC
STATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1922

STEP NO--UR/0533/70/000/000/0004/0004

CIRC ACCESSION NO--AN0125515

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--23OCT79

CIRC ACCESSION NO--ANO125515

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTIC AND ANTARCTIC SCIENTIFIC RESEARCH INSTITUTE WORKED WITH THE LENINGRAD MINING INSTITUTE TO DEVELOP A THERMAL DRILL WHICH ENABLED THE SOVIET ANTARCTIC STATION "VOSTOK" TO GET A 400 METER CORE.

UNCLASSIFIED

AN0037508

4R 0533

AUTHOR-- GERASIMOV, V.

TITLE-- A RIVER "JEEP"

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, APRIL 8, 1970, P 2,
COL 5

ABSTRACT-- THE CENTRAL TECHNICAL-DESIGN BUREAU OF THE MINISTRY OF
THE RIVER FLEET, R.S.F.S.R., AND THE LENINGRAD INSTITUTE OF WATER
TRANSPORT HAVE DEVELOPED A PLASTIC RIVER CRAFT WITH A 40-CM DRAFT,
POWERED BY A 900 H.P. ENGINE, AND CAPABLE OF TRANSPORTING 70
PASSENGERS AT SPEEDS UP TO 45 KL PER HOUR.

A PILOT MODEL OF THE CRAFT IS BEING CONSTRUCTED AT THE PILOT PLANT
OF THE INSTITUTE.

19730476

1/2 042 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--RHEOLOGICAL PROPERTIES OF POLY M, PHENYLENEISOPHTHALAMIDE -U-
AUTHOR-(04)-FOMENKO, L.N., GERASIMOV, V.D., KUZNETSOV, G.A., SOKOLOV, L.B.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (3), 27-30
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--POLYMER RHEOLOGY, POLYPHENYENE RESIN, AMIDE, SHEAR STRESS,
VISCOMETER, MACROMOLECULE, MOLECULAR WEIGHT, HYDRODYNAMIC PROPERTY,
CRYSTALLIZATION, VISCOUS FLOW

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0658 STEP NO--UR/0191/70/000/003/0027/0030
CIRC ACCESSION NO--AP0119566
UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119566

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RHEOL. PROPERTIES OF THE TITLE POLYMER (I) WERE STUDIED IN A WIDE RANGE OF TEMPS. AND SHEAR RATES. AT A STRESS LARGER THAN 3 TIMES 10 PRIME7 DYNE-CM PRIME2 I BAPAN TO CRYSTALLIZE IN THE VISCOMETER AND WAS NO LONGER FLUID, PRESUMABLY DUE TO STRAIGHTENING AND ORIENTATION OF MACROMOLS. IN A HYDRODYNAMIC FIELD. UNDER ALTERNATIVE CONDITIONS (I.E., WHEN THERE WAS CRYSTN.), THE RHEOL. PROPERTIES OF I RESEMBLED THOSE OF MOST OTHER POLYMERS. THE VISCOUS FLOW OF I WAS AN EXPOENTIAL FUNCTION OF THE MOL. WT.

UNCLASSIFIED

USSR

UDC: 681.325.6

GERASIMOV, V. E., KUZIN, L. T., LETUNOV, Yu. P., CHERNYAYEV, V. V., Moscow
Engineering Physics Institute

"A Device for Simulating the Random Distribution of Priorities in Queueing Systems"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 27, 1970, Soviet Patent No 280064, Class 42, Filed 28 May 69, p 133

Abstract: This Author's Certificate introduces: 1. A device for simulating the random distribution of priorities in queueing systems. The device contains groups of diodes and delay lines and an interrogation flip-flop. As a distinguishing feature of the patent, the functional possibilities of the device are extended by using a (1-n)-terminal network in the form of series connected kipp oscillators with variable time delay, the outputs being connected to the controlling inputs of the diodes in the channels. The controlling input of the (1-n)-terminal network is connected to the one state of the interrogation flip-flop, which determines the priority of an application. 2. A modification of this device distinguished by the fact that provision is made for functional readjustment of the probability (1-n)-terminal network by using channel flip-flops whose "zero" outputs are connected to the controlling inputs of the

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USSR

GERASIMOV, V. F., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 27, 1970, Soviet Patent No 280064, Class 42, Filed 28 May 69, p 133

corresponding kipp oscillators, while the "one" outputs are connected to the controlling inputs of the diodes connected to the inputs of diodes tied to the following kipp oscillators in the circuit. 3. A modification of this device distinguished by the fact that provision is made for functional coupling to the channels connected to the device. The inputs are connected through a shaper amplifier and a delay line to the "zero" inputs of the corresponding channel flip-flops and to the "one" input of the interrogation flip-flop, and through diodes to the "one" inputs of the channel flip-flops and to the "zero" output of the interrogation flip-flop, and also through a resistor to the voltage supply. 4. A modification of this device distinguished by the fact that provision is made for determining whether channels are free (busy). The output of the channel diodes is connected to the delay line, and the output of the delay line is connected to the main channel diode output.

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GERASIMOV, V. I.

(Maj. Gen.)

Mil

FULL USE OF GREAT FEASIBILITIES OF MATERIAL

By Maj. Gen. P. G. and
Maj. Gen. V. I. Gerasimov

The personnel of the thrust and permeability of the order of Lenin Moscow District Antiaircraft Defense School has been in combat and political training; they have been able to fulfill their socialist obligations undertaken to meet the 27th Congress of the Communist Party of the Soviet Union. As a result of intense purposeful work carried out by commanders, political workers, and also Party and Komsomol organizations, during the pre-congress period, the number of training experts and rated specialists in Podrzhalevskaya Street considerably the quality of material operation was improved, the length of time needed to bring it into combat readiness was reduced, and the permanent maintenance quality was increased. The engineering-technical personnel contributed heavily to the achieved success, especially as regards the solution of a number of tasks, to the highest extent, the potential feasibility of complicated modern material.

The struggle for the complete utilization of the material is always given utmost attention and special care by engineers and technicians. Nevertheless, under the revolutionary changes within the military aspects, the importance of that struggle has increased immeasurably.

Under the present conditions, it does not suffice any more to care merely for the excellent maintenance, high reliability of the material, and excellent training standards of the personnel, though this, naturally, is of great importance. The time factor and the constant perfect combat readiness of chassis and podrzhalevskaya became decisively important. The coupling by minutes and seconds is the perpetuity requirement to be met at present, by the fulfillment of various tasks. It is necessary to emphasize that however perfect the armament and how good excellent its quality, the complete utilization of its feasibility depends upon such factors as the largest possible reduction of time needed to bring the armament to combat readiness, free its various status of performance, the staff reduction of time needed to carry out recycling maintenance processes (without reduction in quality); and the largest possible reduction of time needed to find and remove the defects occurring in the apparatus, as a result, the armament combat-readiness coefficient will increase.

At present, the work experience of Vladimir Chavli and podrzhalevskaya shows that it is impossible to speak about the complete utilization of combat feasibility of the material without possessing an accurately planned system, based upon science, for the use of the material, without having introduced actively progressive technological processes, automation and objective

Resonance of Gerasimov V. I. # 3, 1971 (copy signed by Gerasimov V. I.)

supervision, without large-scale scientific research and active utilization of the achievements of the scientific technological progress. "During the present stage", points out Lt. I. Grechnev, "the problems of the scientific technological progress require, so to speak, a decisive significance". To the full extent, this applies to us, the defenders of the air borders of the Motherland, especially when the perfecting of the methods for the use of armament are concerned, as well as the optimal utilization of combat facilities inherent in it.

It can be said, without exaggeration, that the struggle for full utilization of combat facilities of the material is a very complicated many-sided process; it is directed by commanders, political workers, engineers, and technicians. The Party and Komsomol organizations take an important part in the mobilization process of the personnel; increased for the solution of this problem. During the Lenin jubilee year, and on the eve of the 24th Congress of the Communist Party of the Soviet Union, engineers and technicians in our chests and postgraduate showed creative initiative and high efficiency when solving complicated technological problems. They did good work in order that soldiers and sergeants acquire firm practical skills in performing combat-oriented work on the materiel, without which we cannot rely upon the full utilization of the potential possibilities of the entrusted armament; they acquired them while mastering the materiel thoroughly. To help acquire the skills, the military engineers created several sets of training devices and, together with specialists in various trades or professions, they developed training methods. A simulating system, built by officers Kralimkov and Kuznetsov, were particularly useful; its use made it possible to raise noticeably the combat training standards of radar operators and command post teams.

Innovators managed to achieve tangible results in working on the problem of time reduction in the recycling process. For instance, a group of specialists, supervised by Officers Bachurin and Kuznetsov, developed a more perfect technique for wider interval recycling processing of complicated radar systems. The main point of the technique consists in the use of a "technological chart" making it possible to execute cost efficiently the recycling operations prescribed for a given device; the chart was elaborated upon as a result of a thorough analysis of the best relevant experience, and according to the scientifically correct requirements for reliable operation of the system assemblies and joints (of components joined together). The adoption of this technique made it possible, first, to reduce the time needed for recycling process without reducing its quality; second, to reduce several times the time needed for shifting the system from its recycling state to combat state; and, finally, to give the members of the teams the chance to use the time intervals between different operations for a thorough study of assemblies and joints, of their operating principles, and of

the complex physical processes taking place in them during combat work. All of this, not only contributes to the better maintenance of the materiel, but also creates conditions favorable for the increase of its combat potential.

The struggle for the full use of the combat possibilities of the materiel means striving to reduce the time needed to bring it to combat readiness, as well as striving for support without which, as is well known in a number of cases, it is difficult or impossible to achieve normal operation of missile systems, as well as of composite systems. Officers Vdovenko, Zhilharov, and Chumakov excelled in the solution of this task. They offered simple electrical diagrams, elaborated and introduced into practice methods of their use to reduce considerably the time needed for activating individual systems and also the radar. As a result, the total time period needed for bringing the composite systems into combat readiness was reduced considerably.

The work conducted by a group of specialists under the supervision of officer Forevkin, was favorably received as well. This work dealt with the methods that permitted the launching preparation of missiles (or rockets) in a considerably shorter time. Other progressive methods, contributing to the same end, are being introduced to troops on a large scale to accelerate the preparation of missiles (or rockets) for combat. A special contribution was made through other valuable suggestions by our engineers and technicians. Experience has shown that all the above work has resulted in a large reduction of energy high-quality performance and more effective solution of tasks assigned to podrazdeleniya.

By keeping the materiel in technically defectless condition, the full utilization of the materiel combat possibilities is guaranteed. At present everyone knows that this cannot be achieved if special checking and measuring instrumentation cannot be used on a wide scale to estimate the condition of armament and its basic outlet parameters relatively rapidly and objectively. The thought of efficient innovators and inventors are occupied constantly with the need for more effective control methods to deal with the technological condition of armament. Young specialists, officers Bondal and Tshchenko, have developed a device for checking automatically the technological condition of assemblies and printed-wiring plates. At present, the personnel determine the condition of an assembly or plate by means of this device in a few seconds. Considerably less time is needed than previously, to locate a defect in any radio-electronic circuit. This device is very useful because it is a general-purpose design, good for checking the most different assemblies and plates.

Among troops, a number of perfected methods for searching and eliminating defects in various joints (of components joined

together) and assemblies of modern systems have been developed and adopted, this has contributed to the full utilization of combat possibilities of the armament. This has made it possible to reduce considerably, as compared to last year, the length of time needed to repair the materiel and raise its combat readiness to the standards of modern requirements.

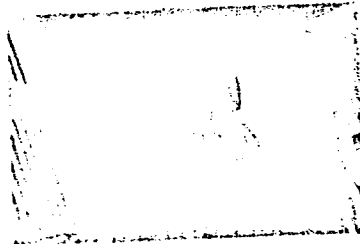
During the pre-Congress period, the use of wide-scale technological prognostic methods was initiated by many engineers, technicians and technicians conduct thorough inspections, precise measurements, and a thorough analysis of statistical data and, from these factors, they determine the wearability of any component of any connection, joint (of components joined together) and part, and thus they establish a prognosis for the performance of the materiel for the upcoming period between the consecutive recycling processes. This method has made it possible to learn about the failure of the materiel and also prolong its calendar lifetime. It is interesting to note that in many podrazdeleniya, this year, as compared to the former's first quarter, the number of materiel failures has decreased. This is a direct result of the introduction of the prognostic method into the exploitation of materiel.

Engineers and technicians have toiled at length to reduce the time needed for making repairs of various degrees of difficulty of combat materiel. Infinite success has been achieved also in the solution of this task. They succeeded in reducing the time needed for repairs by 25 to 30 percent; this was the result of the implementation of technical documentation, original devices, test-bed equipment and grid graphs developed by the innovators under the supervision of officers V. I. Vin and others, intended for repairs of composite assemblies. No doubt the continuous perfecting process of the methods for the repair of composite assemblies will make possible further reduction of the periods needed for armament repairs and as a result, increase combat readiness of chassis and podrazdeleniya.

The engineers and technicians in the District's chassis and podrazdeleniya have learned thoroughly the planned directives of the 24th Congress of the Communist Party of the Soviet Union; then they have analyzed their own work and finally, they are now striving to find new, hidden reserves that would make possible if put to use, to utilize still more fully the potential possibilities of the combat materiel. As is well known, the combat possibilities of the materiel depend directly upon its lifetime. Naturally, all things being equal, the longer the armament life, the better its combat possibilities. Therefore, the concern for economic management of the life of the materiel, and for the extension of its life during the intervals between the consecutive recycling processes is an important element of the steps taken to increase the effectiveness of armament, and the total utilization of its combat possibilities. As far as this task is concerned, officer Dentshchuk, Tsvetenyuk, and

others have achieved a definite success. At their initiative, graphs were drawn for differentiated activation of different systems of complexes, so as to check the operation of each in the shortest time possible. The life of material was successfully substantially extended only as a result of a more efficient activation of the material, and of a correct organization of the recycling process and elimination of defects.

It is obvious that within a single article we could not present an exhaustive description of every step taken and work performed in the GABSI and podrazdelenyya of the GABSI of the Lenin Moscow District Antiaircraft Defense to utilize fully the combat possibilities of modern material. However all the things done in this area do not give us the right for complacency. This fact is realized well by the servicemen in the GABSI of the District. Undoubtedly, they will do their best to achieve success in military training and raise the troop combat readiness to higher standards, meeting the requirements of the 25th Congress of the Communist Party of the Soviet Union.



The active efficiency innovator, Sr. Lt. V. Mikhlyuk has been encouraged more than once by the commander, and for good reason, because Communist Mikhlyuk has submitted several valuable efficiency innovation proposals intended for the increase in combat readiness of the podrazdelenyye.

Photo: Sr. Lt. V. Mikhlyuk at work.
Photo by: V. Kalashnikov.

1/2 049 UNCLASSIFIED PROCESSING DATE--02JCT70
TITLE--SUPRAMOLECULAR STRUCTURE OF BLOCK POLYSTYRENE AND POLYCARBONATE -U-

AUTHOR--(05)-GERASIMOV, V.I., KARGIN, V.A., NOVIKOV, N.P., SALUYENYA, S.S.,
CHERNYAVSKAYA, O.A.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2) 382-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--MOLECULAR STRUCTURE, LASER RADIATION, POLYSTYRENE RESIN,
POLYCARBONATE, X RAY DIFFRACTION, ELECTRON MICROSCOPY, IR SPECTROSCOPY,
POLYMER STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0253

STEP NO--UR/0459/70/012/002/0382/0387

CIRC ACCESSION NO--AP01069J9

UNCLASSIFIED

2/2 049

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106909

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LASER IRRADN. OF RELATIVELY LOW ENERGY CAUSES THE SEPN. BETWEEN MOL. AGGREGATES (N., 1968); HIGHER ENERGY LASER BEAMS PRODUCE MICROFISSURES. X RAY DIFFRACTOMETRY, ELECTRON MICROSCOPY, AND IR SPECTROSCOPY OF BLOCK POLYSTYRENE (I) AND POLYCARBONATE (II) SAMPLES BEFORE AND AFTER LASER IRRADN. SHOWED THAT BOTH ARE AMORPHOUS; I HAS A GLOBULAR AND II A FIBRILLAR STRUCTURE.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--04DEC70
 TITLE--TEST BED EXAMINATION OF CHROMIUM NICKEL STEEL KH18N10T FOR STRESS
 CORROSION UNDER CONDITIONS OF HEAT FLOW -U-
 AUTHOR-(02)-GERASIMOV, V.I., RYABCHENKOV, A.V.

G

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKHAN. MAT., 1970, 6,(2), 38-42

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--TEST METHOD, CORROSION CRACKING, CHROMIUM NICKEL STEEL,
 OXYGEN, THERMAL EFFECT, METAL PIPE/(U)KH18N10T CHROMIUM NICKEL STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3003/0217

STEP NO--UR/0369/70/006/002/0038/0042

CIRC ACCESSION NO--AP0129473

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TEST BED METHOD OF STUDYING TUBULAR CR-NI STEEL PARTS AND ESTIMATING THEIR RESISTANCE TO STRESS CORROSION AND CORROSION CRACKING IS PROPOSED. THE MEDIUM MAY BE EITHER WATER (WITH OR WITHOUT ADDITIVES) OR STEAM AT HIGH TEMP. AND PRESSURES, CONTG. SALT IONS AND O₂, AND INVOLVING AN INTENSE FLOW OF HEAT THROUGH THE WALLS OF THE TUBES. UNDER SUCH CONDITIONS THERE IS A GENERAL TENDENCY FOR CORROSION CRACKING AND PITTING TO OCCUR IN THIS MATERIAL.

UNCLASSIFIED

USSR

RYABCHENKOV, A. V., and GERASIMOV, V. I., Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 134-144

austenitic steels) below 30%, the steels tend to develop corrosion cracking in chloride solutions even at lower nitrogen and phosphorus contents. Up to 0.087%, sulfur does not increase the tendency of Kh20N35 steels to corrosion cracking in concentrated chloride solutions in high-parameter water containing chlorine ions and oxygen.

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1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--TWO LONG PERIODS IN UNORIENTED POLYETHYLENE -U-

AUTHOR--ALKSNE, K., GERASIMOV, V.I., TSVANKIN, D.YA.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(2) 139-42

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYETHYLENE, MACROMOLECULE, X RAY PHOTOGRAPHY, X RAY
DIFFRACTION, POLYMER STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0225

STEP NO--UR/0460/70/012/002/0139/0142

CIRC ACCESSION NO--AP0106881

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106881

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES IN THE ORIENTATION OF HIGH D, POLYETHYLENE (I) MACROMOLS. AND THE TRANSFORMATION OCCURRING IN THE PERIODS L SUB1 AND L SUB2 (H. HENDUS, 1959) DURING DRAWING OF I SAMPLES WERE STUDIED BY X RAY DIFFRACTION PHOTOGRAPHY. THE NONORIENTED I SAMPLES AND 2 DIFFRACTIONALLY DIFFERENT SYSTEMS HAVING MUTUALLY PERPENDICULAR PERIODS. SINCE L SUB2 WAS GRADUALLY TRANSFORMED INTO THE USUAL LONG PERIOD LOCATED ON THE MERIDIAN OF THE X RAY FIBER DIAGRAM, THERE WAS NO TOTAL BREAKDOWN OF THE ORIGINAL STRUCTURE OR FORMATION OF A NEW ORIENTED SYSTEM OF FIBRILS DURING DEFORMATION. CONVERSELY, GRADUAL TRANSFORMATION OF L SUB2 SUGGESTED THAT ONLY A PARTIAL BREAKDOWN AND ORIENTATION OF STRUCTURAL ELEMENTS (WHICH ACCOUNTED FOR THE APPEARANCE OF THE PERIOD) HAD OCCURRED. DIFFRACTION EFFECTS (RELATED TO A CHANGE IN L SUB2) INDICATED THAT DRAWING OF NONORIENTED I SAMPLES WAS ACCOMPANIED BY STRAIGHTENING OF SPIRAL FIBRILS.

UNCLASSIFIED

Coatings

UDC 620.197.6

USSR

PAVLOVA, F. S., GERASIMOV, V. V., and YERMOLOVA, T. A.

"Electrochemical Behavior of Type OKh18N10T Steel With Aluminum Coating"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 187-189.

Abstract: The effectiveness of a coating of 0.5-mm type AD-1 Aluminum on OKh18N10T steel for increasing corrosion resistance in a cold 0.001 n solution of NaCl was tested. The experiments showed that the effectiveness of electrochemical protection increases with increasing solution temperature, and the electrode potential of the coating decreases. The data produced indicate that lack of aluminum coating over sectors up to 3 Cm² in area is not dangerous from the standpoint of development of corrosion cracking, since the nearest aluminum layer provides cathode protection for the steel under these conditions.

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USSR

UDC 539.5

GERASIMOV, V. V., Doctor of Technical Sciences, LIPANINA, A. A.,
Candidate of Technical Sciences, and MARGULOVA, T. Kh., Doctor
of Technical Sciences

"Hydrogen Introduction Into Steels and its Effect on Plasticity
Properties"

Moscow, Teploenergetika, No 2, Feb 71, pp 72 -74

Abstract: Results of investigating the introduction of hydrogen into
perlite steels 22K , 16GNM , 15KhM , structural steel, and
stainless steel 1Kh18N9T are discussed by reference to tabula-
ted data showing hydrogen contents of investigated steels, their
changes of mechanical properties after hydrogen introduction de-
pending on the cold-hardening extent, and the mechanical charac-
teristics of steels 22K , 16GNM , and structural steel after elec-
trolytic hydrogen introduction. It was found that structural steel
is the least disposed to hydrogen absorption, that plastic defor-
mation up to 15 % increases the sensitivity of all perlite steels

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USSR

GERASIMOV, V. V., et al., Teploenergetika, No 2, Feb 71, pp 72-74

to hydrogen embrittlement, and that Trilon treatment promotes conservation of plasticity properties by decreasing the hydrogen content. A thermal treatment for removal of the cold-hardening is considered to be obligatory and complexone treatment to be beneficial for decreasing the possibility of hydrogen embrittlement. One illustr., four tables.

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Coatings

UDC 620.197.6

USSR

PAVLOVA, F. S., GERASIMOV, V. V., and YERMOLOVA, T. A.

"Electrochemical Behavior of Type OKh18N10T Steel With Aluminum Coating"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr, 1971, pp 187-189.

Abstract: The effectiveness of a coating of 0.3-mm type AD-1 Aluminum on OKh18N10T steel for increasing corrosion resistance in a cold 0.001 n solution of NaCl was tested. The experiments showed that the effectiveness of electrochemical protection increases with increasing solution temperature, and the electrode potential of the coating decreases. The data produced indicate that lack of aluminum coating over sectors up to 3 Cm² in area is not dangerous from the standpoint of development of corrosion cracking, since the nearest aluminum layer provides cathode protection for the steel under these conditions.

1/1

UDC: 620.193.2

USSR

PAVLOVA, F. S., GERASIMOV, V. V., and YERMOLOVA, T. A.

"Behavior of Protective Metal Coatings in Fresh Water"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 622-625

Abstract: There is rather limited information on the corrosion and electrochemical behavior of single- and multi-layer metal coatings in an aqueous medium of a given composition. This study involved OKh18Ni10T steel, coated with nickel (100 microns), chromium (250 microns), cadmium (60 microns). The corrosion rate was determined by loss of weight. The high corrosion resistance of chromium and electrolytic nickel derives from the fact that their stationary potentials are in the passive region; for phosphorus-containing nickel and for cadmium the potentials are in the active dissolution region. The cadmium coating in cold water electrochemically protects the steel base. An increase in temperature alters the stationary potentials of both cadmium and type-20 steel: the steel sometimes becomes the anode. Chromium, owing to

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USSR

PAVLOVA, F. S., et al, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70,
pp 622-625

its high passivation capacity, is indispensable as the upper layer of multi-layer coatings of Cu-Ni-Cr, Ni-Ni-Cr. Cathodic coatings were found to protect steel, provided the latter has no scratches, pores, and nicks. In electrochemical terms, a 60-micron coating comprising two layers of nickel and an upper chromium layer was found to protect steel against corrosion for 8000 hours of testing.

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USSR

UDC 620.191.193

MOROZOVA, I. K., Engineer; GERASIMOV, V. V., Doctor of Technical Sciences; GROMOVA, A. I., Candidate of Technical Sciences; and ZHENIKHOVA, A. V., Engineer

"Dispersed Composition of Corrosion Products"

Moscow, Teploenergetika, No 10, Oct 70, pp 72-74

Abstract: The purpose of this work was to study the composition of corrosion products found in water as a function of temperature, pH of the medium, and the oxygen content in it. All tests were conducted under static conditions in an autoclave which had an internal surface made of Kh1810T steel or steel 20. Test time was 100 hours. Test solutions were neutralized deaerated water, NH_4OH (pH = 10), and HNO_3 (pH = 3). After testing, the solution and deposits were removed with a pipet and the autoclave was washed three times with distilled water.

Results of these tests showed that of the particles measuring less than 0.1 micron only 1-2% retain their sizes in the case when the iron is in the ionic form and only 3-6% when

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USSR

MOROZOVA, I. K., et al., Teploenergetika, No 10, Oct 70, pp 72-74

the iron is in the colloidal form. The remaining iron is distributed as follows: from 40 to 80% remains in solution in the form of coarse particles (greater than 10 microns) and 15-33% can be observed in the form of deposits on samples of alloys of titanium, zirconium, and nickel. The remaining iron was deposited on the autoclave walls. The test showed that particles less than 0.1 micron in size, obtained at room temperature, increase in size to larger than 10 microns when placed in a medium with a temperature of 300 C.

2/7

UDC 621.039.548.535:669.14

USSR

MARGULOVA, T. KH., GERASIMOV, V. V., and LIPANINA, A. A.

"Steel Hydrogenation as Affected by Treatment with Trilon B"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep-Oct 70, pp 209-210

Abstract: The article describes results of a study of the effect of Trilon treatment on the hydrogenation of steel. Cylindrical specimens were saturated with hydrogen by the electrolytic method. Steels used for separating drums and steam lines (22K and 16GNM), as well as for reactor vessels were studied. Before hydrogenation some of the specimens were treated with a Trilon B solution with an initial concentration of 500 mg/kg with a pressure rise to 100 at (290° C) for 6 hours and exposure under this regime for 12 hours, and a group of 16GNM specimens were held in condensate for 500 hours at a pressure of 200 at (350° C), while some specimens were not exposed to any aqueous medium. The results indicate that periodic treatment with complexing agents improves the mechanical characteristics of hydrogenation-

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USSR

MARGULOVA, T. KH., Atomnaya Energiya, Vol 29, No 3, Sep-Oct 70,
pp 209-210

prone steels. Trilon treatment is advisable not only to increase
the general corrosion resistance of pearlitic steels, but also to
prevent intensive hydrogenation.

2/2

- 26 -

USSR

UDC 620.193:669.296

GROMOVA, A. I., GERASIMOV, V. V., KABANKOVA, N. A., SHUT'KO, I. G., and VOLKHONSKIY, YE. V.

"Corrosion and Electrochemical Behavior of Zirconium-2.5 Percent Niobium Alloy in Water and Steam at High Temperature"

Moscow, Atomnaya Energiya, Vol 29, No 5, Nov 70, pp 364-365

Abstract: A study was made of the corrosion and electrochemical behavior of zirconium-2.5 percent niobium alloy in water of varying composition at 285° C. In a deaerated environment at ~ 3000 C the passive region remains up to + 1.8 (NHE). Higher positive potentials are marked by transition to the transpassive region. An increase in the pH of the deaerated environment to 10 (compared to pH = 7) does not intensify corrosion of the alloy during irradiation or outside the reactor. The presence of ammonia (pH= 10) and oxygen in the water at 300° C increases the alloy corrosion rate.

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USSR

UDC 621.039.553.36:620.193.47.4

GERASIMOV, V. V., GROMOVA, A. I., LUPAKOV, I. S., MEROZOVA, I. K.,
BAKULEVSKIY, A. A., BELOUS, V. N., and KCLESOV, B. I.

"Corrosion and Electrochemical Behavior of Carbon Steels Under Quasi-reactor Conditions"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 13-18

Abstract: The article describes results of a study of the corrosion and electrochemical behavior of steels of the perlitic class in water at 300° C at various oxygen concentrations (0.02-40 and 1000 mg/kg) at pH = 7-10, as well as a study of the effect of reactor irradiation on the corrosion processes of perlitic steels. The corrosion and electrochemical tests were staged under static and dynamic conditions. The perlitic steels studied included St. 20 (C 0.17%; Cr 0.25%; Ni 0.25%; Mn 0.35%; Si 0.17%) ; 12KhM (C 0.12%; Cr 0.94%; Mn 0.59%; Si 0.3%; Mo 0.4%); and 16GNM (C 0.18%; Ni 1.41%; Mn 1.18%; Si 0.23%; Mo 0.26%). Specimens of stainless steel Kh18N10T (C 0.08%; Cr 17.19%; Ni 9.11%; Mn 1.2%; Si 0.8%; Ti 0.6%) were comparison-tested.

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USSR

GERASIMOV, V. V., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 13-18

It was found that in demineralized water at 300° C an increase in the oxygen concentration from 0.02 to 40 mg/l increases the corrosion rate of perlitic steels, with pitting corrosion developing with a pit depth of up to 0.1 mm. In oxygen-containing water under static conditions a complex dependence of anodic process rate on potential is observed in steels of the perlitic class. In demineralized de-aerated water an increase in the pH to 10 (by introducing ammonia) results in a decrease in the corrosion rate, with no development of pitting corrosion being observed. Irradiation reduces the corrosion resistance of the steels during the initial testing period. The corrosion rate under irradiation decreases with an increase in exposure time, and after 3500 hours of tests the corrosion rate for the perlitic steels is practically the same with or without irradiation.

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6 UDC 620.197.3

USSR

GROMOVA, A. I., GERASIMOV, V. V., VRALEV, N. YA., ROZENFEL'D, I. L., and
PERSIANISEVA, V. P.

"Protection of Perlitic Steels Against Corrosion in the Water of Atomic Power
Installations"

Moscow, Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 227-231

Abstract: The low stability of perlitic steels at 20-80°C in water saturated with air limits their use in atomic power engineering. This study describes a test in which steel specimens completely immersed in water saturated with air and containing 1 g/l hydrazine or 10% dicyclohexylamine at 20 and 80°C were found to corrode steadily, the corrosion rate being almost two orders of magnitude lower than that in water without inhibiting additions, where the steel had developed pits. Dicyclohexylamine (10%) was found to be more effective than hydrazine for the incomplete immersion of perlitic steel along the water line and above the water. The 10% solution of dicyclohexylamine is radiation-resistant within the reactor spectrum up to the integral dose of 10^{15} n/cm² (for thermal neutrons). Tables in the original article show the corrosion of perlitic steels at complete immersion in desalted water saturated with air under static conditions, corrosion

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USSR

GROMOVA, A. I., et al., Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 227-231

rates of steel at complete immersion in desalted water with hydrazine additions, and corrosion rates of steel in desalted water with various additions, including dicyclohexylamine, hydrazine, octadecylamine, and hexamethylenamine.

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Acc. Nr: **AP0042127**

Abstracting Service:
NUCLEAR SCI. ABST. **A-70**

Ref. Code:
UR0089

12371 CORROSION AND ELECTROCHEMICAL BEHAVIOR OF CARBON STEELS UNDER CONDITIONS SIMILAR TO THOSE IN REACTOR OPERATION. Gerasimov, V. V.; Gromova, A. I.; Lupakov, I. S.; Morozova, I.; Dakul'evskii, A. A.; Belous, V. N.; Kolesov, B. I. At. Energ. (USSR); 28: 13-18(Jan 1970). (In Russian).

The corrosion and electrochemical behavior of carbon steels was studied in water at 300°C with oxygen concentrations equal to 0.02 to 40 and 1000 ppm. The samples of carbon steels, irradiated in the reactor and non-irradiated samples were tested under static and dynamic conditions. The increase of oxygen concentration in water intensified corrosion of carbon steels. Irradiation reduced steel corrosion resistance during the initial test period. (auth)

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REEL/FRA
19760028

18

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF THE CONTAMINATION OF THE SURFACE OF AUSTENITIC STAINLESS
STEEL ON CORROSION CRACKING AT VARIOUS TEMPERATURES -U-
AUTHOR-(03)-ANDREYEV, YU.V., SHUVALOV, V.A., GERASIMOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHM. MEKHA. MAT., 1970, 6, (2), 107-109

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CORROSION CRACKING, THERMAL EFFECT, IRON CHLORIDE, COPPER
CHLORIDE, CHROMIUM NICKEL STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/0223

STEP NO--UR/0369/70/006/002/0107/0109

CIRC ACCESSION NO--AP0129479

UNCLASSIFIED

6

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 017

CIRC ACCESSION NO--AP0129479

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE SURFACE CONTAMINATION OF AUSTENITIC STAINLESS CR-NI STEELS ON THE LIABILITY OF THESE MATERIALS TO CORROSION CRACKING AT ORDINARY AND HIGH TEMP. IS DISCUSSED IN THE LIGHT OF PRACTICAL EXPERIENCE. THUS THE PRESENCE OF FECL SUB3 IN A VAPOUR, AIR MIXTURE PASSING OVER THE STEEL SUBSTANTIALLY ACCELERATES CORROSION CRACKING AT 100-110DEGREESC. THE PRESENCE OF CU PRIMEZPOSITIVE AND-OR FE PRIME3POSITIVE IONS IN A MEDIUM CONTG. CHLORIDES SOMETIMES HAS THE SAME EFFECT EVEN AT ROOM TEMP.

UNCLASSIFIED

USSR

UDC: 620.197.620.193

GERASIMOV, V. V., PAVLOVA, F. S., KUZNETSOVA, V. N., and BRATCHIKOV, V. N.

"Effect of Protective Metallic Coatings on the Corrosion Cracking of Stainless Steel"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 420-424

Abstract: In a steam-air medium at about 100°C, OKh18N10T steel may become subject to corrosion cracking. The objective of this study was to determine an optimum coating providing long-term protection of OKh18N10T steel against corrosion cracking at high temperatures in steam and steam-air media containing chlorides. The coatings tested were aluminum, nichrome, and alume1. Specimens spray-coated with aluminum exhibited the highest electrochemical protection of the steel. Annealing the aluminum coating at 510, 700, and 870°C increases corrosion cracking resistance at least twofold. However, a heavy (over 3 microns) and brittle layer of intermetallic compounds which is formed in the process of heat treating the aluminum coating at temperatures above the melting point of aluminum appears to fail even at minor deformations. The cracks which result in the aluminum layer impair the protective properties of the coating against those provided by a 510°C annealing.

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1/2 042

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--USE OF AMMONIA TO PROTECT STAINLESS STEEL IKHIBNIOT FROM CORROSION
CRACKING IN A VAPOR AIR MEDIUM -U-

AUTHOR--(03)-SHUVALOV, V.A., ANDREYEV, YU.V., GERASIMOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 236-7

DATE PUBLISHED-----70

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

TOPIC TAGS--CORROSION CRACKING, STAINLESS STEEL, CHROMIUM NICKEL STEEL,
TITANIUM STEEL, AMMONIA, CORROSION INHIBITOR, NUCLEAR POWER PLANT, WATER
VAPOR, AMMONIUM HYDROXIDE, ALLOY DESIGNATION/(U)IKHIBNIOT STAINLESS
STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1313

STEP NO--UR/0365/70/006/002/0236/0237

CIRC ACCESSION NO--AP0109397

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109397

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PREVIOUS USE OF A NG SUB4 JH ADDN. TO INHIBIT THE CORROSION BY IMPURE H SUB2 O PLUS AIR FOR PEARLITIC STEEL WAS EXTENDED TO THE CONDITIONS FOR NUCLEAR ENERGY PLANTS IN THE USE OF THIS CR-NI-TI STEEL, WHICH AS AT 110DEGREES IS NORMALLY INADEQUATE. A PH OF 10.5-12.0 CORRESPONDED TO 10-150 MG NG SUB4 NEGATIVE OH-KG STEAM. TESTS WERE MADE WITH A U-TUBE PREVIOUSLY COATED WITH A NACL FILM. WHEREAS THE NORMAL APPEARANCE OF CORROSION CRACKING APPEARED AFTER 100-120 HR, NO CRACKING WAS OBSD. EVEN OVER 1000 HR.

UNCLASSIFIED

USSR

UDC: 621.375:621.396.62:621.391.84

GERASIMOV, V. V. and USHAKOV, A. N.

"Passage of Unequal Harmonic Signals Through a Common Nonlinear Amplifier"

Tr. NII radio (Transactions of the Scientific Research Institute of Radio) 1970, No. 2, pp 60-66 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D8)

Translation: The amplification of unequal signals in an element with a nonlinear amplitude characteristic is examined. Formulas are obtained for the ratio of the signal power levels and the products of third-order nonlinearity for a change in the mutual signal levels. Resume

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1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--CHEMICAL THERMODYNAMICS AND SOME PROMISING AREAS OF APPLICATION -U-
AUTHOR--(02)-GERASIMOV, YA.I., VORONIN, G.F. 6
COUNTRY OF INFO--USSR
SOURCE--VESTN. AKAD. NAU, K SSSR 1970, 40(3), 50-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ENTHALPY, ENTROPY, THERMODYNAMICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0823 STEP NO--UR/0030/70/040/003/0050/0056
CIRC ACCESSION NO--AP0116352
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0116352
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME EXPTL. METHODS FOR DETG.
ENTROPIES AND ENTHALPIES OF FORMATION OF DIFFERENT COMPS. ARE SURVEYED.
NO REFS.

UNCLASSIFIED

USSR

UDC: 621.372.41

GERASIMOV, Ye. V., GRIGOR'YEV, L. V., POLIKARPOV, P. I., SACHKOVA, G. A.

"Nomograms for Engineering Calculation of the Equivalent Inductance of Quartz Resonators With Lens-Shaped AT-Section Piezoelectric Elements"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 3-11 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V445)

Translation: For engineering calculation of equivalence and electrode diameter of AT-section lens-type piezoelectric elements, nomograms were used which were plotted on the basis of a formula giving the least divergence between theoretical and experimental data. Resumé.

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USSR

SUYETIN, P. YE., LOYKO, A. E., KALININ, B. A., and GERASIMOV, YU. F.

"Measuring the Interdiffusion Coefficients of Gases at Low Temperatures"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 19, No 5, Nov 70, pp 933-935

Abstract: The authors measured the interdiffusion coefficients of eight pairs of gases: H_2 -He, H_2 - D_2 , H_2 -Ne, H_2 -Ar, He-Ne, He-Ar, D_2 -Ne, Ne-Ar in the temperature range of 115-296° K. Included in the article is a drawing of the arrangement used in the research, the diffusion chamber of which was cooled with liquid nitrogen. The temperature was maintained within $\pm 0.3^\circ$ C and the temperature differential along the length of the chamber did not exceed 0.3° C. The samples were checked periodically from the chamber. The authors introduced corrections in their computations for the heat expansion of the diffusion chambers and capillaries, but none for the thermal diffusion ($< 0.1\%$). The measurements were accurate within 1.5% and were determined mainly by the accuracy of measuring the concentration. The diffusion coefficients of the eight pairs of gases were measured in the above range and the data from the pairs He-Ar, He-Ne and Ne-Ar were found to be in good agreement with other data; the temperature dependence of the interdiffusion coefficients of the gases at low temperatures was found for the first time for the pairs

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USSR

SUYETIN, P. YE., et al., Inzhenerno-Fizicheskiy Zhurnal, Vol 19, No 5,
Nov 70, pp 933-935

H₂-Ne, D₂-Ne and H₂-Ar. The authors include a table depicting the experimental
diffusion coefficients at a pressure of 760 mm Hg.

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USSR

UDC: 51:330.115

GERASIMOV, Yu. K.

"On a Method of Approximate Solution of an Extremum Problem"

V sb. Modelir. ekon. protsessov (Modeling Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 493-513 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V768)

Translation: The author constructs a model of prospective production planning and machine distribution which accounts for the necessity of capital investments, operating cost (its current and variable parts), and expenditures for retooling. An approximate algorithm is proposed for solving the problem. D. Epshteyn.

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1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ELECTRICAL RELIEF OF THE SURFACE OF CRYSTAL SUBSTRATES AS A
DETERMINING FACTOR IN NUCLEATION AND GROWTH PROCESSES -U-
AUTHOR--(03)-VLASOV, V.P., GERASIMOV, YU.M., DISTELER, G.I.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 346-52

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CORUNDUM, SINGLE CRYSTAL, SILVER, GOLD, BROMIDE, NUCLEATION,
METAL FILM, CRYSTALLIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0926

STEP NO--UR/0070/70/015/002/0346/0352

CIRC ACCESSION NO--AP0116436

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116436

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRYSTAL FILMS OF AG, AU, PBTE, CDS, SNSE, AGCL, AGI, AGBR, AND NA CL ON THE (010) PLANE OF TRIGLYCINE SULFATE AND AG AND AU FILMS ON THE (11BAR26) PLANE OF CORUNDUM SINGLE CRYSTALS AND ON KBR WERE STUDIED. THE SUBSTRATES WERE AT 20DEGREES, AND THE AV. THICKNESS OF THE FILMS WAS 80-120 ANGSTROM. ON NEG. DOMAINS OF TRIGLYCINE SULFATE, WELL ORIENTED SINGLE CRYSTAL FILMS OF AGCL FORMED, WHEREAS ON THE POS. DOMAINS ONLY PARTIALLY ORIENTED FILMS FORMED. AT A SPECIFIC THICKNESS, AGCL, AGI, AND AGBR FILMS WERE SINGLE CRYSTAL ON BOTH SURFACES. NA CL FILMS ON POS. DOMAINS WERE UNIFORMLY SINGLE CRYSTAL, WHEREAS ON NEG. DOMAINS THEY WERE POLYCRYST. THIS EFFECT IS LESS PRONOUNCED IN THE CRYSTN. OF SEMICONDUCTORS. CRYSTN. OF AG AND AU ON KBR AND CORUNDUM CONFIRMED THE EFFECT OF THE ELEC. RELIEF OF THE SURFACE ON FILM CRYSTN. FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.18:621.746.58

KABLUKOVSKIY, A. F., BAKANOV, K. P., TULIN, N. A., GERASIMOV, YU. V., and KOSYREV, L. K.

"Increasing the Quality of Steels and Alloys by Refining Them with Argon Outside Furnace"

Moscow, Stal', No 12, 1972, pp 1087-1091

Abstract: The suggested method for the refining of metals uses a 100-ton capacity pouring ladle with a minimum of three built-in (ladle bottom) refractory plugs with passages for argon. The argon is supplied under pressure in the amount of 0.4-1.0 m³/ton of metal for removal of non-metallic inclusions, and in the amount of 1.5-3.0 m³/ton, for elimination of hydrogen. Preliminary tests at many plants and in laboratories indicated that the method is inexpensive and does not require a heavy capital investment. The method allows production of low-carbon heat-resistant steels in open arc furnaces. In addition to refining, the argon facilitates the deoxidation of steel by carbon. Concentration of gases in 1-2Kh13 stainless steel after refining with argon decreased by 45% (concentration of oxygen, hydrogen, and nitrogen decreased by 43, 40 and 12%, respectively). All refined steel and alloys studied after refining were characterized by high density and better microstructure. The density

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USSR

KABLJKOVSKIY, A. F., et al., Stal', No 12, 1972, pp 1087-1091

of 38KhMYuA steel and EI602 alloy increased from 7.7353 to 7.7506 and from 8.3275 to 8.3403 g/cm³, respectively, after 7-10 minutes refining with argon. Good results were obtained in the production of bearing steel. The schematic diagram of the ladle with refractory plugs (including their sizes and manufacturing steps) is presented.

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- 24 -

GERASIMOV

Yu.V.

Acc. Nr.: ANO104123

Ref. Code: ZUR 9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

49

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. AL. PEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

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Reel/Frame
19870555

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Acc. Nr.: ANO104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUSKO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIRYANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMPIYEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GERASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, R. M. KHAYRUTDINOV, I. P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT,

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Reel/Frame19870556

K2

QUALITY OF STAINLESS, LOW CARBON STEEL -U-

UNCLASSIFIED

PROCESSING DATE--04DEC70

AUTHOR--(05)--KASYANOV, A.G., GUREVICH, YU.G., MARKELOV, A.I., SIDOROV,
N.V., GERASIMOV, YU.V.

COUNTRY OF INFO--USSR

G

SOURCE--MOSCOW, METALLURG., NO 5, MAY 70, PP 17-19

DATE PUBLISHED----MAY70

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

TOPIC TAGS--LOW CARBON STEEL, STAINLESS STEEL, METALLURGIC PLANT,
MECHANICAL PROPERTY, ARGON SCAVENGING, VACUUM MELTING, HIGH QUALITY
STEEL, ARC FURNACE, FERROUS LIQUID METAL, INDUCTION FURNACE, STEEL
IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0409

STEP NO--UR/0130/70/000/005/0017/0019

ARC ACCESSION NO--AP0135881

UNCLASSIFIED

PROCESSING DATE--04DEC70

UNCLASSIFIED

2/2 022
IRC ACCESSION NO--AP0135881
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A STAINLESS, LOW CARBON STEEL DEVELOPED AT THE ZLATOUS METALLURGICAL PLANT IS DESCRIBED. THE CARBON CONTENT OF THIS STEEL IS LESS THAN 0.030PERCENT, AND THE STEEL IS MADE IN OPEN ARC FURNACES USING METAL ELECTRODES OR BY SCAVENGING THE LIQUID STEEL WITH ARGON. COMPARISONS WERE MADE BETWEEN THIS STEEL AND A SIMILAR METAL MADE IN VACUUM INDUCTION FURNACES. A TABLE GIVES THE IMPURITIES IN THE VARIOUS TYPES OF STEEL PRODUCED BY THE TWO METHODS, THE USE OF METAL ELECTRODES AND ARGON SCAVENGING. AN ANALYSIS OF THE RESULTS OF A QUANTITATIVE ESTIMATE OF IMPURITIES SHOWED THAT OWING TO THE HIGH DEGREE OF DEFORMATION, THE CONTAMINATION ALONG THE TRANSVERSE AXIS OF THE STEEL SHEET IS LESS THAN THAT ALONG THE LONGITUDINAL AXIS. THE MECHANICAL CHARACTERISTICS OF THE STEEL SATISFIED ALL TECHNICAL REQUIREMENTS. A COMPARISON OF THE MECHANICAL CHARACTERISTICS OF THIS STEEL MADE BY THE THREE PROCESSES DISCUSSED, METALLIC ELECTRODES, ARGON SCAVENGING, AND VACUUM INDUCTION, IS ALSO PRESENTED. FACILITY: ZLATOUS METALLURGICAL PLANT.

UNCLASSIFIED

USSR

UDC 669.18.046.554

SIDOROV, N. V., GERASIMOV, Yu. V., KHAYRUTDINOV, R. M., FILATOV, S. K.,
KHASIN, G. A., BARMOTIN, I. P., KAS'YANOV, A. G., CHEREMNYKH, B. A., and
ISHMURZIN, M. G., Zlatoust Metallurgical Plant, Scientific Research
Metallurgical Institute, Chelyabinsk

"Out-of-Furnace Refining of Low-Carbon Corrosion-Resistant Steels"

Moscow, Metallurg, No 12, Dec 70, pp 22-23

Abstract: The smelting technology of low-carbon corrosion-resistant steels
in electric arc furnaces with argon scavenging in the foundry ladle has
been developed and introduced into production at the Zlatoust Metallurgical
Plant. The main principles of the out-of-furnace degassing effectiveness
depends on the chemical composition of the steel, the slag, and the
scavenging parameters were investigated.

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1/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--TREATMENT OF METAL WITH INERT GAS IN A LADLE -U-
AUTHOR--GERASIMOV, YU.V. G
COUNTRY OF INFO--USSR
SOURCE--STAL' 1970, 30(1), 36-7
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TOPIC TAGS--INERT GAS, NONMETALLIC INCLUSION, OXYGEN, ALUMINUM OXIDE,
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CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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2/2 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103837

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. O CONTENT OF STEEL IS REDUCED BY REMOVAL OF NONMETALLIC INCLUSIONS TO THE SLAG, PARTICULARLY THOSE HIGH IN AL SUB3 O SUB3. A HEAT IS DEOXIDIZED WITH C IN THE FURNACE, TREATED WITH AL IN THE LADLE, ALLOYED WITH OTHER ELEMENTS, AND THEN BOTTOM BLOWN WITH A UNDER 2-4 ATM AT 0.6-0.8 M PRIME3-TON, WHICH TAKES 10-15 MIN, IN THE SAME LADLE. THE TREATMENT REDUCES BOTH GASES AND NONMETALLICS CONTENT.

UNCLASSIFIED

GERASIMOV Ya.V.

USSR

UDC 669.14.018.8:655.582

KASOYAROV, A. G., GUREVICH, YU. G., MARKELOV, A. I., SIBOROV,
K. V., GERASIMOV, YU. V., KIASIN, G. A., CRISTYAKOV, S. E.,
POLYAKOV, YU. V., LEBEDEVA, V. N., Chelyabinsk Polytechnical
Institute and Zlatous Metallurgical Plant

"Quality of Stainless, Low-Carbon Steel"

Moscow, Metallurg., No 5, May 70, pp 17-19

Abstract: A stainless, low-carbon steel developed at the Zlatoust Metallurgical Plant is described. The carbon content of this steel is less than 0.030%, and the steel is made in open arc furnaces using metal electrodes or by scavenging the liquid steel with argon. Comparisons were made between this steel and a similar metal made in vacuum induction furnaces. A table gives the impurities in the various types of steel produced by the two methods -- the use of metal electrodes and argon scavenging. An analysis of the results of a quantitative estimate of impurities showed that owing to the high degree of deformation, the contamination along the transverse axis of the steel sheet is less than that along the longitudinal axis. The mechanical
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KAS'YANOV, A. G., et al., Metallurg, No 5, May 70, pp 17-19

characteristics of the steel satisfied all technical requirements.
A comparison of the mechanical characteristics of this steel
made by the three processes discussed -- metallic electrodes,
argon scavenging, and vacuum induction -- is also presented.

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USSR

UDC 632.95

SIMONOV, V. D. MAMINA, F. A., GERASINOVA, A. I., ALYAMKIN, YU. N., AKHUNOV, T. F., and VYAZOVKINA, G. I.

"Determination of the Basic Substance in Herbicidal Preparations of Yalan"

V sb. Probl. analit. khimii (Collection of Works: Problems of Analytical Chemistry), Vol 2, Moscow, Nauka, 1972, pp 138-142 (from Referativnyy Zhurnal -- Khimiya, Svochnyy Tom, No 23(II), 1972, Abstract No 23N449 by T. A. Belyayeva)

Translation: The application of gas chromatography, spectroscopic, and titrimetric methods to determination of the basic substance in the oil emulsion and granulated preparations of yalan was evaluated. Using a thermal conductivity detector, the gas chromatography is carried out at the column temperature of 190°C, with the gas carrier (H_2) flow rate of 240 ml./min. Heat-insulating silanized brick is used the solid phase apiezon M with stearic acid is used as an immobile liquid phase. The relative error of determination does not exceed 3.4%. A study of the IR yalan spectra and of accompanying components indicated that the band 1412 cm^{-1} can be used successfully. The titrimetric method is based on the hydrolysis of S-ethyl N-hexamethylenethiocarbamate at 130°C in the presence of 85% orthophosphoric acid followed by determination of the imine formed with the acid-alkaline titration (0.1 N solution of H_2SO_4 with methyl red indicator). The determination error does not exceed 1.6%.

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USSR

UDC 577.155.3

KOVALENKO, N. A., KOZLOV, YE. A., GERASIMOVA, A. V., and MARDASHEV, S. R.,
Chair of Biochemistry, First Moscow Medical Institute imeni I. M. Sechenov,
and Institute of Biological and Medical Chemistry, Academy of Medical Sciences
USSR, Moscow

"Kinetic Characteristics of Clostridium Welchii SR-12 Glutaminase and the
Effects of Some Ions of Its Activity"

Moscow, Biokhimiya, Vol 36, No 6, Nov/Dec 71, pp 1198-1203

Abstract: In the absence of ions, Cl. welchii SR-12 glutaminase exhibits a very low activity. Chlorides and other monovalent anions activate the enzyme and shift its optimum pH to lower values. A plot of reaction rate against substrate concentration yields an S-shaped curve in the absence of monovalent anions and the Michaelis-Menten curve in their presence. The sigmoid shape of the above curve may be more or less pronounced, depending on Ph. The energy of activation is 16,960 cal/mole in the absence and 12,950 cal/mole in the presence of chlorides. In low concentrations, acetate, citrate, succinate, and other components of the tricarboxylic acid cycle activate the anzyme, but inhibit it when their concentration exceeds 10 mmoles/liter.

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Microbiology

USSR

UDC 577.155.2

KOVALENKO, N. A., KOZLOV, Ye. A., and GERASYMOVA, A. V., Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow, and Chair of Biochemistry, 1st Moscow Medical Institute imeni I. M. Sechenov

"Changes in the Glutaminase Activity of *Clostridium welchii* SR-12 Under the Influence of Some Glutamine Analogs and Some Substances Reacting with Sulfhydryl Groups"

Moscow, Biokhimiya, Vol 35, No 4, Jul/Aug 70, pp 670-674

Abstract: Unlike other bacterial glutaminases, that of *Cl. welchii* has a high specificity with respect to the substrate. The effect of 20 analogs of the substrate (i.e., of L-glutamine) on the glutaminase activity of *Cl. welchii* Sr-12 was studied. A strong inhibiting effect was produced only by the beta-benzyl ester of N-carbobenzoxy-D,L-aspartic acid, while isoglutamine, L-asparagine, L-aspartic acid, N^α-carbobenzoxy-D,L-asparagine, the gamma-methyl ester of N-carbobenzoxy-L-glutamic acid, p-nitrobenzoyl-L-glutamic acid, Δ-benzoyl-L-asparagine, and p-toluenesulfonyl-L-glutamic acid had a weak inhibiting effect. The effect of substances reacting with the SH group, i.e., of mercuric acetate (I), p-chloromercuribenzoate (II), and monoiodoacetic acid (III), on the glutaminase activity of *Cl. welchii* was also studied. I and II inhibited the activity of the
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KOVALENKO, N. A., et al, *Biokhimiya*, Vol 35, No 4, Jul/Aug 70, pp 670-674

glutaminase almost completely, while III exerted no effect. L-Glutamic acid, the substance formed from L-glutamine by glutaminase, had only a weak inhibiting effect on the activity of the glutaminase, while glutaminases of *E. coli*, *Saccharomyces cerevisiae*, and *Pseudomonas GG13* are strongly inhibited by this amino acid.

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USSR

UDC 669.715'5'721:539.27:539.4.016.3

GERASIMOVA, L. G., KRASNOVA, E. P., KOVALEVA, L. V.

"Variation of the Structure of the Phase Composition and Properties of the Alloy of the Al-Zn-Mg System with the Ratio $Mg/Zn \geq 2$ During the Heat Treatment Process"

V sb. Metallovedeniye (Physical Metallurgy--collection of works), No 15, Leningrad, Sudostroyeniye Press, 1971, pp 119-128 (from RZn-Metallurgiya, No 4, Apr 72, Abstract No 4I644)

Translation: A study was made of the structure and phase composition of an alloy of the Al-Zn-Mg system with the ratio $Mg/Zn > 2$ by the methods of electron microscopy. The fine structure of the alloy quenched and aged with respect to different conditions was studied. An effort was made to establish the relation between the structural variations and the strength characteristics of the alloy. The decomposition scheme of the supersaturated solid solution during the aging process proposed earlier by the VIAM [All-Union Scientific Research Institute of Aviation Materials] for alloys with a Mg/Zn ratio > 1 was confirmed. 6 illustrations, 1 table, and a 20-entry bibliography.

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USSR

UDC 617-001.17-07:[612.118.24+616.5-002.157-003.2

KORYAKINA, I. K., GORBUNTSOVA, R. V., GERASIMOVA, L. I., and MURAZYAN, R. I.,
Pathophysiology Laboratory and Surgical Department, Central Institute of
Hematology and Blood Transfusion, Ministry of Health USSR, Moscow

"Comparison of the Toxicity of Blood Serum and Contents of Blisters in Burn
Victims"

Moscow, Problemy Gematologii i Perelivaniya Krovi, No 5, 1971, pp 44-46

Abstract: The toxicity of serum and exudate from blisters of persons suffering from burns covering 10 to 75% of the body surface was studied by the hemoculture method (leukocyte film). Activity was assessed from the extent of leukocyte migration after the cultures were incubated at 37°C for 18 hours. (Serum from healthy persons stimulates leukocyte migration). Fluid obtained from blisters within a few hours of the burn had a pronounced toxic effect on the hemocultures (-30, but serum from the same patients was much less toxic (-6) and in some cases had no effect at all. In one case (the burn affected 30% of the body surface), the blister fluid inhibited leukocyte migration (-33) while serum obtained at the same time slightly stimulated it (+4). Since the difference between the toxicity of serum and blister contents
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KORYAKINA, I. K., et al., Problemy Gematologii i Perelivaniya Krovi, No 5, 1971, pp 44-46

diminished steadily with time, it is suggested that prompt removal of blisters is a worthwhile therapeutic procedure because it eliminates one of the sources of intoxication associated with burns.

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USSR

UDC 669.715:541.412:539.42

DRITS, M. YE., KOROL'KOV, A. M., GUK, YU. P., GERASIMOVA, L. P.

"Effect of Intermetallic Phases on the Generation of Microcracks in Binary Aluminum Alloys"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 91-95 (from RZh-Metallur-giya, No 4, Apr 72, Abstract No 4I628)

Translation: A study was made of the effect of intermetallic phases formed in alloying aluminum with elements of the transition groups on the generation and development of microcracks at 300° under the conditions of uniaxial extension. When estimating the effect of the excess intermetallic phase formed in the alloy on the alloy properties, not only the magnitude and nature of the intermetallic particles but also the type of diagram of state by which they are crystallized has great significance. The particles of the primary intermetallic phases formed in systems crystallizing with respect to the peritectic type fracture brittly under very low stresses and serve as a source of incipient cracks. In systems crystallized by the eutectic type, the particles of the eutectic segregations are not destroyed during deformation, and the particles of the primary intermetallic phases in the transeutectic alloys are less inclined toward brittle fracture than the primary intermetallic phases in the peritectic systems. It

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DRITS, M. YE., et al., Struktura i svoystva legk. splavov, Moscow, Nauka Press, 1971, pp 91-95

is proposed that the formation of surface defects in particles during peritectic reaction promotes brittle fracture of the primary intermetallic phases in systems crystallized by the peritectic type. Three illustrations, 1 table, and an 8-entry bibliography.

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USSR

UDC 669.715'3'721:539.43:541.412

DRITS, M. YE., GUK, YU. P., GERASIMOVA, L. P.

"Role of Iron and Nickel in AK4-1 Aluminum Alloy"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 78-81 (from RZh-Met-allurgiya, No 4, Apr 72, Abstract No 41637)

Translation: A study was made of the effect of the number and shape of the particles of the Al, FeNi intermetallide compounds on the mechanical properties at room temperature and the stress-rupture strength at 300° of the primary alloy Al-2.2% Cu-1.6% Mg. The disperse particles of the Al₉FeNi phase do not in practice lower the stress-rupture strength of the alloy and essentially have no effect on its mechanical properties. The method of high temperature metallography at 300° under the conditions of uniaxial extension was used to establish that the particles of the Al₉FeNi phase block the spread of the rough slip bands in the crystal, they complicate merging of the incipient cracks into main cracks, and, at the same time, increase the time from the occurrence of the incipient cracks to total destruction of the alloy containing particles of the Al₉FeNi phase by comparison with the alloy not containing the indicated phase. The Fe and Ni forming the disperse particles of the Al₉FeNi phase in the AK4-1

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