SOV/177-58-7-9/28

17(10)

AUTHOR: Korchanov, L.S., Candidate of Medical Sciences, Pryakhin, I.I. and Yakubenko, A.V., Colonels of the Medical Corps

TITLE: Characteristic of Several Kinds of Combined Radiation Injuries and Their Treatment

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 7, pp 44-49 (USSR)

ABSTRACT: This article is an attempt ot generalize the experimental material for studying the effect of penetrating radiation in combination with traumas and wound infections. I.A. Peymer and A.A. Nikitin experimentally proved that a 800-r radiation of rabbits disturbs their hemodynamics. According to data of A.A. Nikitin, I.A. Peymer (1952), V.M. Burmistrov, V.G. Slinko, K.K. Zaytseva(1956), traumas aggravate the hemodynamic disturbance and increase the death-rate of radiated animals. Similar results were obtained by I.I. Pryakhin, L.S. Korchanov (1953-55).

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Characteristic of Several Kinds of Combined Radiation Injuries and Their Treatment

Based on their experiments, A.V. Yakubenko (1953), M.N. Kondrat'yev (1955) and V.K. Kulagin (1955) stated that in radiated animals the initial phase of a shock lasts longer than in non-radiated animals. The complex therapy of a traumatic shock in the initial period of the radiation sickness in dogs is fully efficacious but data of T.K. Dzharak'yan and G.F. Fakharutdinov (1954) prove that intravenous injection of novocaine exerts an unfavorable effect on the course of acute radiation sickness in animals. According to data of I.I. Pryakhin (1954), the intramuscular injection of anti-gangrene serum in combination with penicillin prevents an anaerobe infection in dogs. Based on their own investigations of wounds of the soft tissue, complicated by an anaerobe and purulent-saprogenic infection in rabbits suffering from second and third stage radiation sickness, the authors conclude that in the initial period

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of the radiation sickness the natural non-specific resistency of animals to wound infections is reduced. A.V. Spittler, I.V. Betch and B.A. Rutled (1954), A.G. Zemlyancy (1955) and I.L. Krupko ascertained that the processes in the organism during the climax period of the radiation sickness take a negative effect on the formation of young osteogen tissue. The experimental material makes the authors conclude that penetrating radiation changes the reactivity of the organism, and radiation of animals with sublethal and lethal doses cause a disturbance of the haemodynamics in form of a pronounced hypotonia. General radiation with large X-ray doses has no effect on the arterial pressure. Mutual aggravation of pathological processes in combination with a trauma and injuries due to penetrating radiation generally have no biological regularity, but depend on the individual features of the animals.

Characteristic of Several Kinds of Combined Radiation Injuries and Their Treatment

According to Gempel'man, Lisko and Gofman (1954) changes of the vascular tonus in a human after a general radiation are similar to the changes observed in rabbits. P.D. Gorizontov (1955) stresses the importance of the toxemic factor in the development of radiation disease. The physician's main task in the initial period of radiation sickness consists in taking measures to quickly heal the wound. The authors recommend in combined injuries the application of antibiotics, beginning from the latent period, blood transfusion and vitamin complex. There is 1 Soviet reference.

KORCHANOV, L.S., kand.med.nauk, polkovnik med.sluzhby; YAKUBENKO, A.V., kand.med.nauk, polkovnik med.sluzhby

Some questions on methods of experimental studies in surgery. Voen.-med.zhur. no.10:55-60 O '59. (MIRA 13:3)
(WOUNDS AND INJURIES, experimental)

YAKUBENKO, A.Ye. (Moskva)

Stationary flow of a viscous incompressible conducting fluid in pipes under uniform and nonuniform magnetic fields. Izv. AN SSSR. Otd. tekh.nauk.Mekh. i mashinostr. no. 1:90-95 Ja-F '61. (MIRA 14:2)

(Pipe—Hydrodynamics) (Magnetohydrodynamics)

S/020/61/136/006/008/024
B104/B204

24.2120 (1395, 1482, 1502)

AUTHOR: Yakubenko, A. Ye.

TITLE: Motion of an incompressible conducting liquid in the form of plane waves in consideration of the emission of electromagnetic waves

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 6, 1961, 1310-1312

TEXT: The author investigates the oscillation of a plane layer of a conducting incompressible liquid of finite thickness. This oscillation is produced by the liberation of energy, E, in the liquid and by the counterpressure, p, on the free surface of the liquid, which is produced by an external magnetic field and an external medium. By the oscillation of the free surface, an electromagnetic wave is emitted by the latter. In his investigations, the author proceeds from the drawing shown in Fig. 1, and assumes infinite conductivity for the liquid. If x_0 is the position of a liquid particle at the time $t = 0$, it follows from the continuity condition that $x = x_0 + A(t)$ (1). Owing to the infinite

S/020/61/136/006/008/024
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conductivity of the liquid, the magnetic field is invariable, and for $t = 0$ one obtains $H_z = -Ix_o/2ca$, $|x_o| \leq a$, $H_z = -I \operatorname{sign} x_o$, $|x_o| \geq a$. 2a is the thickness of the plane liquid layer. For calculating the pressure distribution, the following differential equation is obtained: $x_o A''(t) = -(1/\varrho)(p + H_z^2/8\pi) + B(t)$ (4). B(t) is an arbitrary function, and A(t) and B(t) may be determined from the boundary conditions. On the assumption that on the edges of the liquid, the total pressure is $P = p + H_z^2/8\pi$, the result $B(t) = 0$ is obtained from the corresponding boundary conditions. The jump of magnetic field strength occurring on the free surface of the liquid is explained by the occurrence of a surface current. Further, the following relation is obtained from the wave equation and the Maxwell equation of the system investigated here for the field strength of the external field with $x_o = a$: $H_{z1}(t,a) = -(I/2c)/(1 - A'(t)/c)$. Thus, with a slight neglect,

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B104/B204

Motion of an incompressible ...

$p(t,a) = p_1 + I^2A'(t)/2c^2 8\pi c$, and from (4):

$A''(t) + I^2A'(t)/16\pi\varsigma ac^3 = -(1/a\varsigma)(p_1 + I^2/32\pi c^2)$ (13) is obtained. The initial conditions are obtained from (1), and the energy equilibrium at the first moment. They read: With $t = 0$ $A(0) = 0$; $A'(0) = \sqrt{E_o/\varsigma a}$ holds. By means of the following substitutions: $\tau = \sqrt{(P_1+I^2/32\pi c^2)/\varsigma}\cdot(t/a)$, $u = A(t)/a$, $\mathcal{E} = E_o/(p_1+I^2/32\pi c^2)a$, $\alpha = I^2/16\pi c^3\sqrt{\varsigma(p_1+I^2/32\pi c^2)}$, the following system of differential equations is obtained from this system: $d^2u/d\tau^2 + \alpha du/d\tau = -1$ (15) and $u(0) = 0$, $(du/d\tau)_{\tau=0} = \sqrt{\mathcal{E}} = v_o$ (16).

The solution of (15) reads: $u(\tau) = \frac{v_o + 1}{\alpha^2}\left(1 - e^{-\alpha\tau}\right) - \tau/\alpha$ (17).

There is 1 figure.

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20632

S/020/61/136/006/008/024
B104/B204

Motion of an incompressible ...

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: October 12, 1960, by L. I. Sedov, Academician

SUBMITTED: October 10, 1960

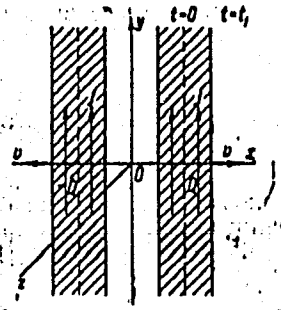

Fig. 1

Рис. 1

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YAKUBENKO, A.Ye. (Moskva)

Some problems involving motion of a conducting fluid in a plane channel. PMTF no. 6:7-12 N-D '63. (MIRA 17:7)

L 17092-63 EWT(1)/EWG(k)/BDS/EEC(b)-2/ES(w)-2 AFFTC/ASD/ESD-3/AFWL/
IJP(C)/SSD Pz-4/Pi-4/Po-4/Pab-4 AT S/207/63/000/002/007/025

79

AUTHOR: Yakubenko, A. Ye. (Moscow)

TITLE: Some solutions of steady-flow motion equations of an incompressible, viscous, electrically conducting fluid 21

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1963, 73-79

TEXT: The author discusses two problems concerning the flow of a viscous, conducting fluid in a magnetic field. The first represents the flow of a conducting fluid through a tube of elliptic cross section. Similar problems concerning rectangular and circular tubes were solved earlier (Ref. 1: I. Shercliff, Proc. Phil. Soc., 1953, vol. 49, p. 136; Ref. 2: Ya. S. Uflyand, ZhTF, 1960, vol. 30, no. 10; Ref. 3: A. Ye. Yakubenko, Izv. AN SSSR, OTN, Mekhanika i mashinostroyeniye, 1961, no. 1). The motion is due to a constant pressure gradient along the tube, and the outside magnetic field is uniform and transverse to the direction of flow. The author shows that the presence of the magnetic field causes a deceleration of the flow. The second problem describes the motion of an elliptical rod and of a plate of finite width in an infinite fluid like in the case of the elliptical tube.

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L 17092-63

8/207/63/000/002/007/025

Some solutions of...

The external magnetic field is along the minor semi-axis while both the induced magnetic field and velocity have only components in the direction perpendicular to the elliptic cross section of the rod. The plate part of the problem was already solved by H. Hasimoto (Ref. 4: Journal of Fluid Mechanics, 1960, vol. 8, pt. 1) for large and small Hartmann numbers using the approximate solution of the integral equation. This paper presents the solutions for any values of the Hartmann number. The analysis shows that the velocity and magnetic fields differ from zero only within a narrow layer of flow adjoining the surface of the body. At high Hartmann numbers, the sharp increase in resistance to motion can be explained by the reduction in width of this adjoining layer causing the velocity drop over an extremely short distance. Derived equations show also that for an arbitrary Hartmann number the ideally conducting plate suffers a larger resistance to motion than a corresponding nonconducting surface. The additional resistance is due to eddy currents interaction within the outside magnetic field. There are 4 figures.

SUBMITTED: December 30, 1962

Card 2/2

ACCESSION NR: AP4004493 S/0179/63/000/006/0062/0065

AUTHOR: Yakubenko, A. Ye. (Moscow)

TITLE: The problem of the entry of a conducting liquid into a plane channel

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 6, 1963, 62-65

TOPIC TAGS: hydromagnetic flow, boundary layer, Hartmann flow, integral relations method, incompressible fluid, incompressible flow, viscous fluid flow, motion equation, conducting fluid

ABSTRACT: A method of integral relations is applied to determine the length of the entrance section of a parallel-plate channel with insulating (case 1) and conducting (case 2) plates through which an incompressible, conducting, and viscous fluid flows in the presence of a magnetic field, with $R_m \ll 1$. The entrance section ends where the boundary layers on the upper and lower surfaces merge to a fully developed Hartmann flow. It is assumed in the first case that the

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ACCESSION NR: AP4004493

magnetic field is normal to the plates, the velocity distribution is uniform, and $R_m \ll 1$. The length L is related to the Hartmann number M by the formula L/h + R of (II), where h is the half-width of the channel and R is the Reynolds number. The values of L/Rh are plotted vs M and compared with those obtained by others. (See Fig. 1 of the Enclosure). In the second case, in which the uniform magnetic field is parallel to the walls and normal to the velocity, the velocity distribution and length of the entrance section do not depend on the magnetic field. It was found that L = 0.103 Rh. The flow parameters indicate that the pressure drop is greater for a conducting fluid than for a nonconducting fluid. Orig. art. has: 1 figure and 16 formulas.

ASSOCIATION: none

SUBMITTED: 28Jun63 DATE ACQ: 07Jan64 ENCL: 01

SUB CODE: AI NO REF SOV: 004 OTHER: 002

Card 2/3

YAKUBENKO, A. YE. (Moscow)

"Unsteady motion of conductive fluid in a channel".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964.

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1964, 151-154

$$j_r = \sigma\left[-\frac{\partial\Phi}{\partial r} - \frac{H_0}{c}\left(\frac{1}{R_0^2}\int_0^{R_0} rV(r)\,dr + \frac{1}{r^2}\int_0^{r} rV(r)\,dr\right)\cos\theta\right]$$

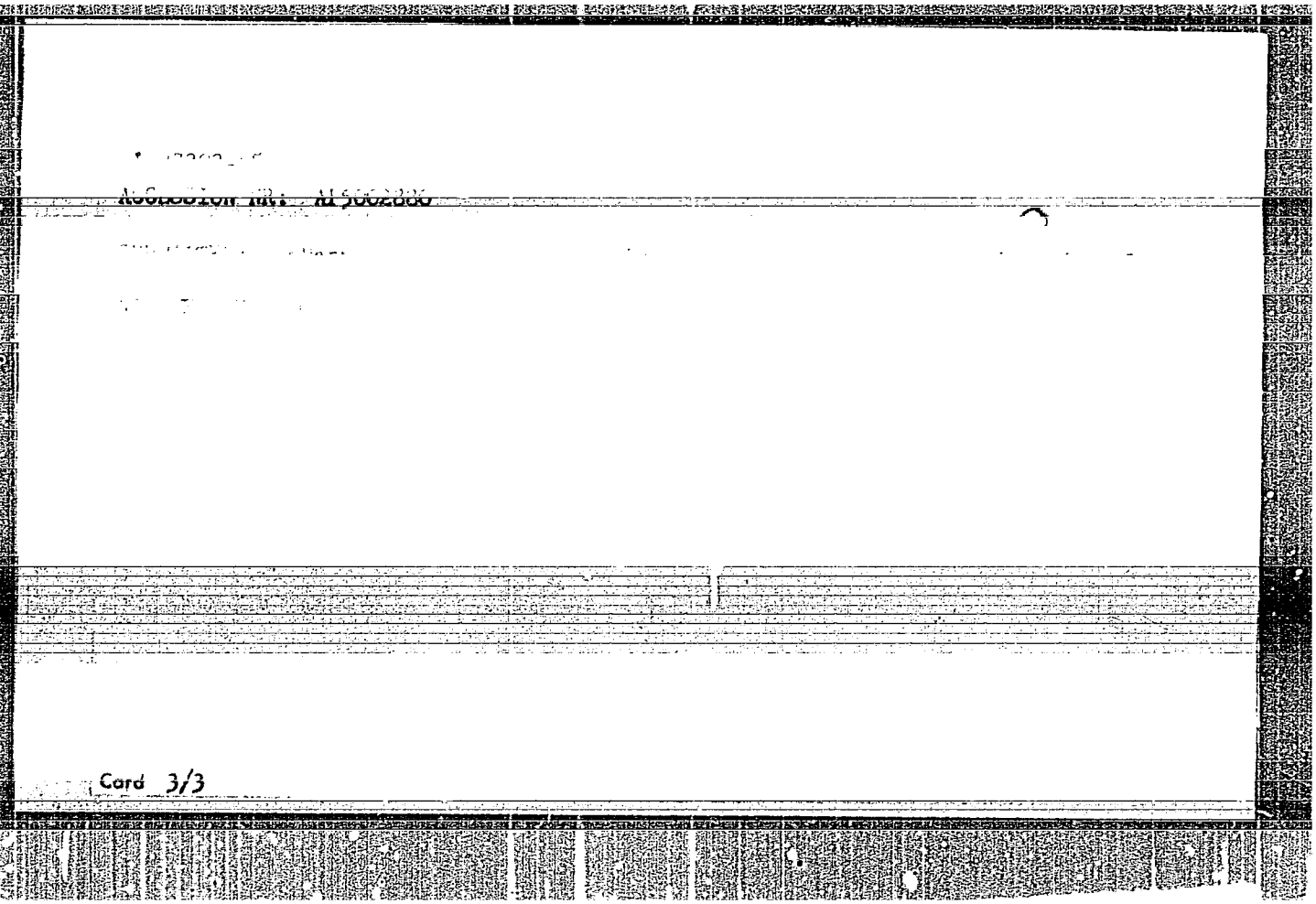
$$j_\theta = \sigma\left[\frac{1}{r}\frac{\partial\Phi}{\partial\theta} - H_0\left(\frac{1}{R_0^2}\int_0^{R_0} rV(r)\,dr - \frac{1}{r^2}\int_0^{r} rV(r)\,dr\right)\sin\theta\right]$$

Card 1/1

where

$\pi - \alpha < \theta < \pi + \alpha$. Using an analytic function defined by

the relation obtained between the flow rate and the potential difference



L 38449-66 EWP(m)/EWT(1)/T-2 IJP(c) WW

ACC NR: AP6020719 SOURCE CODE: UR/0421/66/000/003/0012/0019

45
B

AUTHOR: Paskonov, V. M. (Moscow); Yakubenko, A. Ye. (Moscow)

ORG: none

TITLE: Calculation of the boundary-layer flow on an electrically conductive wall of a flat channel

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 3, 1966, 12-19

TOPIC TAGS: surface boundary layer, boundary layer flow, boundary layer heat transfer, boundary layer separation, subsonic flow, supersonic flow

ABSTRACT: Magnetohydrodynamic boundary-layer-flow equations, based on the numerical calculation methods used for the boundary layer of a nonconducting fluid, are analyzed by separating the problems of a flow inside the flow center and of a flow within the boundary layer. The problem of finding the characteristics inside a flowing gas center is reduced to the solution of a differential equation with the boundary conditions for subsonic- and supersonic-flow speeds. For both, the numerical evaluations of flow characteristics were used for solving the equations of the boundary layer. It was found that with an M = 3 inflow, and values of the dimensionless flow parameters K greater than 0.5, the generator begins to act as an accelerator at a specific section; the greater the K, the nearer this section is to the inflow section. For the flow rating in the boundary layer, a system of differential equations with partial

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L 38449-66

ACC NR: AP6020719

O

Derivatives at small Reynolds magnetic numbers is performed and numerically solved for given boundary conditions, using the finite-difference method and a standard "Strela " computer program. The resulting dependences of M, speed, and temperature profiles on dimensionless parameter K, characterizing the liquid rate, are used to calculate the characteristics of the heat flow and the resistance on the surface of the conducting wall. They are expressed as functions of the resistance, Reynolds number, and Nusselt's heat-transfer number, and are plotted in curves demonstrating that a separation of the flow from the wall takes place nearly in the center of the channel ($x \approx 0.53$). This is explained by the fact that with a supersonic flow in a channel of constant section, the speed of a conducting gas decreases while its pressure increases. The pressure across the boundary layer does not vary; therefore, a force directed against the flow direction is generated near the wall and effects the separation of the boundary layer. An analysis of the resistance of the boundary layer in a subsonic flow reveals that it is negligible in comparison with the resistance of the flow center in the case of a channel with $L/2h \sim 1$ (L = length, h = distance between the walls) at a Reynolds number of about 10^6 at the inflow section. Orig. art. has: 7 figures and 25 formulas. [GE]

SUB CODE: 20/ SUBM DATE: 09Feb66/ ORIG REF: 006/ OTH REF: 003/ ATD PRESS: 5043

Card 2/2

AUTHOR: Yakubenko, G.A. (Moscow) SOV-26-58-10-41/51

TITLE: The Song of the Magpie (Peniye soroki)

PERIODICAL: Priroda, 1958, Nr 10, pp 118 - 119 (USSR)

ABSTRACT: The author describes the song of the magpie which he has heard during the spring of the last 6 years, in spite of the generally accepted opinion that the magpie does not sing. He also mentions an occasion when he heard the song of the magpie in autumn.

1. Birds--USSR

Card 1/1

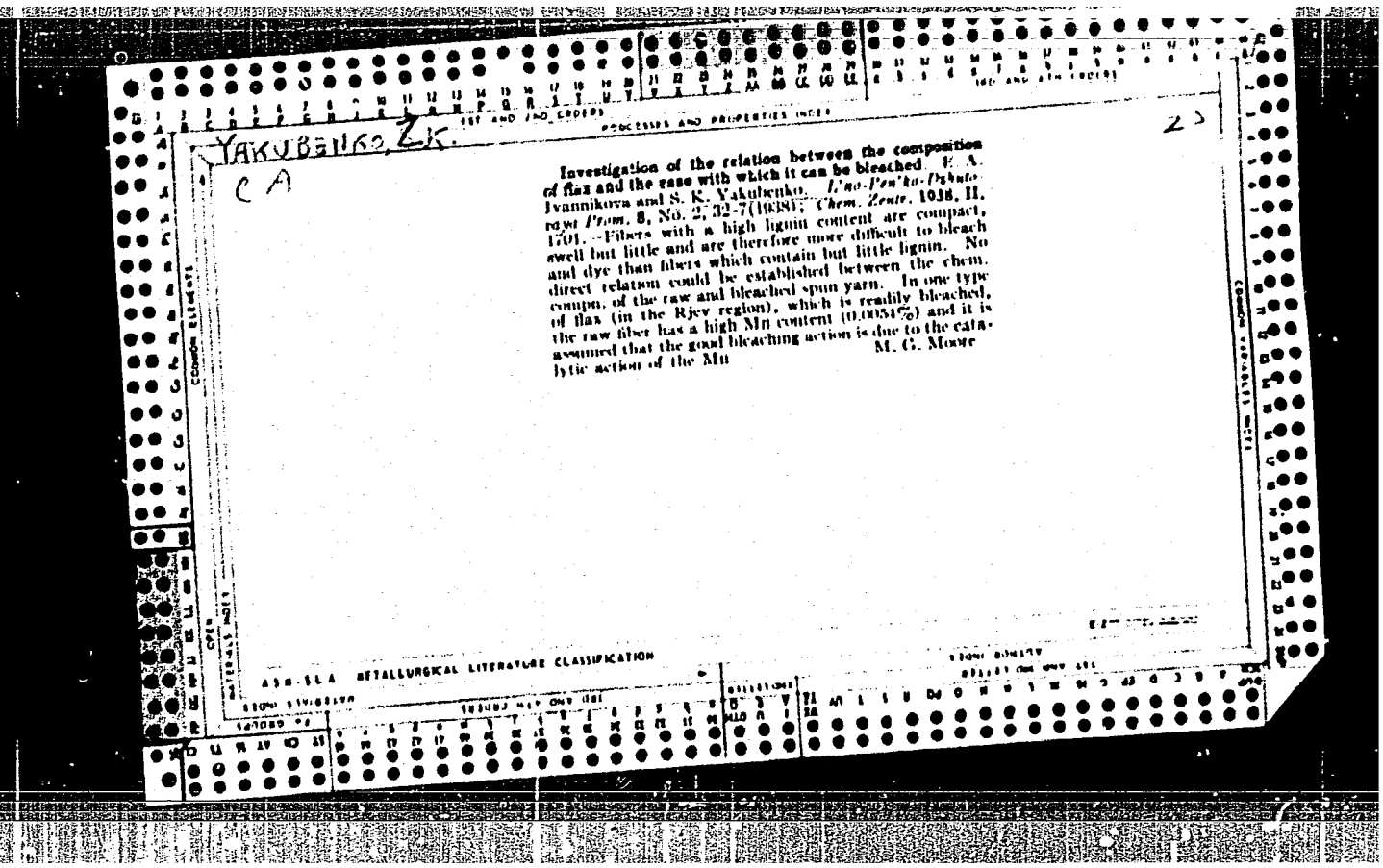
YAKUBENKO L.A.

AVILOV, A.A.; SKIRDOVA, K.M.; LIBEROVA, R.A.; DOROFEYEVA, L.G.; YAKUBENKO, L.A.

Dull finishing of polyvinyl chloride film materials. Kozh.-obuv. prom. 5 no.5:31-32 My '63. (MIRA 16:5)
(Plastic films)

ROGOV, V.M.; SKIRDOVA, K.M.; DOROFEYEVA, L.G.; YAKUBENKO, L.A.; OBOYDIKHINA, A.G.

Synthetic coatings for finishing buildings. Stroi. mat. 10 no.3:9-11 Mr '64. (MIRA 17:6)

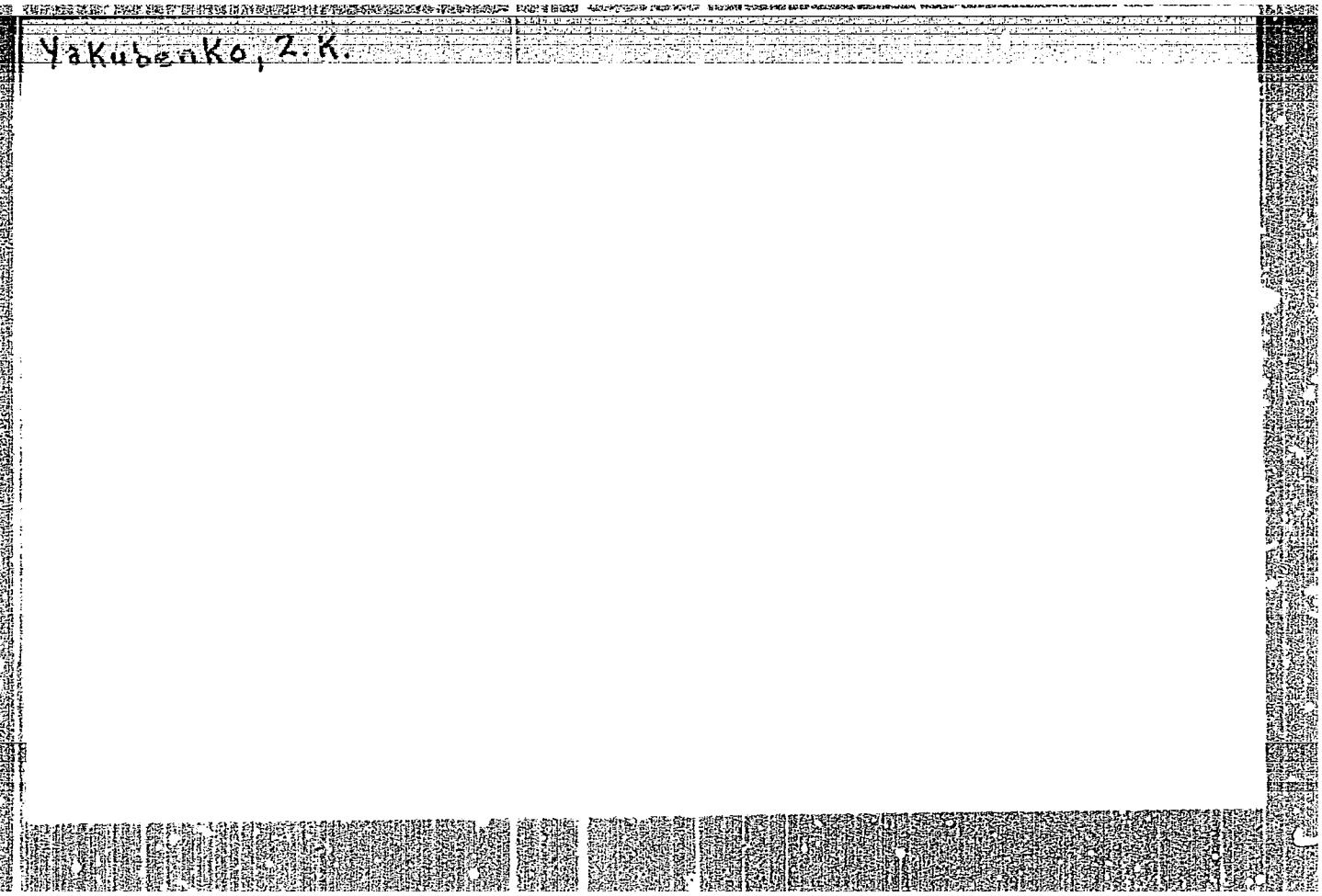


YAKUBENKO, Z.K.

CA

Investigation of the relation between the composition of flax and the ease with which it can be bleached. I. A. Ivannikova and S. K. Yakubenko. *Lyno-Pen'ko-Tkatsk. Prom.* 8, No. 2, 32-7(1938); *Chem. Zentr.* 1938, II, 1701.—Fibers with a high lignin content are compact, swell but little and are therefore more difficult to bleach and dye than fibers which contain but little lignin. No direct relation could be established between the chem. compn. of the raw and bleached spun yarn. In one type of flax (in the Rjev region), which is readily bleached, the raw fiber has a high Mn content (0.0054%) and it is assumed that the good bleaching action is due to the catalytic action of the Mn

M. G. Moore



ZUSMAN, M.N.; PODOBEDOV, M.S.; PETROVA, Ye.A.; YAKUBENKO, Z.K.

Intensifying tarpaulin duck impregnation and dyeing processes. (MLRA 9:3)
Tekst.prom. 15 no.12:43-46 D '55.
(Duck (Textile)) (Dyes and dyeing)

MURATOVA, M.A.; YAKUBENKO, Z.K.; VALOV, B.I.

Investigating jute and hemp fiber emulsifying processes. Tekst. prom. 18 no.10:26-30 O '58. (MIRA 11:11)
(Hemp) (Jute) (Textile chemistry)

YAKUBENKO, Z.K., mladshiy nauchnyy sotrudnik; BARANOVA, Ye.P., mladshiy nauchnyy sotrudnik; Prinimali uchastiye: SHEYKIN, M.I., kand. tekhn.nauk; GORDON, N.B., kand.tekhn.nauk; TARASOV, S.V., kand.tekhn.nauk

Manufacture of nonwoven packing materials from short No.3 flax fibers with the gluing method. Nauch.-issl.trudy TSNIILV 17: 153-162 '62. (MIRA 16:10)

YAKUBENOK, I.

Section of the Soviet-Polish Friendship Society. Zdrav. Belor. 6 no.8:77 Ag '60. (MIRA 13:9)
(RUSSIA—RELATIONS(GENERAL) WITH POLAND)
(POLAND—RELATIONS(GENERAL) WITH RUSSIA)

YAKUBENOK, I.

Visit to Minsk of the Ministers of the Public Health from socialist countries. Zdrav. Belor. 6 no. 10:76 O '60. (MIRA 13:10)
(WHITE RUSSIA—PUBLIC HEALTH)

YAKUBENOK, I.

Meeting of the members of a medical section. Zdrav. Bel. 7 no.5: 79 My '61. (MIRA 14:6)

(MEDICAL PERSONNEL)

YAKUBENOK, I.

In the White Russian Friendship Society. Zdrav.Bel. 8 no.7:89 Jl '62. (MIRA 15:11)

1. Chlen pravleniya Belorusskogo obshchestva druzhby i kul'turnoy svyazi s zarubezhnymi stranami.
(WHITE RUSSIA--MEDICAL SOCIETIES)

S/182/60/000/012/010/010
A161/A030

AUTHORS: Roytburd, S.L.; Khramchenko, V.I.; Sorokin, A.I.; Yakubenok, I.N.; Mikhaylichenko.B.F.

TITLE: Improving the K864 Hot Stamping Press Design

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No.12, pp. 44-46

TEXT: The Chelyabinsk plant im. Ordzhonikidze is producing a 1,600-ton hot stamping crank press, "K864", making 75 strokes of 300 mm height a minute, having a 49.7-ton cast iron frame of two parts joined with tie bolts. A team from NIITEKhMASh institute of the Chelyabinsk sovnarkhoz and the plant investigated the press in work at (not named) plants. The following faults were stated. Mismatched valve operation repeatedly causes too early clutching before retraction of the brake, and the brake cylinder bracket becomes torn off. The control panel is too near the work space, and the push buttons are damaged by die replacements. The safety fencing obstructs access to the oil piping, and the piping is too easily damaged (must by sunk into the frame and closed with covers). The blind bore housing the brake band shackle axle makes replacement too difficult. The

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S/182/60/000/012/010/010
A161/A030

Improving the K864 Hot Stamping Press Design

tie bolt holes in the frame must be enlarged for heating (for tubular electric heaters are not available). Plastics are not used on the "K864" and other similar presses, though 700 kg bronze are needed for the slide guides alone. The frame base is too small, and the press swings. Replacement of the broken lever on the top ejector, or any other repair on it is not possible without removing the slide. A scale is needed for setting the wedge-shaped press table. The friction clutch splines wear too fast. Debugging is estimated to cost 3-5% of the total press cost. It is recommended to study the electric drive and modernize it for automation; to raise the durability of the gear couple, and to design a load indicator suitable for shop work. Several minor design improvement suggestions are illustrated, including one made by Engineer N.F. Polovnev. The press is being further studied on a test stand. There are 5 figures.

Card 2/2

YAKUBENOK, V.

Cooperation of the Soviet Union with Indonesia. Vnesh.torg. 41 no.5:20-25 '61. (MIRA 14:4)
(Russia--Foreign economic relations--Indonesia)
(Indonesia--Foreign economic relations--Russia)

YAKUBENYA, M. P.

YAKUBENYA, M. P.--"Certain Physical Properties of the Junctions of Metal with Vacuum-Tight Ceramics." Tomsk State U imeni V. V. Kuybyshev, Tomsk, 1955. (Dissertation for the Degree of Candidate in Physicomathematical Sciences)

SO: Knizhnaya Letopis', No. 35, 1955

15(2) SOV/112-59-2-2333

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 2, p 7 (USSR)

AUTHOR: Presnov, V. A., and Yakubenya, M. P.

TITLE: Ceramic-Metal Vacuumtight Seals
(O vakuumnoplotnykh spayakh keramiki s metallom)

PERIODICAL: Tr. 1-y Mezhvuzovsk. konferentsii po sovrem. tekhn. dielektrikov i poluprovodnikov. 1956, L., 1957, pp 85-91

ABSTRACT: In coating steatite ceramics with molybdenum, the layer of ceramics next to the metal changes its properties. X-ray diffraction study shows that, during the metal-coating, an acid-base interaction between the ceramic components SiO_2, B_2O_3 and the oxides of Mo takes place. It is assumed that Si atoms can diffuse preserving their valence bonds; the diffusion is carried out by a transformation of these bonds between the atoms. To obtain a strong coating, Mo should be fired on in a slightly oxidizing medium where Mo is oxidized to a basic oxide at the ceramic boundary. In this case, the metal-

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Ceramic-Metal Vacuumtight Seals

ceramic bond is realized through intermediate oxygen atoms. In joining the ceramics by solders that contain active metals (Ti, Zr), a chemical reaction of the solder with the active metal takes place, and intermetallic compounds are formed; also, the active metal reacts with the ceramic components and a junction region is formed Bibliography: 10 items. Sibirskiy fiziko-tekhnich. in-t (Siberian Physics-and-Engineering Institute).

F.B.G.

SOV/112-58-2-1877

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 13 (USSR)

AUTHOR: Presnov, V. A., and Yakubenya, M. P.

TITLE: Metal-Ceramic Seals (Spaivaniye keramiki s metallom)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1956, Vol 91, pp 437-451

ABSTRACT: Metal-ceramic parts obtained by joining ceramic parts with metallic ones find wide application in electro-vacuum and capacitor technology. Joining metal to ceramics is a complicated process, and the phenomena accompanying it are as yet little known. The following conventional methods for making a hermetic and mechanically solid metal-ceramic seal are considered: (1) metal-oxide seals; (2) compacted-powder seals; (3) Ti-hydride and active metal seals; (4) ceramics coated with high-melting metal (W, Mo, Re) powders. The intention of the investigation was to find a transition region in the metal-ceramic seal, and to study its formation and structure. Seals between a metal and steatite vacuum-tight BK-92 ceramics obtained by molybdenum-coating method were tested. It is pointed out that a vacuum-tight seal between ceramics

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Metal-Ceramic Seals

and metal is realized as a result of acid-base interaction between ceramic components and molybdenum oxides. Effect of surface adhesion and mechanical cohesion on the seal tightness is of secondary importance. A decisive factor in obtaining a tight seal is the control of molybdenum oxidation up to a certain oxide at the boundary with the ceramic. If the ceramic has an acid characteristic, the adjoining molybdenum surface should be oxidized up to a basic oxide, and conversely, if the ceramic has a basic characteristic, the adjoining molybdenum surface should be oxidized up to an acidic oxide. The more pronounced the difference in acidity-basicity of the interacting components, the tighter, apparently, is the resulting seal. Oxygen for molybdenum oxidation is derived from a gas medium. As a result of a chemical interaction between ceramic components and molybdenum oxides, a transition layer consisting of reaction products is formed between the ceramics and molybdenum. The transition layer forms in a step-by-step manner and passes a number of intermediate active states. The transition region may comprise molybdenum

Metal-Ceramic Seals

silicates and borates, and also products of interaction between molybdenum oxides and more complicated ceramic components. Fundamental phenomena which take place in metal-ceramic seals are due to diffusion processes accompanied by partial breaks in valency bonds. The diffusion mechanism of the seal is corroborated experimentally by x-ray studies.

M.D.M.

66984

SOV/81-59-13-46465

18.6100

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 13, p 306 (USSR)

AUTHORS: Zhdanova, V.N., Yakubenya, M.P.

TITLE: The Investigation of the Structure of Metal Coatings on Ceramics

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta, 1958, Nr 36, pp 145 - 151

ABSTRACT: Data are cited on the roentgenographic investigation of the structure of metal coatings on ceramics. According to present concepts, in the sintering of ceramics with metal the formation of solid solutions (SS) takes place which ensures the cohesion between the metal coatings with the ceramics. Three types of SS are distinguished: substitutional, interstitial and deduction. In the formation of substitutional SS the dissolution of the elements with a smaller atomic radius than that of the solvent causes a reduction of the lattice parameter, but at the opposite relation, its increase. Interstitial SS are characteristic for the cases of dissolution of non-metals in a metal, the lattice parameters in this case always increases. SS of deduction are formed only on the base of chemical compounds, the parameters of the crystal lattice decreases in this case. The investigation was carried out on ceramic

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66984

The Investigation of the Structure of Metal Coatings on Ceramics SOV/81-59-13-46465

samples in the form of disks, one of which was covered by a molybdenum paste which later on was baked at 1,250 - 1,340°C in an atmosphere of H_2 (200 l/hr), N_2 (500 l/hr) and air (200-60 l/hr). Other samples were covered by a nickel paste over the molybdenum layer and were baked at 980 - 1,050°C in an atmosphere of H_2 (300 - 600 l/hr) and N_2 (200-0 l/hr). In the Mo-Ni system the possibility of forming SS of deduction is excluded. The appearance of superstructural lines on the roentgenograms is explained by the formation of substitutional SS, since for interstitial SS the change of the lattice parameters is considerably greater. The presence of superstructural lines points to the formation of SS on the boundary of Mo-Ni; mechanical tests have shown that in the case of SS formation the cohesion is stable, but in the opposite case it is poor, and a sharp boundary is observed between the layers. From the side of the molybdenum layer adjoining to the ceramics, lines have been detected which belong to MoO_3. The presence of the latter oxide on the boundary of Mo with Ni impedes the stable sintering of Ni with Mo.

A. Novikov

Card 2/2

66985

SOV/81-59-13-46474

18.6100

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 13, p 308 (USSR)

AUTHORS: Presnov, V.A., Yakubenya, M.P., Alekseyeva, E.N.

TITLE: The Experimental Proof for the Existence of a Transitional Region in the Joint of Ceramics With Metal

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta, 1958, Nr 36, pp 153 - 158

ABSTRACT: Samples of ceramics (C) were metallized by Mo with the addition of 2% Fe, for which purpose the molybdenum paste was burned into C in an atmosphere of $H_2 + N_2$ with the addition of 3 - 10% air at a temperature of 1,300 - 1,320°C. The molybdenum metallized C samples were covered by a nickel paste which was baked in an atmosphere of $H_2 + N_2$ at 1,000°C. To the samples prepared in this way metal parts were soldered in an atmosphere of H_2 by means of Ag - or Cu-Ag-solders. On the basis of determination of the microhardness of non-metallized C having passed the condition of thermal treatment without Mo, and of C metallized by Mo, as well as of the photometric curves of the spectra of the layer and of the adjacent zones, it has been established that Mo penetrates into C to a depth of $\sim 100\ \mu$, in which case the exponential character of the change of Mo concentration in C points

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SOV/81-59-13-46474

The Experimental Proof for the Existence of a Transitional Region in the Joint of Ceramics With Metal

to the diffusion mechanism[1,6] of their interaction. But the low stability of the cohesion of the metal with C proves that it is due not only to the diffusion of the metal into C, but a more complicated process is involved.

A. Novikov

Card 2/2

18.6100

69522
SOV/81-59-9-32100

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 9, p 360 (USSR)

AUTHORS: Presnov, V.A., Yakubenya, M.P.

TITLE: An Investigation of the Structure of the Transitional Region in the Soldered Joint of Ceramics With Metal

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, 1958, Nr 36, pp 159 - 171

ABSTRACT: The idea of acidic-basic interaction in the metallization of ceramics has been tested by experiment. Investigations have been carried out on the metallization of acidic ceramics by pastes prepared on the basis of acidic (higher) and basic (lower) Mo oxides. The quality of metallization was judged by the data of the roentgenograms taken from the surface of the break of ceramic, as well as metal parts, and by the value of the mechanical resistance of the soldered joint to breaking. The data obtained confirm the idea of acidic-basic interaction in the metallization of ceramics. The necessity is shown of maintaining a definite composition of the gaseous medium which would promote the

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69522

SOV/81-59-9-32100

An Investigation of the Structure of the Transitional Region in the Soldered Joint of Ceramics With Metal

oxidation of the metal, adjacent to the ceramics to oxides of lower valencies. The structures appearing in reactions between the components of ceramics and Mo have been investigated. It has been shown that the lower Mo oxides interact with acidic ceramic oxides, SiO_2 and B_2O_3, forming Mo silicates and borates and in some cases, poly-silicates.

A. Danyushina

Card 2/2

SOV/81-59-12-43056

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 12, p 311 (USSR)

AUTHOR: Yakubenya, M.P.

TITLE: X-Ray Investigation of the Structure of the Transitional Region in the Joint of Metal With Steatite Ceramics (Investigation of Diagonal Cuts of the Joint)

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, 1958, Nr 36, pp 173-179

ABSTRACT: The results of a roentgenoscopic investigation for K-Cu and K-Cr-radiation of the transitional zone (TZ) in the joint of Mo with steatite ceramics have been described. The investigation was carried out on a diagonal cut of the joint. Besides the lines of Mo and ceramics, additional lines were detected in the joint which point to the formation of a TZ between Mo and ceramics; Mo oxides enter the composition of TZ; the possibility of the formation of solid solutions in TZ is not excluded. The type of the crystal lattice and its parameters are not yet determined.

Card 1/1

A. Novikov

SOV/58-59-5-10854

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 136 (USSR)

AUTHOR: Yakubenya, M.P.

TITLE: Effect of Metallization on the tgδ of a Ceramic

PERIODICAL: Tr. Sibirsk. fiz.-tekhn. in-ta, 1958, Nr 36, pp 185 - 191

ABSTRACT: Using the change-of-resistance method, the author measured the tangent of the dielectric loss angle (tgδ) of a non-metallized (I) and a metallized (II) ceramic at a frequency of 10^6 c. tgδ of II is somewhat greater than that of I. The rise in tgδ of II is caused by the formation of new substances in the transition zone between the metal and the ceramic; this is accompanied by a strengthening of the bond between the metallic coating and the ceramic. The character of the dependence of tgδ on the temperature and frequency is identical for I and II. (Sibirsk. fiz.-tekhn. in-t, USSR).

From the author's conclusions

Card 1/1

YAKUBENYA, M.P.

PHASE I BOOK EXPLOITATION SOV/6328

Presnov, Viktor Alekseyevich, Yuriy Borisovich Novodvorskiy, and Mikhail Petrovich Yakubenya.

Osnovy tekhniki i fiziki spaya (Fundamentals of Bonding Technology and Physics) Tomsk, Izd-vo Tomskogo univ., 1961. 233 p. 3000 copies printed.

Ed. (Title page): V. A. Presnov, Doctor of Technical Sciences; Tech. Ed.: L. G. Mordovina.

PURPOSE: This book is intended for engineers working in the vacuum-tube industry and other branches of industry using combinations of metals and ceramics. It may also be used as a handbook by students of advanced courses specializing in electrical and chemical technology.

COVERAGE: The book reviews the results of physicochemical studies in bonding glass and ceramics to metal and has the object of clarifying the nature

Card 1/6
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of the formation of a strong bond between dissimilar substances. Attention is given to the description of principal methods of producing vacuum-tight ceramics and of joining them to metals. An attempt is made to summarize theoretically the experimental findings in order to work out physico-chemical principles of bond theory. On the basis of designs presented as example, an outline is given for calculating thermal stresses developed in ceramic-to-metal bonds. No personalities are mentioned. References follow each chapter.

TABLE OF CONTENTS:

ACCESSION NR: AT4030810 S/0000/63/000/000/0300/0308

AUTHOR: Presnov, V. A.; Rubashov, M. A.; Yakubenya, M. P.; Stroganova, V. V.; Ivleva, O. M.

TITLE: The physico-chemical nature of the formation of stable bonds between dissimilar substances

SOURCE: AN UkrSSR. Institut metallokeramiki i spetsial'ny*kh splavov. Poverkhnostny*ye yavleniya v rasplavakh i protsessakh poroshkovoy metallurgii (surface phenomena in liquid metals and processes in powder metallurgy). Kiev, Izd-vo AN UkrSSR, 1963, 300-308

TOPIC TAGS: glass, ceramics, metal, oxygen, oxide, acidity, alkalinity, rare earth element, alumina

ABSTRACT: The authors investigated the soldering of dissimilar substances such as glass, ceramics, and metal, and traced the historical basis of this research. Through a series of mathematical arguments they distributed the oxides of metals according to the increase of their acidic properties. The reaction of rare-earth element oxides La_2O_3 and Y_2O_3 with Al_2O_3 was studied and results were presented in tables. The mechanism for forming the complex compound, which leads to the origin of a

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ACCESSION NR: AT4030810

stable bond between dissimilar substances, was attributed to electron processes. With the approach of the oxides of aluminum and the rare-earth elements, suitable conditions arose before the donor-acceptor interaction. Atoms of aluminum oxide served as the acceptors and the atoms of the rare-earth oxides served as the donor. However, Al_2O_3 with B_2O_3 also yields a complex compound with aluminum oxide serving as the electron donor. Orig. art. has: 3 tables and 7 formulas.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut, Tomsk (Siberian Physical Engineering Institute)

SUBMITTED: 23Nov63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 008 OTHER: 001

Card 2/2

L 00709-66 EWA(h)/EWT(l)/EWT(m)/EWP(h)/T/EWP(t) IJP(c) JD/JG/GS

ACCESSION NR: AT5020467 UR/0000/64/000/000/0205/0218

AUTHOR: Vyatkin, A. P.; Ivleva, O. M.; Krasil'nikova, L. M.; Presnov, V. A. (Professor); Selivanov, B. A.; Yakubenya, M. P.

TITLE: Process of formation and structure of alloyed contacts of gallium arsenide with gold and silver

SOURCE: Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (Poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 205-218

TOPIC TAGS: gallium arsenide, gold alloy, silver alloy, semiconductor research, semiconducting material

ABSTRACT: The authors study the process of formation, structure and some properties of fused gallium arsenide contacts with gold and silver. The melting points, coefficients of thermal expansion and microhardness of the various alloys formed at the semiconductor-metal contact were measured. Alloys of gallium arsenide with silver have a melting point of 750-760°C. The melting point of the gallium arsenide-gold alloy produced in a vacuum is 350-360°C, while that produced in an argon

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atmosphere is 575°C. This indicates that the composition of alloys of gallium arsenide with gold depends on the conditions under which the alloys are formed. Alloys with gold prepared in argon showed the least change in the coefficient of linear expansion. Alloys produced in vacuum have coefficients of linear expansion close to those of the pure metals. All the alloys differ considerably in their expansion coefficients from gallium arsenide, which may be the reason for the considerable thermal stresses which arise in alloyed contacts of gallium arsenide with gold and silver. Microhardness for all alloys is considerably lower than that of gallium arsenide. X-ray structural analysis shows that the gallium arsenide-silver contacts are composed of eutectic silver and polycrystalline GaAs. The interaction between gallium arsenide and gold in vacuum produces a chemical compound. The gallium arsenide-gold contact produced in argon gas is composed of eutectic gold and gallium arsenide. Contacts of gallium arsenide with gold and silver may be used as ohmic contacts. Orig. art. has: 7 figures, 3 tables.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitet im V. V. Kuybysheva (Siberian Physicotechnical Institute at the Tomsk State University) 44,55

SUBMITTED: 060ct64 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 010 OTHER: 000

Card 2/2

L 23974-65

AUTHOR: Presnov, V. A.; Vyatkin, A. P.; Yakibenya, M. P.

TITLE: Formation, structure and properties of fused junction between semiconductors and metals

SOURCE: AN UkrSSR. Institut metallokeramiki i spetsial'nykh splavov. Poverkhnostnyye yavleniya v rasplavakh i protsessakh poroshkovoy metallurgii. Surface phenomena in liquid metals and processes of powder metallurgy

TOPIC TAGS: semiconductor,

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L 23934-65
ACCESSION NR: AT4030809

formation mechanism for GaAs with Ag. The compound comprises a beta phase of the system Au-Ga, contains 30 atom.% Ge and [illegible]

SUBMITTED: 23Nov63 ENCL: 02 SUB CODE: MS

NO REF SOV: 003 OTHER: 001

Card 2/4

L 23934-65
ACCESSION NR: AT4030809

ENCLOSURE

Table 1

contact	·10⁷		temperature °C		argon atmos-	
	1		2	1	2	
Ga—As—Ag	163	163	740	740	94	94
Ga—As—Au	191	156	540	590	145—250	130
GaAs	56	—	240	—	540	—

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ACCESSION NR: AT4030809

Table 2

ENCLOSURE: 02

Calculated					experimental			experimental	
Au	Ga	As	Ag	GaAs			GaAs		
	$15,1^{16}$			$13,7^{16}$					
		$16,1^{16}$					GaAs		
$19,1^{16}$			$19,0^{24}$		$19,0^{16}$	$19,0^{16}$		$17,3^{3}$	
	$19,9^{6}$						Ag	$18,9^{5}$	$19,1^{16}$
		$22,0^{2}$							
$22,2^{5}$			$22,1^{3}$						Au
							GaAs		
$32,3^{3}$			$32,1^{3}$			$32,1^{3}$	Ag	$26,2^{3}$	$32,3$
				$33,2^{1,5}$					GaAs
				$36,2^{2}_{2}$				$28,5^{4}$	Au
$38,6^{6}$			$38,6^{6}$		$38,5^{5}_{2}$		Ag	$29,1^{3}$	
								$30,3^{1}$	
								$31,3^{3}$	

Note: numbers in this table indicate angles of slip for a given reflection, exponents indicate relative line intensity

Card 4/4

ALT, E.; JAKOOBI, E.; ELGAS, J., retsenzent; TOONE, A., retsenzent; ABO, L., red.; SEPP, A., tekhn. red.

[Manual for the repairing of radios] Raadiokorrastaja kasiraamat. Tallinn, Eesti Riiklik Kirjastus, 1960. 339 p. [In Estonian] (MIRA 15:1)

(Radio—Repairing)

YAKUBIK, N.

YAKUBIK, N.

Electric starters. Za rul. no.10:18 O '57. (MIRA 10:11)

1. Nauchno-issledovatel'skiy institut avtopriborov.
(Motorcycles--Starting devoces)

SYRITSKAYA, Z.M.; YAKUBIK, V.V.

Studying glasses of the P_2O_5 - Al_2O_3 - ZnO system. Stek.i ker. 17 no.2:18-21 F '60. (MIRA 13:6)
(Glass)

ACCESSION NR: AR3000547 S/0081/63/000/007/0416/0416

SOURCE: RZh. Khimiya, Abs. 7M61

AUTHOR: Keirim-Markus, I. B.; Syritskaya, Z. M.; Yakubik, V. V.

TITLE: Steklo. Byul. Gos. n.-i. in-ta stekla, no. 2 (111), 1961, 77-89

CITED SOURCE: Study of thermoluminescent aluminophosphate glasses

TOPIC TAGS: thermoluminescent aluminophosphate glasses; gamma irradiation

TRANSLATION: A study was made of the effect of gamma-irradiation on brilliance of luminescence of aluminophosphate glasses activated with Cu sub 2 O, Ag sub 2 O, SnO sub 2, PbO, Sb sub 2 O sub 3, Bi sub 2 O sub 3, Cr sub 2 O sub 3, and other oxides used in crystallophosphors. Synthesis of glasses having the composition (in % by weight): Al sub 2 O sub 3. 3P sub 2 O sub 5, 50, metaphosphates of elements of Groups

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ACCESSION NR: AR3000547

I and II of periodical system, 50; was carried out in crucibles having a capacity of 0.5 liter, in furnaces with Silit heaters (for glasses of melting point 1400°) or in a kerosene furnace. The glass measuring 15x15x4 mm was irradiated with preparations of Co sup 60 at a dose of about 2 . 10 sup 4 roentgens. The best thermo-luminescence effect was exhibited by glasses activated with Mn, Cu and Ce in the form of the lower oxide. Brilliance of the glow undergoes no decrease for 1 month after irradiation. The glasses are recommended as dosimeters of gamma-radiation. Orig. art. has 11 references. A. Armenyan

DATE ACQ: 21May63 ENCL: 00 SUB CODE: 00

Card 2/2

EPF(n)-2/EWP(q)/EWT(m)/BDS AFFTC/ASD/APGC/SSD Pu-4/
L 12861-63 Pq-4 WH/DM
ACCESSION NR: AP3003975 S/0089/63/015/001/0048/0052

74
73

AUTHOR: Bochvar, I. A.; Vasil'yeva, A. A.; Keirim-Markus, I. B.; Prosina, T. I; Sy*ritskaya, Z. M.; Yakubik, V. V.

19

TITLE: Ionizing radiation dosimeters based on measurement of thermoluminescence of aluminophosphate glasses (IKS dosimeters)

15 10

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 48-52

TOPIC TAGS: ionization dosimeter, aluminophosphate glass, Beta-radiation measurement, Gamma-radiation measurement, slow-neutron measurement, synchrocyclotron, high-energy proton, IKS dosimeter

ABSTRACT: Ionization dosimeters made of aluminophosphate-covered glass were developed for measuring β- and γ-radiation, slow neutrons, and high-energy charged particles in the range from 0.02 to (1-2)·10⁶ rads. The dosimeters operate on the following principle: the energy of ionizing radiation absorbed by the glass is stored in it in the form of light sum of the luminescence, which is emitted during heating of the glass and can then be recorded. The dosimeters are capable of accumulating and storing information over long periods, e.g., up to a month at 150C. While the dosimeter glass is not

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L 12861-63
ACCESSION NR: AP3003975

excited by daylight, an exposure of 40 days results in de-excitation of the stored light by 26—38%. The effective atomic number for the optimum composition of glasses is 11-13. A filter consisting of 0.6 mm Sn + 0.5 mm Al allows for compensation of the energy dependence at 40 Kev and above with an error of ± 20%. The dosimeter was tested using the synchrocyclotron of the Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research) with proton fluxes in the energy range of 100 to 500 Mev showed that the sensitivity of the detector glass to the tissue dose of high-energy protons coincides within 10% with the sensitivity of glass to γ-rays, indicating that the detector can be used for mixed p- and γ-radiation. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 19May62 DATE ACQ: 08Aug63 ENCL: 00

SUB CODE: NS NO REF SOV: 002 OTHER: 007

Card 2/2

ACCESSION NR: AR4033710 S/0081/64/000/003/M012/M012

SOURCE: Referativny*y zhurnal. Khimiya, Abs. 3M83

AUTHOR: Sy*ritskaya, Z. M.; Yakubik, V. V.

TITLE: Investigation of some of the physicochemical properties of $ZnO-Al_2O_3-P_2O_5$ glass (HF-resistance of glass)

CITED SOURCE: Steklo. Biol. Gos. n.-i. in-ta stekla, no. 3(116), 1962, 75-86

TOPIC TAGS: glass, zinc phosphate glass, aluminum phosphate glass, glass physicochemical property, glass HF resistance, hydrofluoric acid, HF resistant glass

ABSTRACT: The stability of glass whose composition is located on the monovariant $ZnO \cdot P_2O_5-Al_2O_3 \cdot 3P_2O_5$ curve was investigated for glass varieties with 11.5% Al_2O_3 and with 47.5 or 53.5% P_2O_5 by treating 10 x 10 x 12 mm^3 plate-shaped samples with anhydrous HF_4 for 1-4 hrs. at the temperature of liquid N_2 and by treating 10 x 10 x 3 mm^3 plate-shaped samples with HF for 8 hrs. at 20C. The results were evaluated by the depth of the surface destruction (1-0.7 μ). The kinetics of the destruction and the effect of repeated (2-3 times) treatment with HF-solution and prepolishing of the samples were also investigated. The extract was analyzed chemically, 195 chromatographically and the data obtained are presented graphically. The

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ACCESSION NR: AR4033710

effect of a change in Al_2O_3-content in glass on its resistance to HF and HF_4 is emphasized.

DATE ACQ: 02Apr64 SUB CODE: MA ENCL: 00

Card 2/2

SYRITSKAYA, Z. M.; YAKUBIK, V. V.

"Coordination number of a basic ion in glass and structure of phosphatic glasses."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

L 13556-66 EWP(e)/EWT(m)/EWP(b) GS/WH

ACC NR: AT6000484 SOURCE CODE: UR/0000/65/000/000/0154/0156

AUTHOR: Syritskaya, Z. M.; Yakubik, V. V.

ORG: None

TITLE: Coordination number of cations in glass and structure of phosphate glasses

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu, 4th, Leningrad, 1964, Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya. Leningrad, Izd-vo Nauka, 1965, 154-156

TOPIC TAGS: phosphate glass, glass property, coordination chemistry, aluminophosphate glass, SILICON, ALUMINUM

ABSTRACT: The authors postulate that in phosphate glasses the composition of which corresponds to definite chemical compounds, silicon, aluminum, and boron retain the coordination which they have in the corresponding crystalline compounds. As the composition becomes increasingly different from that of definite compounds, silicon and aluminum may manifest several coordination numbers at a time. The compounds formed in the systems Al_2O_3-P_2O_5, SiO_2-Al_2O_3-P_2O_5, and P_2O_5-B_2O_3 and the corresponding coordination of the elements are discussed. No glasses are formed in the P_2O_5-B_2O_3 system. It is concluded that in phosphate glasses, the coordination number of Al and Si has an all-important effect on the size of the region of glass formation. Al and Si have coordination numbers of

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ACC NR: AT6000484

6 and 4 simultaneously in these glasses. In the Al_2O_3-P_2O_5 system, the rule applying to silicate glasses holds, namely, that as the basicity of the glass increases, the coordination number of aluminum decreases. Orig. art. has: 2 figures.

SUB CODE: 07, 11/ SUBM DATE: 22May65/

Card 2/2

L 9882-66 EWP(e)/EWT(m)/EWP(b) DM/WH

ACC NR: AP6003965 SOURCE CODE: UR/0089/65/019/003/0311/0312

AUTHOR: Bochvar, I. A.; Keirim-Markus, I. B.; Moiseyev, A. A.; Prosina, T. I.; Yakubik, V. V.

ORG: none

TITLE: Measurement of the background external radiation exposure of the urban population in the USSR

SOURCE: Atomnaya energiya, v. 19, no. 3, 1965, 311-312

TOPIC TAGS: radiation dosimeter, gamma irradiation, radioactive contamination, man

ABSTRACT: Preliminary results are presented of the measurement of the background external exposure of small groups of people from 26 cities in the USSR. The studies were started in the second half of 1963. Individual dosimeters of the infrared spectroscopic type using thermoluminescent aluminophosphate glass were employed, allowing gamma doses from 0.02 to 2 X 10^6 rads to be measured. Ten people from each city wore the dosimeters continually for 167 to 325 days. The drop in instrument readings during the time of exposure was measured for control dosimeters. A table of results and error limits is given. Analysis of the data showed that the exposure levels depend largely on the type of rocks and soils in the cities; attempts to observe a correlation between exposure dose and latitude or height above sea level were unsuccesful. Orig. art. has: 1 table. [NA]

SUB CODE: 06 / SUBM DATE: 01Apr65 / ORIG REF: 002 / OTH REF: 004

Card 1/1 UDC: 539.16.04

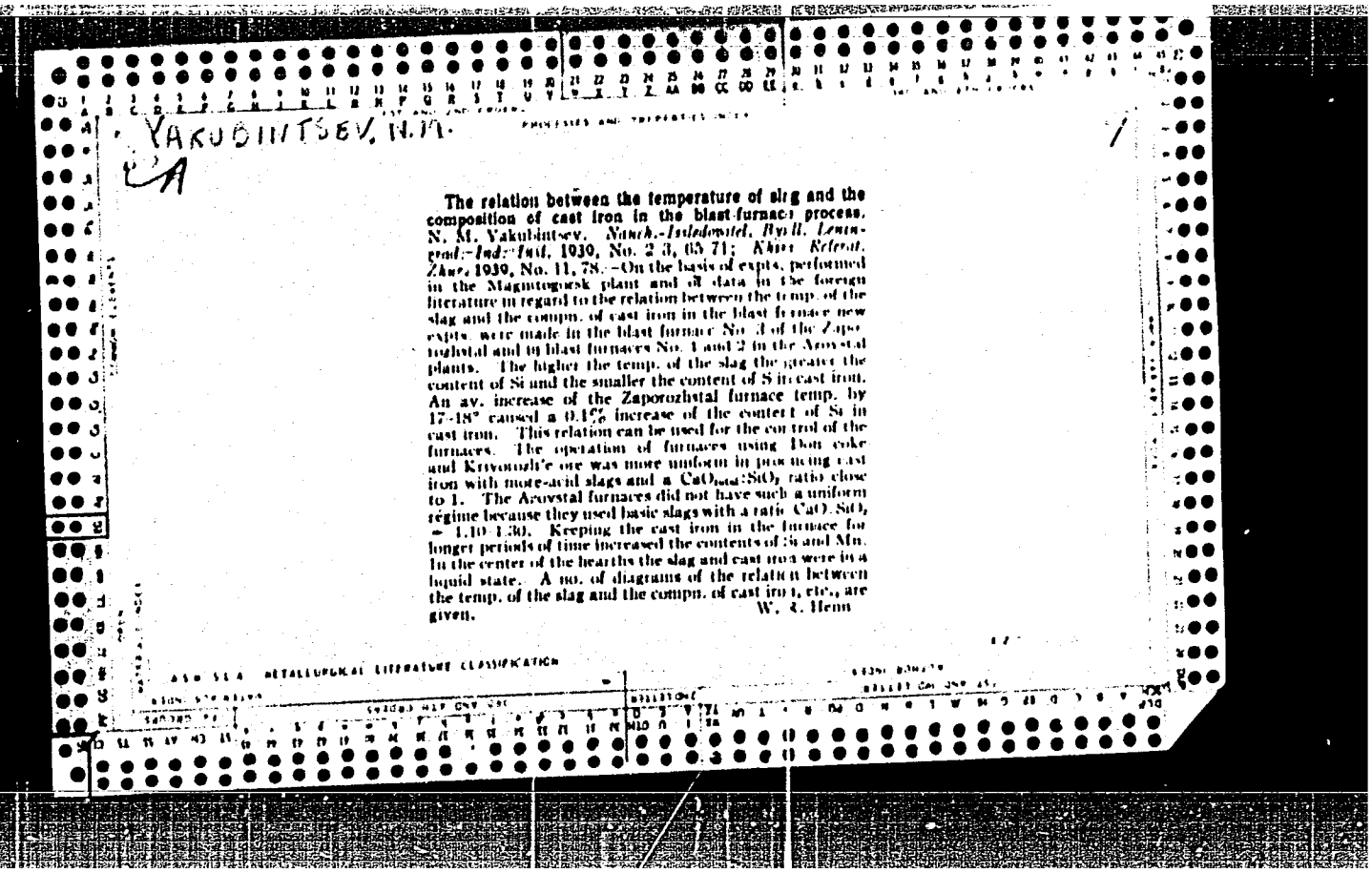
BOCHVAR, I.A.; KEIRIM-MARKUS, I.B.; MOISEYEV, A.A.; PROSINA, T.I.; YAKUBIK, V.V.

Measuring the exposure of town inhabitants in the U.S.S.R. to background radiation. Atom. energ. 19 no.3:311-312 S '65. (MIRA 18:9)

YAKUBINSKAYA, N.V.

Estrous cycle of the mare and a hormonal method for increasing the reproduction rate in horse and mule breeding. Izv. AN Kazakh. SSR. Ser. biol. no.35:86-93 '47 (MLRA 9:5)

(HORSE BREEDING) (ESTRUS) (HORMONES, SEX)



YAKUBINTSEV, N.M.

CA

The relation between the temperature of slag and the composition of cast iron in the blast-furnace process. N. M. Yakubintsev. *Nauch.-Issledovatel. Byull. Leningrad. Ind. Inst.* 1930, No. 2-3, 65-71; *Khim. Referat. Zhur.* 1939, No. 11, 78.—On the basis of expts. performed in the Magnitogorsk plant and all data in the foreign literature in regard to the relation between the temp. of the slag and the compn. of cast iron in the blast furnace new expts. were made in the blast furnace No. 3 of the Zaporozhstal and in blast furnaces No. 1 and 2 in the Aroystal plants. The higher the temp. of the slag the greater the content of Si and the smaller the content of S in cast iron. An av. increase of the Zaporozhstal furnace temp. by 17-18° caused a 0.1% increase of the content of Si in cast iron. This relation can be used for the control of the furnaces. The operation of furnaces using Don coke and Krivorozh'e ore was more uniform in producing cast iron with more-acid slags and a $CaO_{calc}:SiO_2$ ratio close to 1. The Aroystal furnaces did not have such a uniform regime because they used basic slags with a ratio $CaO:SiO_2 = 1.10-1.30$. Keeping the cast iron in the furnace for longer periods of time increased the contents of Si and Mn. In the center of the hearths the slag and cast iron were in a liquid state. A no. of diagrams of the relation between the temp. of the slag and the compn. of cast iron, etc., are given.

W. S. Henn

YAKUBITSKIY, V.A.

ZAV'YALOV, M.A., kandidat tekhnicheskikh nauk; YAKUBITSKIY, V.A., inzhener.

New work technology for lumber yards and landings in floating tree-length logs. Mekh.trud.rab. 9 no.2:38-43 F '55. (MIRA 8:4)
(Lumbering)

1. YAKUBMAN, B. KH. (ENGINEER): PUDIKOV, V. K.

2. USSR (600)

4. Foundations

7. Moving the foundation under a turbogenerator.
Stroi.prom. 30 no. 6 1952

9. Monthly List of Russian Accessions, Library of Congress, August, 1952. Unclassified.

YAKUBMAN, B.Kh.

Concrete placing in foundations of blast furnaces by radial rotating conveyer belts. Rats.i izobr.predl.v strol. no.55:6-8 '53.
(MLRA 7:3)
(Concrete) (Conveying machinery)

YAKUBMAN, B.Kh., inzhener.

Standard technical rules for building a 1513cu.m. blast furnace.
Stroi.prom. 34 no.10:15-20 O '56. (MLRA 9:12)
(Blast furnaces--Standards)

YAKUBMAN, B.Kh., inzh.

Constructing blast furnaces at the Petrovskii Plant. Prom. stroi. i inzh. soor. 1 no.1:3-6 O '59. (MIRA 13:12)
(Dnepropetrovsk--Blast furnaces)

KANISHCHEV, V.G., laureat Leninskoy premii; YAKUBMAN, B.Kh., inzh.

In planning it is necessary to make provision for division into composite assembly units. Prom.stroi. 38 no.3:44-48 '60. (MIRA 13:6)

1. Pridneprovskiy Promstroyproyekt.
(Blast furnaces)

KOSTYUKOV, V.I.; YAKUBMAN, B.Kh.

Reconstruction of furnaces in iron-alloy plants. Prom. stroi. 41 no.1:46 Ja '64. (MIRA 17:6)

YAKUBMAN, L.A.

Osteoplastic amputations of the leg according to Bier's method in patients with injuries of the peripheral nerves in the lower extremitires. Trudy Ukr. nauch.-issl. inst. ortop. i travm. no.15:227-230 '59 (MIRA 16:12)

1. Iz Depropetrovskogo oblastnogo gospitalya invalidov Otechestvennoy voyny (nachal'nik gospitalya - V.M.Agafonov, nauchnyy rukovoditel' prof. T.Ye. Gnilorybov, starshiy khirurg K.N.Rossomakha).

L 16800-63 FA/EPA(b)/EWT(1)/BDS/ES(v) AFFTC/ASD Pd-4/Pe-4
VH
ACCESSION NR: AP3007035 S/0117/63/000/003/0003/0010 65
64

AUTHOR: Buly*gina, Ye. V.; Yakubo, L. T.

TITLE: Hypersonic airplane with self-balanced surface

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1963, 3-10

TOPIC TAGS: hypersonic airplane, lifting surface, minimum drag, optimal body, aerodynamic stability, lift drag ratio, stability condition, lift, drag, aerodynamic balance, stability margin, balanced surface, self balanced surface

ABSTRACT: The problem of determining the lifting surface of a hypersonic airplane with a high lift-drag ratio and a known center of gravity is studied. Under the assumption that only the lower surface of the body acts as a lifting surface, the solution is sought among the set of surfaces having an angle of incidence with the horizontal depending on some arbitrary function. The minimum-drag body problem with a given lift is treated in detail for a given body volume and for an arbitrary volume. Expressions for

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ACCESSION NR: AP3007035

drag and conditions of aerodynamic stability are established. The aerodynamic properties and lift-drag ratios of an optimal body are compared with those of step bodies (see Figs. 1 and 2 of the Enclosure) which satisfy identical stability conditions, and stability margins are derived. Orig. art. has: 10 figures, 1 table, and 22 formulas.

ASSOCIATION: none

SUBMITTED: 27Sep62 DATE ACQ: 07Oct63 ENCL: 01

SUB CODE: AI NO REF SOV: 001 OTHER: 001

Card 2/2

LEN'KOV, V.I., doktor veterin. nauk; LEN'KOVA, V.A., kand. veterin. nauk; YAKUBO, Ye.P., mladshiy nauchnyy sotrudnik; BALASHOVA, T.G., mladshiy nauchnyy sotrudnik; GERMAN, .u.T., mladshiy nauchnyy sotrudnik

Enterotoxemia of calves caused by Clostridium perfringens.
Veterinariia 41 no.1:15-18 Ja '65. (MIRA 18:2)

1. Yuzhno-Kazakhstanskaya nauchno-issledovatel'skaya veterinarnaya stantsiya.

YAKUBOVSKIY, Vladimir Yakovlevich, kand.tekhn.nauk, dotsent

Low-frequency phase regulator. Izv.vys.ucheb.zav.; elektromekh. 8 no.8:901-904 '65. (MIRA 18:10)

1. Kafedra elektricheskikh mashin, apparatov, matematicheskikh i schetnoreshayushchikh priborov i ustroystv Novocherkasskogo politekhnicheskogo instituta.

YAKUBOV, A.

YAKUBOV, A.; YELENIN, M.

A legend that became reality. Sov.mor. 17 no.14:8-9 Jl '57.
(MLRA 10:9)
(Uzbekistan--Economic conditions)

YAKUBOV, A.,

In new conditions. Sov. profsoiuzy 5 no.9:39-42 S '57. (MLRA 10:9)

1. Predsedatel' Poltavskogo oblastnogo soveta profsoyuzov.
(Trade unions)

YAKUBOV, A., smennyy master

Sampler for flour and groats used at the TSyrupy Milling Combine.
Muk.-elev.prom. 26 no.7:14 Jl '60. (MIRA 13:8)

1. Moskovskiy mel'nichnyy kombinat im. TSyurupy.
(Grain--Analysis)

KREMNEVA, S.N.; KOCHETKOVA, T.A.; YAKUBOV, A.

Materials on experimental studies of the toxicity of benzoyl d'-sulfide. Toks. nov. prom. khim. veshch. no.6:55-60 '64.
(MIRA 18:4)

YAKUBOV, A., doktor geologo-mineralogicheskikh nauk.

Mud vulcanoes. Vokrug sveta no.9:53-55 S '53. (MLRA 6:10)
(Vulcanoes)

YAKUBOV, A. A.

23048 Rol' akademika I.M. Gubkina. V razvitii neftyanoy geologii v sssr. (Stenogramma doklada na ob'edin. Sessii akad. Nauk azerbaydzh ssr, posvyashch. 10-letiyu se dnya smerti I. M. Gubkina). Izvestiya akad. Nauk azerbaydzh. Ssr, 1949, No. 6, C. 61-78.

SO: LETOPIS' NO. 31, 1949

YAKUBOV, A.A., professor; DADASHEV, F.G., kandidat geologo-mineralogicheskikh nauk.

Origin of the Baku archipelago. Priroda 45 no.2:88-91 F '56.
(MLRA 9:5)

1. Azerbaydzhanskiy industrial'nyy institut imeni M.Azizbekova, Baku.
(Baku archipelago--Geology, Structural)

YAKUBOV, A.A., prof.; MUSTAFAYEV, I.S., dotsent

Lithologic and collecting characteristics of sediments in the producing formation of the Darwin Bank offshore oil field. Trudy Azerb. ind. inst. no.18:66-85 '57. (MIRA 11:7)
(Caspian Sea--Petroleum in submerged lands)

YAKUBOV, I.I.

AUTHOR: Gol'd, M.S.

3-58-2-24/33

TITLE: A Traditional Meeting of Trans-Caucasian Scientists (Traditsionnaya vstrecha uchënykh Zakavkaz'ya)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, # 2, pp 77 - 78 (USSR)

ABSTRACT: At the end of 1957, the 8th Scientific Conference of the professorial and instructional personnel of technical vuzes of Trans-Caucasus was held in Baku. In the conference works participated representatives of the Azerbaydzhanskiy industrial'nyy institut (Azerbaydzhan Industrial Institute). The Georgian, Yerevan' and Azerbaydzhan Polytechnic Institutes, Tbilisskiy institut inzhenerov zheleznodorozhnogo transporta (Tbilisi Institute of Railroad Engineers) and the workers of scientific-research, industrial and transport organizations of Baku. The opening speech was given by S.B. Godzhayev, Director of the Azerbaydzhan Industrial Institute imeni Azizbekov. The next to speak was I.D. Mustafayev, the first secretary of the TsK KP of Azerbaydzhan.

On the first plenary session A.M. Alibekova delivered a report on "The Prosperity in Economics and Culture of the Trans-Caucasian Republics During the Years of Soviet Power".

The conference participants worked in 10 sections -

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physico-mathematical, geophysical, electro-engineering, and others - in which 90 reports were delivered. In the Geological Section, the Professors A.A. Yakubov and A.A. Alizade held a lecture on"The Tectonic Situation of Karadag in the System of Structures of Apsheron and Kobystan and Its Mud Volcanos". R.A. Khalafova, Candidate of Technical Sciences, read a report on "The Paleography of the Upper Cretaceous Period in the Nakhichevan ASSR". A lecture by Dotsent, Candidate of Chemical Sciences, V.T. Chugunava to the Chemico-Technological Section dealt with the purification of crude benzole from sulphur by manganese. Dotsent, Candidate of Technical Sciences A.T. Khvichiya lectured on the problem of using petroleum asphalt in metallurgy when producing homogeneous mixtures. Dotsent, Candidate of Technical Sciences L.T. Kuloyan treated the subject "The Influence of the Ash Content on the Thermal Process of Burning" (Section on Thermal Technique). Dotsent, Candidate of Technical Sciences A.M. Azatyan devoted his report to the technical-economical calculation of optimum parameters for irrigation systems.

It was decided to carry on work in 1958, on the following themes: "The Unified Trans-Caucasian Power-Engineering System" (Gruzenergo, Armenenergo and Azenergo), "The Hydro-Resources

of the Trans-Caucasian Region", "A Study on Converting the Diesel Locomotive "D - 50" (internal combustion engines of the series "TE-1" and "TE-2") to Liquid Gas", "Elaboration of Basic Regulations and Recommendations for the Projects of Gas Supply for the Cities Tbilisi and Yerevan'", etc.

AVAILABLE: Library of Congress

Card 3/3

ALIZADE, A.A.; YAKUBOV, A.A.; ALIYEV, S.M.; BAGIRZADE, F.M.

Tectonics of the Karadag field. Izv. vys. ucheb. zav.; neft' i gaz no.1:7-14 '58. (MIRA 11:8)

1.Azerbaydzhanskiy industrial'nyy institut im. M. Azizbekova.
(Apsheron Peninsula--Geology, Structural)