L 9985-63 EWT(d)/BDS--AFFTC/ASD/APGC--Pg-4/Pk-4/Pl-4/Po-4/Pq-4--EC/IJP(C)

ACCESSION NR: AP3002612 S/0280/63/000/003/0073/0080

74

AUTHOR: Katkovnik, V. Ya.; Poluektov, R. A. (Leningrad)

TITLE: Synthesis of multichannel sampled-data systems for finite observation time

SOURCE: AN SSSR. Izv. Otd. tekh. nauk. Tekhnicheskaya kibernetika, no. 3, 1963, 73-80

TOPIC TAGS: multichannel sampled-data filters, synthesis of filters, transformation of equations

ABSTRACT: The problem of the synthesis of sampled-data systems using the minimum of the variance of a reproduction of the determined part of the input signal as the performance criterion is reduced to the solution of a system of linear algebraic equations. The solution of this system is analyzed for the case when the signal enters the system through several channels. It is noted that solution of such a system involves considerable computational difficulties particularly when the observation time increases. To overcome this [illegible] a method is proposed which for certain particular cases makes it possible

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L 9985-63
ACCESSION NR: AP3002612

transform the system of linear algebraic equations into an equivalent system of difference equations for which a closed form of solution dependent on the observation time can be determined. Such a transformation is shown to be possible for the particular but very important case when the spectral densities of random parts of useful signals can be represented in the form of a rational-fractional function. The explanation of the method is first carried out for the case when the determined part of a signal is equal to zero and the noises in distinct channels are neither mutually correlated nor correlated with a useful signal. The application of the method is extended to the general case. It is noted that the amount of calculation required for the solutions does not depend on the observation time but on the number of channels and the form of the spectral densities of the signals. The solutions obtained make it possible to study asymptotic properties of filters when the observation time is increasing. Orig. art. has: 40 formulas and 1 figure.

ASSOCIATION: none

Card 2/3

L 9985-63
ACCESSION NR: AP3002612

0

SUBMITTED: 14Jan63 DATE ACQ: 16Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 006 OTHER: 002

ja/ss

Card 3/3

S/103/63/024/004/011/014
D201/D308

AUTHORS: Katkovnik, V.Ya. and Poluektov, R.A. (Leningrad)

TITLE: Choice of program and sampling period in digital control systems

PERIODICAL: Avtomatika i telemekhanika, v. 24, no. 4, 1963, 539-547

TEXT: The authors consider the choice of controlling a program for a digital computer inserted as a correcting component into the error channel, and show that by increasing the complexity of the controlling program, it is possible to decrease the effect of disturbances applied within the closed loop, while retaining at the same time the characteristics of closed-loop system with respect to the input signal. A method of determining the optimum sampling period of the digital computer is also suggested for a multiple system in the case when limitations are imposed on the continuous section (in particular, limitations as to the speed of the integrating component). The optimum period is found to be the maximum

Card 1/2

Choice of program ...

value of the abscissa of the intersection of curves representing the absolute values of increments (per period) of the servomotor output coordinate and of the straight line represented by the product of maximum servomotor speed and of the period of sampling. There are 6 figures.

SUBMITTED: September 7, 1962

Card 2/2

KATKOVNIK, V.Ya.; PERVOZVANSKIY, A.A.

Random disturbances of periodic conditions in relay systems. (MIRA 16:9)
Trudy LPI no.226:170-178 '63.
(Automatic control)

ACCESSION NR: AP4028977 S/0230/64/000/002/0075/0080

AUTHOR: Katkovnik, V. Ya. (Leningrad)

TITLE: Generalization of the problem of synthesizing a multichannel discrete-continuous filter

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1964, 75-80

TOPIC TAGS: signal filter, multichannel filter, discrete continuous filter, multichannel filter synthesis, telemetering

ABSTRACT: The synthesizing of an optimum multichannel filter in the case of noncophasal closure of input keys is considered. A series of signals with additive noise is applied to a data-processing system through a set of sequentially closing keys (scanning of telemeter sensors or multichannel multiple-cycling information-transmission system). Information may be carried not by the signal proper but by its derivative, integral, of another function. Formulas are

Card 1/2

ACCESSION NR: AP4028977

developed, following S. S. L. Chang's transformation method ("Synthesis of Optimum Control Systems," McGraw, 1961), for spectral densities of the output processes when a stationary random variable is applied to the input. Equations for determining the transfer functions of an optimum filter are deduced, and a method for their solution is indicated. Orig. art. has: 2 figures and 32 formulas.

ASSOCIATION: none

SUBMITTED: 20Apr62 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: EC NO REF SOV: 003 OTHER: 002

Card 2/2

ACCESSION NR: AP4024682 S/0103/64/025/002/0201/0206

AUTHOR: Katkovnik, V. Ya. (Leningrad); Poluektov, R. A. (Leningrad)

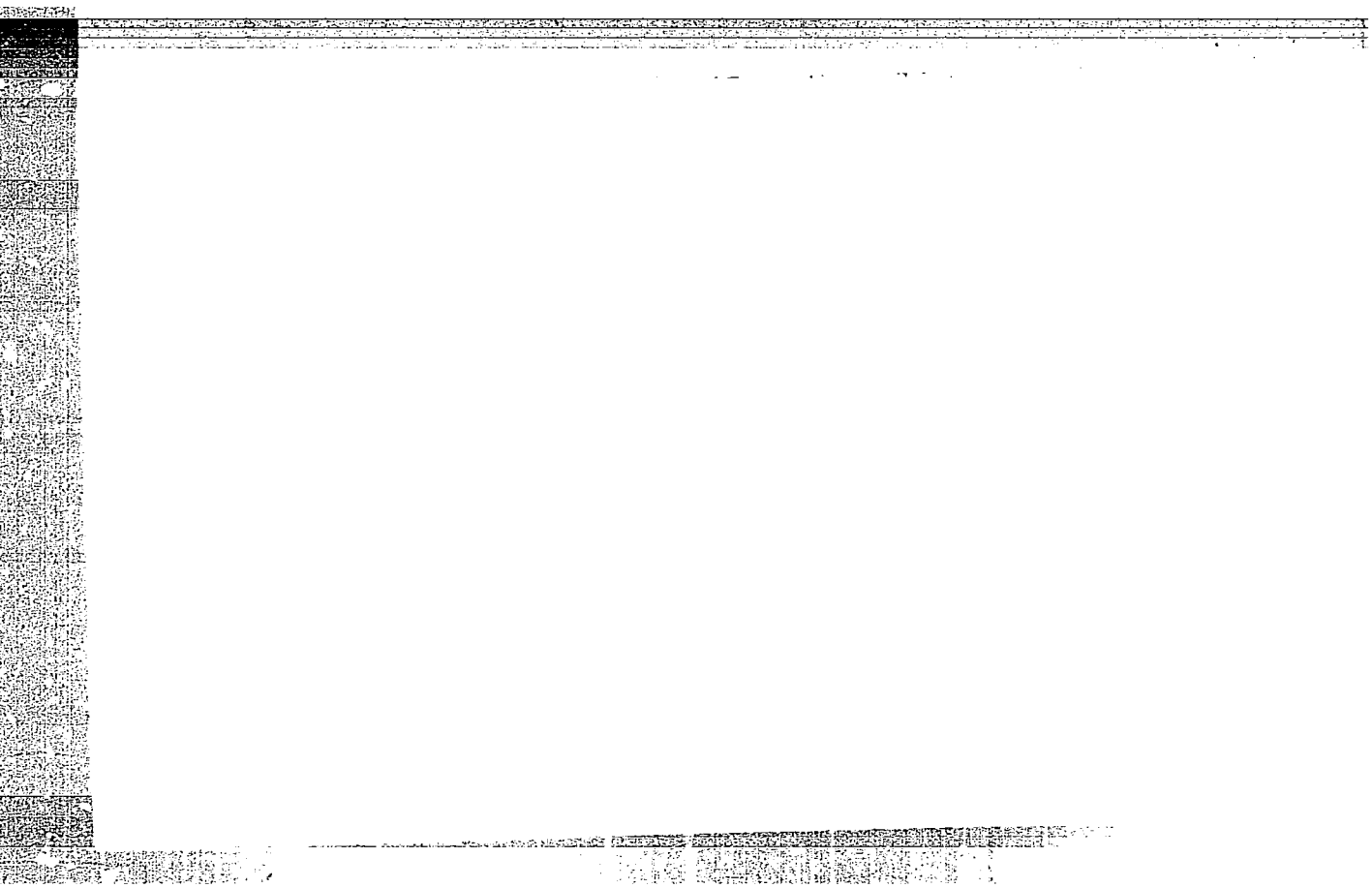
TITLE: Optimum transmission of a continuous signal over a sampled-data link

SOURCE: Avtomatika i telemekhanika, v. 25, no. 2, 1964, 201-206

TOPIC TAGS: automatic control, continuous signal transmission, sampled data link, optimized automatic control

ABSTRACT: The problem of an optimum transmission of a continuous signal over a discrete or a discrete-continuous link is theoretically considered. The problem of synthesizing a discrete-continuous corrector, with a minimum mean-square error, was solved by L. T. Kuzin ("Designing and planning of discrete control systems," Mashgiz, 1962) by developing a discrete-continuous nonstationary filter. The present paper shows that, in the case of a minimum mean-square error at each instant of time within the clock cycle, the optimum corrector can

Card 1/2



APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

The impulse characteristics of optimum [illegible]
minimum variance of error

$$\overline{\varepsilon^2(N)} = R_x(N, N) + \sum^{N} h_1(N, l)\, h_1(N, l_1)\, R_{xx}(l, l_1) + \quad (2)$$

[illegible]

$$\sum h_2(N, l)\, h_2(N, l_1)\, R_{xx}(l, l_1) \ldots$$

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

L 13913-66 EWT(d)/EPF(n)-2/EWP(1) IJP(c) WW/RC
ACC NR: AT5028840 SOURCE CODE: UR/2563/65/000/252/0133/0139

64
B+1

AUTHORS: Katkovnik, B. Ya.; Poluektov, R. A.

ORG: Leningrad Polytechnic Institute imeni M. I. Kalinin (Leningradskiy politekhnicheskiy institut)

TITLE: Synthesis of discrete control systems with consideration of the dynamic limitations imposed by the controlled element

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy. no. 252. 1965. Dinamika i prochnost'mashin; mekhanika i protsessy upravleniya (Dynamics and durability of machines; mechanics and processes of control) 133-139

TOPIC TAGS: automatic control, automatic control design, automatic control theory, nonlinear control system, digital computer, random process

ABSTRACT: The problem of synthesizing the control program W(z) for a digital computer in the error path of a control loop (see Fig. 1) is discussed, and the synthesis process is modified for the case in which the controlled element imposes dynamic limitations. In Fig. 1, G(z) is the discrete transfer function of the equivalent continuous element

$$G(z)=z^{-m}G_1(z)=\frac{z^{-m}P(z)}{Q(z)},$$

proposed by Ya. Z. Tsypkin (Teoriya impul'snykh sistem. M., Fizmatgiz, 1963, s. 940) and the input x(kT) is assumed as a stationary random process (zero average value)

Card 1/4

2

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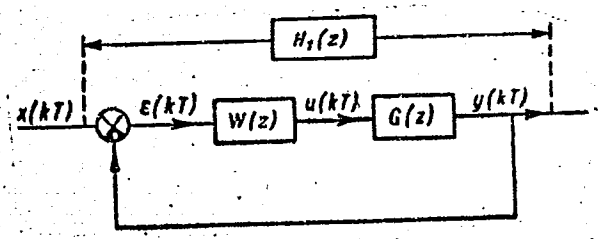


Fig. 1. Control system.

consisting of the sum of a useful signal s(kT) and errors n(kT). If the system starts at t = kT = 0, the optimum program is sought at t = NT in order to minimize dispersion of the error

$$D_e(NT) = M[e^2(NT)] = M[[d(NT) - y(NT)]^2],$$

where d(NT) = desired signal, y(NT) = output signal. The formulation of this problem in terms of the weighting coefficients W_j (for the digital control program) yields a system of nonlinear algebraic equations which can be transformed to an equivalent set of linear equations by the recurrent relation

$$h_k = \sum_{j=0}^{k} W_j g(kT + mT - jT) - \sum_{l=0}^{k-m} \sum_{j=0}^{l} W_j g(lT + mT - jT)\, h_{k-m-l} \quad .$$

This process transforms the closed system of Fig. 1 to the system in Fig. 2 with the transfer function $H_1(z) = z^{-m}H(z)$. With the new variables h_k the output becomes

$$y(NT) = \sum_{k=0}^{N-m} h_k x(NT - kT - mT),$$

Card 2/4

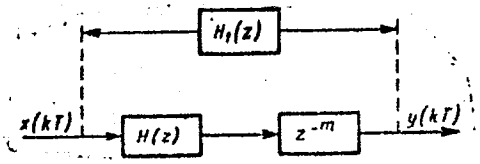


Fig. 2. Equivalent control system.

and the equations for finding h_k become

$$\sum_{k=0}^{N-m} h_k R_{xx}(kT-jT)=R_{xa}(jT+mT) \quad (j=0, 1, 2, \ldots, N-m).$$

It is shown that the dynamic properties of the controlled element impose additional constraints, since a change in G(z) leads to a change in the closed-loop transfer function

$$H_1(z)=\frac{G(z)\,W(z)}{1+G(z)\,W(z)},$$

which results in an increase of the error dispersion over its minimum value by

$$\delta D_e(NT)=D_e(NT)-D_e(NT)_{\min}=\sum_{k=0}^{N-m}\sum_{j=0}^{N-m}\delta h_k \delta h_j R_{xx}(kT-jT).$$

The conditions that the system be nonsensitive to small changes in the dynamic characteristics of the controlled element are formulated, and the problem becomes that of minimizing

$$J_e=D_e-\sum_{\alpha=1}^{t}\lambda_\alpha J_{1_\alpha}+\sum_{\beta=1}^{r}\rho_\beta J_{2_\beta},$$

where λ_α, ρ_β = corresponding Lagrange multipliers. The equations for the

Card 3/4

ACC NR: AT5028840

0

weighting coefficients become

$$\sum_{i=0}^{N-m} h_i R_{xx}(iT-jT) - \sum_{\alpha=1}^{l} \lambda_\alpha \gamma_\alpha^{-j} - \sum_{\beta=1}^{r} \rho_\beta \nu_\beta^{m-j} = R_{xd}(jT+mT) \quad (j=0, 1, 2, \ldots, N-m)$$

for this case and with the conditions

$$\left.\begin{aligned} J_{\gamma_\alpha} &= 2\sum_{k=0}^{N-m} h_k \gamma_\alpha^{-k} = 0; \\ J_{\nu_\beta} &= 2\left[1 - \sum_{k=0}^{N-m} h_k \nu_\beta^{m-k}\right] = 0, \end{aligned}\right\}$$

can be solved by various methods. An example is presented. Orig. art. has: 3 figures and 25 formulas.

SUB CODE: 13/ SUBM DATE: none/ SOV REF: 006/ OTH REF: 001

SB

Card 4/4

PALUMBO, V.M., inzh.; KATKOVA, S.A., inzh.; DUBININ, L.G., inzh.

Functioning of the vertical keys in the structures of the Tsimlyansk hydroelectric development. Gidr. stroi. 32 no.1:25-26 Ja '62. (MIRA 15:3)

(Tsimlyansk Hydroelectric Power Station--Locks (Hydraulic engineering)--Maintenance and repair)

KATKOVNIKOV, A.I.

Pathogenesis of acute paranoia appearing during a railroad trip. Trudy Gos.nauch.-issl.inst.psikh. 27:321-332 '61. (MIRA 15:10)

1. Bashkirskaya respublikanskaya psikhiatricheskaya bol'nitsa. Glavnyy vrach - P.I.Akopyan. Nauchnyy rukovoditel' p prof. A.Yu.Vyyasnovskiy.

(PARANOIA)

KATKOVSKAYA, K. YA. and A. P. KOVALEV.

Kotel'nye agregaty. Pt. 2. Moskva, Gosenergoizdat, 1950. 204 p.

Boiler units.

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953

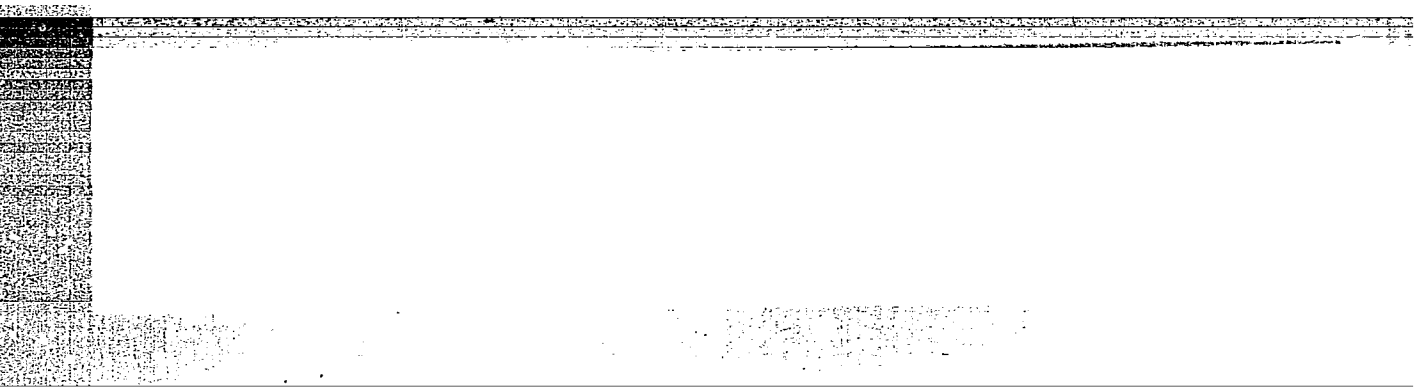
KATKOVSKAYA, K. YA.

"The Selective Carrying-out of Salts With Steam From a Boiler at High Pressures." Sub 30 Mar 51, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"



APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

KATKOVSKAYA, K. Ya

AID P - 2881

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 14/16

Authors : Margulova, T. Kh., Doc. Tech. Sci., Prof., Katkovskaya, K. Ya., Kand. Tech. Sci., and Borodulina, L. P.

Title : Nomograms for steam purity calculation

Periodical : Teploenergetika, 10, 60-61, O 1955

Abstract : The method of computing nomograms for calculating steam is explained. These nomograms compute the purity of steam for 2-stage evaporation and salt content. Three diagrams.

Institution : None

Submitted : No date

KATKOVSKAYA, K. Ya.

AID P - 2326

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 7/17

Authors : Styrikovich, M. A., Corr. Memb., Acad. of Sci., and Katkovskaya, K. Ya., Kand. of Tech. Sci.

Title : Control of silicic acid content in saturated and superheated high-pressure steam

Periodical : Teploenergetika, 5, 34-37, My 1955

Abstract : Tests made with high-pressure boilers showed that a decrease in silicic acid content of steam resulting from superheating is not due to the process of dehydration but to partial settling of sodium silicate in the superheater, and also to a partial condensation of steam at the superheater's inlet. Six diagrams and 1 table. Two Russian, 1953 and 1 American reference.

Institution : None

Submitted : No date

STYRIKOVICH, M.A., prof., doktor tekhn.nauk; KATKOVSKAYA, K.Ya., kand. tekhn. nauk, dotsent; SEROV, Ye.P., kand.tekhn.nauk, dotsent; NIKOLAYEV, V.V., red.; LARIONOV, G.Ye., tekhn.red.

[Boiler units] Kotel'nye agregaty. Moskva, Gos. energ. izd-vo, 1958. 487 p. (MIRA 12:2)

1. Chlen-korrespondent AN SSSR; zaveduyushchiy Kafedroy kotel'nykh ustanovok Moskovskogo ordena Lenina energeticheskobo instituta (for Styrikovich).

(Boilers)

YELIZAROV, Pavel Pavlovich; KATKOVSKAYA, K.Ya., red.; VORONIN, K.P., tekhn. red.; LARIONOV, G.Ye., tekhn. red.

[Operation of high-pressure boiler systems on electric power plants] Ekspluatatsiia kotel'nykh ustanovok vysokogo davleniia na elektrostantsiiakh. Moskva, Gos.energ.izd-vo, 1961. 399 p. (MIRA 14:7)
(Boilers) (Steam power plants)

L 17581-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD
ACCESSION NR: AP3005228 S/0089/63/015/002/0161/0163

AUTHORS: Sty*rikovich, M. A.; Marty*nova, O. I.; Katkovskaya, K. Ya.; Dubronskiy, I. Ya.; Mingulina, E. I.

TITLE: Analysis of distribution of aluminum hydroxide between water and saturated water vapor.

SOURCE: Atomnaya energiya, v. 15, no. 2, 1963, 161-163.

TOPIC TAGS: aluminum, aluminum hydroxide, atomic electrostation

ABSTRACT: Purity requirements for water vapor are much higher in atomic electrostations than in conventional thermal power installations. The products of corrosion may form hydroxides. The distribution of aluminum hydroxide between water and saturated water vapor at pressures 100 and 185 atm in a wide range of pH of the solution was experimentally determined in this work. The study confirmed the expectation that a considerable amount of aluminum hydroxide is transferred from water into the saturated vapor. The dependence of the true coefficient of aluminum hydroxide distribution was established. They correspond to a pH of the solution from 8 to 8.7. At higher or lower pH, the coefficient of distribution decreases sharply. Orig. art. has: 4 figures and 1 equation.

Card 1/2

ACCESSION NR: AP4042259 S/0089/64/017/001/0045/0049

AUTHORS: Sty*rikovich, M. A.; Marty*nova, O. I.; Katkovskaya, K. Ya.; Dobrovskiy, I. Ya.; Smirnova, I. N.

TITLE: Transition of iodine from aqueous solutions into saturated steam

SOURCE: Atomnaya energiya, v. 17, no. 1, 1964, 45-49

TOPIC TAGS: reactor fuel rod, reactor coolant, reactor inspection, reactor safety, iodine, radioactivation analysis

ABSTRACT: In view of the importance of monitoring the tightness of the cladding of rod and plate type fuel elements in water-water and boiling-water reactors, the authors consider the quantitative distribution of elementary iodine (used as a detector of the tightness of the cladding) and its hydrolysis product between boiling water and dry vapor in equilibrium with it at pressures 1.9, 4, and 10

Card 1/6

ACCESSION NR: AP4042259

kg/cm^2 at pH values from 5.5 to 11. The investigation was made by a bubbling method which is briefly described together with the apparatus employed. The results show that the fraction of the hydrolysis product at low concentrations ($<10^{-5}$--10^{-5} mole/liter) is practically equal to unity. At increased temperatures and increased steam density, HIO is produced and the coefficient of distribution of this acid between the boiling water and the steam is a power function of the ratio of the steam to liquid density. It is concluded that in evaporating equipment where the iodine concentration can exceed 10^{-4} mole per liter, the pH at room temperature must be kept in the interval 9.5--10 in order to prevent the iodine from being carried away from the water into the steam. When I^{131} is used as a monitor for fuel cladding element in boiling water reactors at pressures of 30 kg/cm^2 and above, the samples must be so taken as not to dilute them with steam, since the iodine content in the water exceeds that in the steam. Orig. art. has: 5 figures.

Card 2/6

ACCESSION NR: AP4042259

ASSOCIATION: None

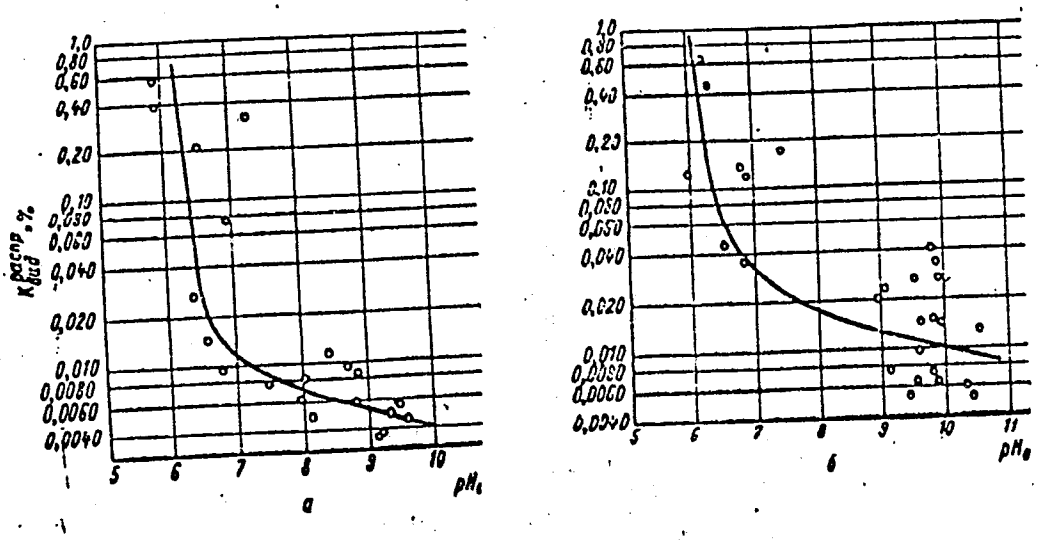
SUBMITTED: 22Jul63 ENCL: 03

SUB CODE: NP NR REF SOV: 005 OTHER: 002

Card 3/6

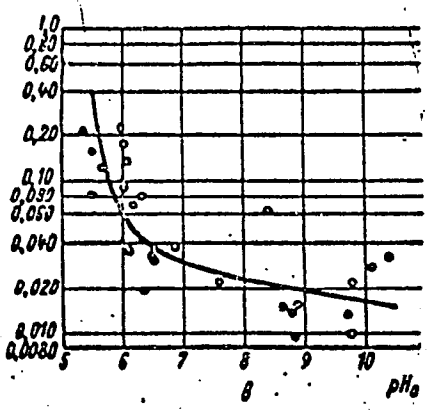
ENCLOSURE: 01

ACCESSION NR: AP4042259



Card 4/6

ACCESSION NR: AP4042259 ENCLOSURE: 02

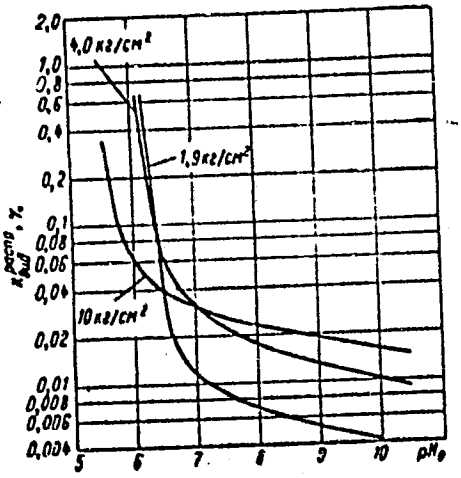


Dependence of iodine distribution coefficient on the pH at different pressures

Card 5/6

ACCESSION NR: AP4042259

ENCLOSURE: 03



Values of iodine distribution coefficient at low pressures

Card 6/6

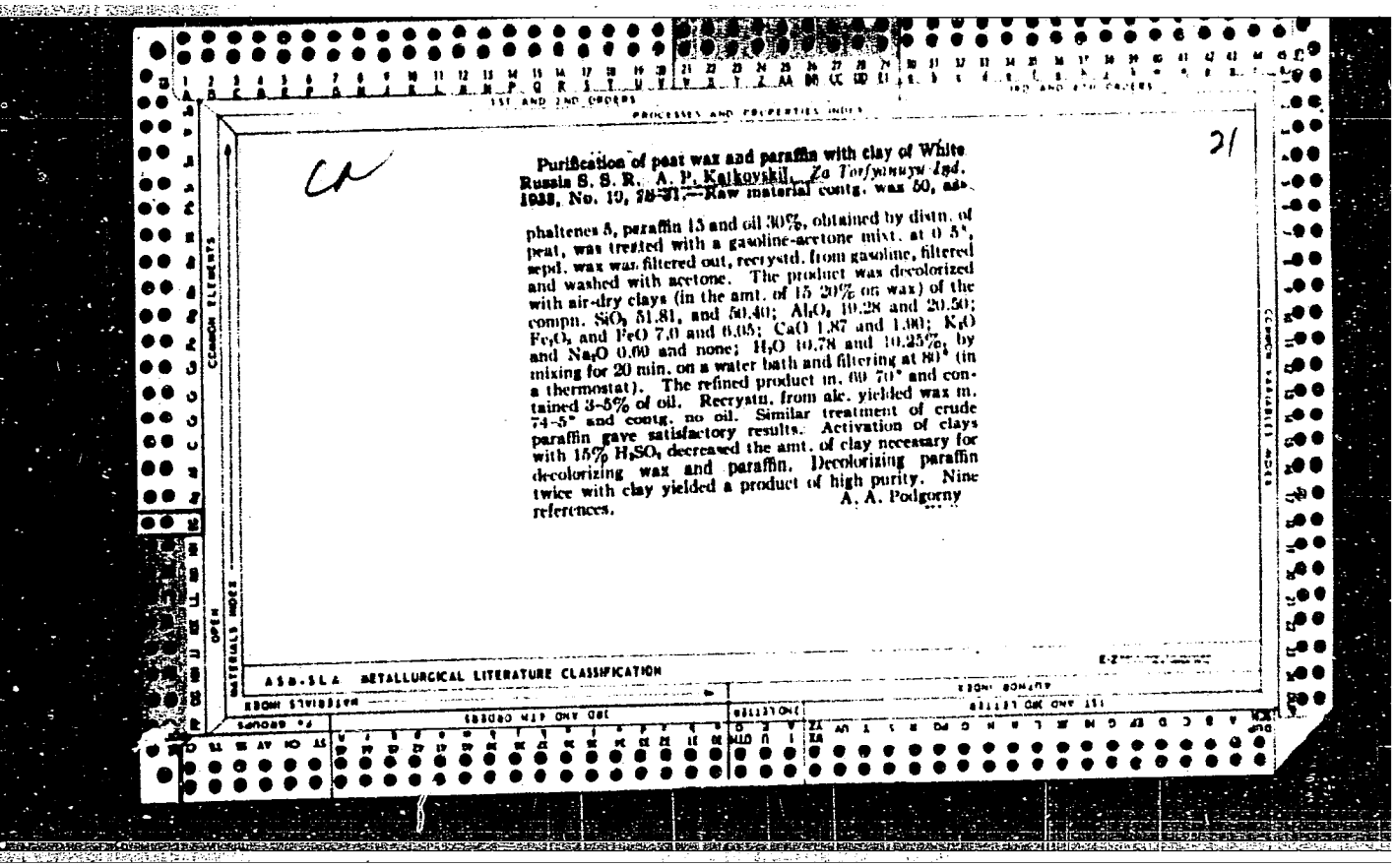
MARTYNOVA, O.I., doktor tekhn.nauk, prof.; KATKOVSKAYA, K.Ya., kand.tekhn.nauk; FEODOSEYCHUK, T.A., inzh.; VAYNEYKIS, A.A., inzh., dissertant; DUBROVSKIY, I.Ya., inzh.

Transition of ammonia from water solutions to saturated steam. Teploenergetika 12 no.10:75-79 O '65. (MIRA 18:10)

1. Moskovskiy energeticheskiy institut.

KATKOVSKIY, A., khudozhnik.

We call it Mishka. Tekh. mol. 26 no.1:20-22 '58. (MIRA 11:1)
(Helicopters--Jet propulsion)

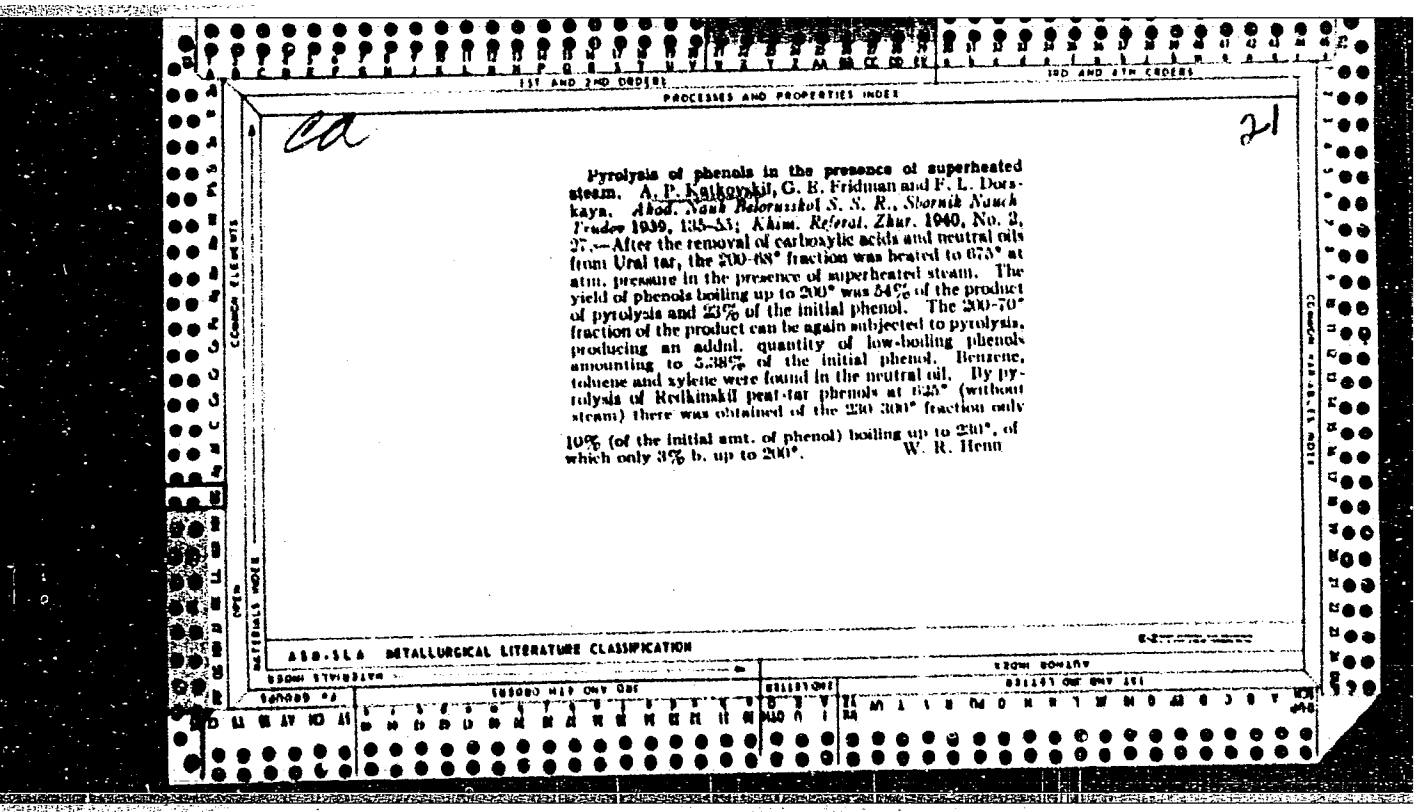


Purification of peat wax and paraffin with clay of White Russia S. S. R. A. P. Kaikovskii. *Za Torfyanuyu Ind.* 1938, No. 10, 28-31.—Raw material contg. wax 50, asphaltenes 5, paraffin 15 and oil 30%, obtained by distn. of peat, was treated with a gasoline-acetone mixt. at 0.5°, sepd. wax was filtered out, recrystd. from gasoline, filtered and washed with acetone. The product was decolorized with air-dry clays (in the amt. of 15-20% on wax) of the compn. SiO_2 51.81, and 50.40; Al_2O_3 10.28 and 20.50; Fe_2O_3 and FeO 7.0 and 0.05; CaO 1.87 and 1.80; K_2O and Na_2O 0.60 and none; H_2O 10.78 and 10.25%, by mixing for 20 min. on a water bath and filtering at 80° (in a thermostat). The refined product m. 69-70° and contained 3-5% of oil. Recrystn. from alc. yielded wax m. 74-5° and contg. no oil. Similar treatment of crude paraffin gave satisfactory results. Activation of clays with 15% H_2SO_4 decreased the amt. of clay necessary for decolorizing wax and paraffin. Decolorizing paraffin twice with clay yielded a product of high purity. Nine references.

A. A. Podgorny

21

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



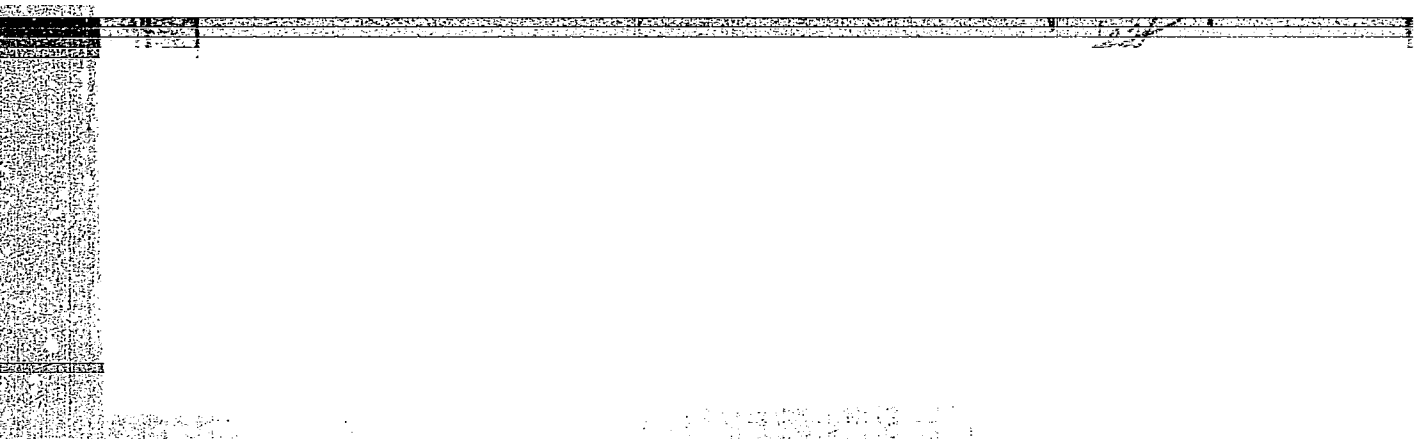
PROCESSES AND PROPERTIES INDEX

21

Pyrolysis of phenols in the presence of superheated steam. A. P. Kalkovskil, G. E. Fridman and F. L. Doskaya. *Abod. Nauk Belorusskol S. S. R., Sbornik Nauch Trudov* 1939, 135–53; *Khim. Referat. Zhur.* 1940, No. 3, 27.—After the removal of carboxylic acids and neutral oils from Ural tar, the 200–68° fraction was heated to 675° at atm. pressure in the presence of superheated steam. The yield of phenols boiling up to 200° was 54% of the product of pyrolysis and 23% of the initial phenol. The 200–70° fraction of the product can be again subjected to pyrolysis, producing an addnl. quantity of low-boiling phenols amounting to 5.38% of the initial phenol. Benzene, toluene and xylene were found in the neutral oil. By pyrolysis of Reikinskil peat-tar phenols at 625° (without steam) there was obtained of the 230 301° fraction only 10% (of the initial amt. of phenol) boiling up to 230°, of which only 3% b. up to 200°. W. R. Henn

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"



APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

Katkauski, A.P.

KATKOVSKIY, B. S.

ACCESSION NR: AT4042705 S/0000/63/000/000/0368/0371

AUTHOR: Myasnikov, A. L.; Akhrem-Akhremovich, R. M.; Kakurin, L. I.; Pushkar', Yu. T.; Mukharlyamov, N. M.; Georgiyevskiy, V. S.; Tokarev, Yu. N.; Senkevich, Yu. A.; Katkovskiy, B. S.; Kalinina, A. N.; Cherepakhin, M. A.; Chichkin, V. A.; Filosofov, V. K.; Shamrov, P. G.

TITLE: Effect of prolonged hypokinesia on blood circulation in man

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 368-371

TOPIC TAGS: isolation, prolonged isolation, isolation chamber, isolation affect, bioelectric activity

ABSTRACT: Four young men 22 to 24 were subjected to voluntary bedrest for a period of 20 days. Tests on pulse, arterial pressure, rate of blood flow, venous pressure, etc., were run before and after the completion of the experiment. These tests were performed at rest and after functional exercises (30 knee bends at the rate of one every 1.5 sec). During the period of bedrest, pulse frequency diminished on the average by 14 strokes per minute; the arterial pressure diminish-

Card 1/2

ACCESSION NR. AT4042705

ed by 11.2 mm of Hg. Stroke volume diminished on the average by 6 ml, while the minute rate of blood flow was reduced by 1.6 liters. After completion of the bed regime, pulse frequency rose by 18 to 34 strokes per minute, while systolic pressure and minute blood volume increased. Deep knee bends brought about characteristic increases in the pulse rate and changes in arterial pressure and phases of the cardiac cycle. The length of time required for these indices to return to normal increased from three minutes to seven minutes. It can be assumed that similar functional changes in the cardiovascular system will take place in man after his return to normal gravity following prolonged weightlessness.

ASSOCIATION: none

SUBMITTED: 27Sep63 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 00

Card 2/2

L 14272-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AT6003837 SOURCE CODE: UR/2865/65/004/000/0027/0030

AUTHOR: Georgiyevskiy, V. S.; Kakurin, L. I.; Kalinina, A. N.; Katkovskiy, B. S.; Kustov, V. V.; Mikhaylov, V. I.; Pilipyuk, Z. I.; Tokarev, Yu. N.

ORG: none

TITLE: Effects of eight-hour isolation and hypokinesia on several physiological and biochemical indices in man

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 27-30

TOPIC TAGS: isolation test, hypokinesia, test chamber, respiration, human physiology, biochemistry, man, EKG, blood pressure, blood circulation, physiologic parameter

ABSTRACT: A study was performed in order to determine the effects of short-term isolation and hypokinesia on the basic physiological and biochemical indices of man. Ten young men, 21—24 years of age, were kept for 8 hours in a sitting position in a hermetically sealed chamber with forced ventilation of atmospheric air. The oxygen content was 20—21%, and the CO_2 content was 0.01—0.03%. The temperature varied between 20—22° C and the relative humidy between 50—60%. The parameters measured included the

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standard EKG, pulse frequency, arterial blood pressure, stroke and minute volumes of blood circulation, peripheral resistance, and the cardiac index. In addition, the frequency, depth, and per minute volume of respiration were measured, along with oxygen consumption, the coefficient of oxygen utilization, the amount of oxygen consumed from 1 liter of air, the vital capacity of the lungs, and certain other indices.

After 8 hours of isolation and hypokinesia, the majority of the subjects showed a diminution in pulse frequency (16%), an insignificant increase in stroke volume (11%), a diminution in per minute volume, and an increase in peripheral circulatory resistance (23%). Except for a slight tendency to bradycardia, the EKG did not show any deviations. Although changes in the respiratory functions were varied, they did not exceed limits of normal physiological-variation, except for a tendency toward retardation of forced exhalation of air of about 0.5 sec. After physical exercise, oxygen debt in most of the subjects was cancelled somewhat sooner, while ventilation debt was cancelled more slowly. Energy expenditures required by physical exercise dropped after the experiment at the expense of a diminution in oxygen debt. The number of errors in psychological (intelligence) tests

L 14272-66

ACC NR: AT6003837

tended to increase toward the end of the experiment, indicating a certain degree of inertia in nervous processes. The amount of carboxyhemoglobin in the blood diminished from 1.48 ± 0.48 to 0.51 ± 0.26 after the experiment and, the catalyzing activity of the blood increased. Both of these changes were statistically significant. The cholinesterase activity of the blood serum diminished by 8.8%. No significant changes were noted in the urea content of the blood. At the same time, the amount of ammonia and urea in urine tended to diminish. In general, 8 hours of isolation and hypokinesia did not lead to any substantial functional shift in the human organism. Orig. art. has: 3 tables. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 002

Card 3/3

L 14266-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AT6003842 SOURCE CODE: UR/2865/65/004/000/0075/0079

AUTHOR: Kustov, V. V.; Mikhaylov, V. I.; Pilipyuk, Z. I.; Tokarev, Yu. N.; Georgiyevskiy, V. S.; Katkovskiy, B. S.; Kalinina, A. N.

ORG: none

TITLE: Changes in several physiological and biochemical indices in man after exposure to small concentrations of carbon monoxide

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 75-79

TOPIC TAGS: carbon monoxide, respiration, human physiology, test chamber, man, biochemistry, blood, central nervous system

ABSTRACT: Experiments were performed on young adult men in order to test the effects of carbon monoxide on certain biochemical indices. Each subject participated in an eight-hr background experiment (effect of hermetization) and an eight-hr experiment on the effects of carbon monoxide. A carbon monoxide concentration corresponds to the concentration of carbon monoxide exhaled by humans. The CO_2 concentration in the chamber did not exceed 0.6%, the air temperature was 18—22° C, the relative humid-

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ity was 50—60%. The catalyzing activity of the blood, the activity of cholinesterase in blood serum, and the carboxyhemoglobin content of blood were measured in all subjects before and after the experiment. In addition standard EKG, blood pressure, oxygen consumption, and oxygen utilization were also measured. The subjects were also given mathematical problems to solve.

After an exposure of six to seven hours, the subjects manifested certain functional shifts in the cardiovascular system and external respiration, and also an increase in errors in test performance. The P, R, and T points of the EKG showed a drop in voltage. The QRS complex tended to expand (sometimes accompanied by an increased heart rate). The number of errors in all arithmetic tests showed a substantial increase.

After an eight-hr exposure to carbon monoxide, the carboxyhemoglobin content of the blood increased from 0.66 ± 0.056% to 1.58 ± 0.43%. This was accompanied by a statistically significant increase in the cholinesterase activity of the blood serum. The catalyzing activity of the blood did not change.

L 14266-66

ACC NR: AT6003842

An analysis of the data obtained makes it possible to assume that the minute physiological shifts observed in man after exposure to carbon monoxide cannot be explained as simply the result of carbon monoxide hypoxemia, since the carboxyhemoglobin contant of the blood did not exceed 1.58%. It is felt that these changes are due to the effect of carbon monoxide on tissues and that this tissue effect must be taken into account in setting standards of permissiable concentration of carbon monoxide in the air of hermetically sealed chambers. Orig. art. has: 3 tables. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 004

PC

Card 3/3

ACC NR: AT6036517 SOURCE CODE: UR/0000/66/000/000/0095/0096

AUTHOR: Vasil'yev, V. K.; Katkovskiy, B. S.; Savvin, A. B.

ORG: none

TITLE: Mathematical modeling of the organism's O sub 2 requirement while performing physical work /Papor presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966./

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 95-96

TOPIC TAGS: mathematical model, oxygen consumption, biologic metabolism, biologic respiration

ABSTRACT: A mathematical model of a biological object can be constructed in a number of ways, one of which entails composing equations of relationships for individual elements in a system on the basis of physical, physical chemical, biochemical, and other laws. Here, the laws of biology and medicine provide a background. Another method involves analysis of input variables (affectors) and output variables (reactions) of a system. On the basis of such an analysis, a formal mathematical model can be arrived at which establishes a correlation between the input and output of a biological object. This method,

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ACC NR: AT6036517

widely known as the "black box method," is less capable of explaining processes taking place within an investigated object than the first method. However, the second method is of definite value for rating and prognosing the state of a biological system.

A mathematical model of human oxygen consumption was considered as constructed according to the black box method. An analysis of the oxygen regimen of the organism during standard, moderate physical exercise was conducted. The nature of the transition process of oxygen consumption was studied in response to closed physical work on an automatic "Belau" gas analyzer.

The process of oxygen consumption during physical exercise was represented by a second order differential equation. The process of recovery after completion of exercise was represented by another differential equation, since oxygen consumption curves during and after exercise differed in nature. An attempt was made to link coefficients of the recovery equation with the character of oxygen consumption processes during exercise.

The proposed mathematical model yields a solution which agrees well with the results of an experimental investigation. This permits it to be

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ACC NR: AT6036517

used for the quantitative appraisal of the oxygen regimen of an organism. Upon further perfection, this model can be used to rate the general physical condition of the human organism under actual spaceflight conditions and as a basis for life support requirements. [N. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

BOZINSKIY, A.P.; BRITAYEV, M.D.; KOMISSAROV, A.K.; KATKOVSKIY, G.S.; SKDOVA, V.I.; SHCHERBAKOV, A.V.; KREYTER, V.M., glavnyy red.; SHATALOV, Ye.T., zamestitel' glavnogo red.; YEROFEYEV, B.N., red.; ZENKOV, D.A., red.; KRASNIKOV, V.I., red.; NIFONTOV, P.V., red.; SMIRNOV, V.I., red.; KHRUSHCHOV, N.A., red.; YAKZHIN, A.A., red.; OVCHINNIKOVA, S.V., red. izd-va; AVERKIYEVA, T.A., tekhn. red.

[Prospecting for gold ore deposits] Razvedka zolotorudnykh mestorozhdenii. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1957. 103 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut mineral'nogo syria. Metodicheskie ukazaniia po proizvodstvu geologo-razvedochnykh rabot, no.1). (MIRA 11:1)
(Gold ores) (Prospecting)

ACCESSION NR: AT4042705 S/0000/63/000/000/0368/0371

AUTHOR: Myasnikov, A. L.; Akhrem-Akhremovich, R. M.; Kakurin, L. I.; Pushkar', Yu. T.; Mukharlyamov, N. M.; Georgiyevskiy, V. S.; Tokarev, Yu. N.; Senkevich, Yu. A.; Katkovskiy, B. S.; Kalinina, A. N.; Cherepakhin, M. A.; Chichkin, V. A.; Filosofov, V. K.; Shamrov, P. G.

TITLE: Effect of prolonged hypokinesia on blood circulation in man

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 368-371

TOPIC TAGS: isolation, prolonged isolation, isolation chamber, isolation effect, bioelectric activity

ABSTRACT: Four young men 22 to 24 were subjected to voluntary bedrest for a period of 20 days. Tests on pulse, arterial pressure, rate of blood flow, venous pressure, etc., were run before and after the completion of the experiment. These tests were performed at rest and after functional exercises (30 knee bends at the rate of one every 1.5 sec). During the period of bedrest, pulse frequency diminished on the average by 14 strokes per minute; the arterial pressure diminish-

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KATKOVSKIY, B. S.

ACCESSION NR: AT4042683 S/0000/63/000/000/0226/0229

AUTHOR: Kakurin, L. I.; Katkovskiy, V. S.; Kozlov, A.N.; Mukharlyamov, N. M.

TITLE: Effect of hypokinesia on work capacity in man

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 226-229

TOPIC TAGS: hypokinesia, adynamia, work capacity, human energy expenditure, oxygen consumption

ABSTRACT: Experiments were performed to determine the effects of a prolonged limitation of motor activity on the physical work capability of man. Four healthy male adults, 21 to 24 years of age, were subjected to strict bed-rest for a period of twenty days. A strictly horizontal position was maintained even during meals. Physical work performed was measured at the beginning and after the completion of the experiment by having the subjects step up on a 25-cm step 100 times during a five-minute period. Oxygen consumption and certain other indices of respiratory functions were measured before, during, and after the bed-rest experiment.

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ACCESSION NR: AT4042683

Results of the experiment showed that oxygen consumption (an index of energy expenditure) rose from an initial level of 3372 ml up to 4433 ml on the first day after the experiment. This represents an increase of 31.4%. Oxygen consumption reached initial levels only on the tenth day after the conclusion of the experiment. A twenty-day bedrest induces a significant deterioration of the physical work capacity of man, which, apparently, is related partly to hypodynamia and partly to the adaptation of the organism to the horizontal position of the body. The increase in the amount of energy required to perform work after bedrest imposes a significantly greater load on the cardiovascular and respiratory systems.

ASSOCIATION: none

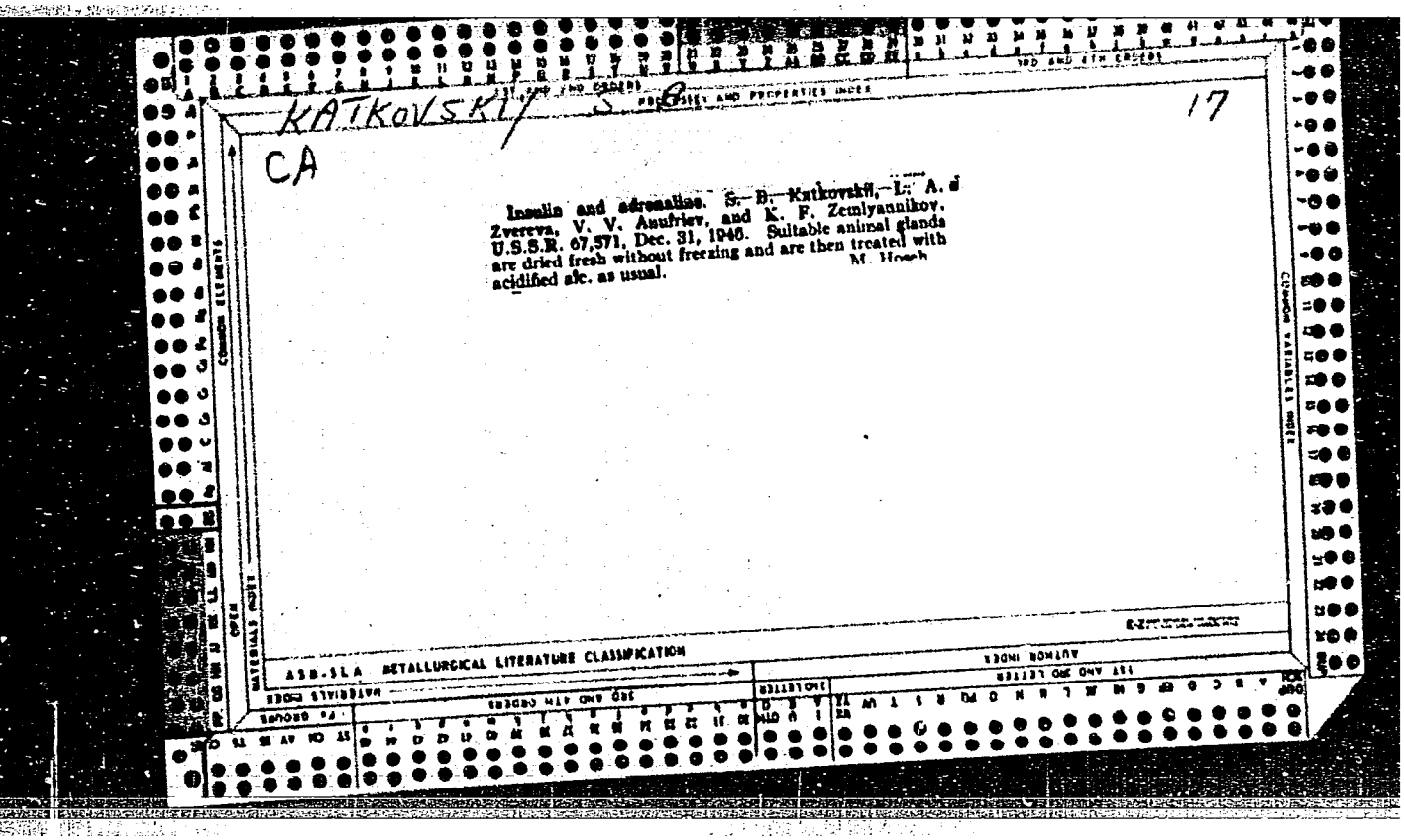
SUBMITTED: 27Sep63 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 000

Card 2/2

KATKOVSKIY, S.

Brief technique of organ extract preparation. Moskva , Pishcheprom.izdat, 1944. 112 p.



KATKOVSKI

17

CA

Insulin and adrenalins. S. B. Katkovskii, L. A. Zvereva, V. V. Anufriev, and K. F. Zemlyannikov. U.S.S.R. 67,571, Dec. 31, 1946. Suitable animal glands are dried fresh without freezing and are then treated with acidified alc. as usual.

M. Hoseh

KATKOVSKIY, S.B.; SHVARTS, S.I.

Relation of zinc and insulin content to conditions of crystallization. Probl. endok. i gorm. 6 no. 3:83-85 My-Je '60. (MIRA 14:1)
(INSULIN) (ZINC)

KATKOVSKIY, S.; SHVARTS, S.

New techniques for producing crystalline insulin. Mias. ind. SSSR 32 no.1:52-55 '61. (MIRA 14:7)

1. Vsesoyuznyy institut eksperimental'noy endokrinologii.
(INSULIN)

KATKOVSKIY, S.; SHVARTS, S.; NEDOBORA, A.; MDIVNISHVILI, O.

Use of diathomites in the production of insulin. Mias. ind. SSSR 34 no.5:48-50 '63. (MIRA 16:11)

1. Vsesoyuznyy institut eksperimental'noy endokrinologii (for Katkovskiy, Shvarts, Nedobora). 2. Kavkazskiy institut mineral'nogo syr'ya (for Mdivnishvili).

KATLAP, Manfred Ansovich [Katlaps, M.]; TEYTEL'BAUM, A., red.; BOKMAN,R., tekhn. red.

[Sheep breeding in the Latvian S.S.R. and ways for increasing its productivity] Sostoianie ovtsevodstva v Latviiskoi SSR i puti povysheniia ego produktivnosti. Riga, Izd-vo Akad.nauk Latviiskoi SSR, 1956. 133 p. (MIRA 14:12)
(Latvia--Sheep breeding)

KATLAPS, K.K.

Treatment of scapulohumeral periarthritis with peri- and intra-articular hydrocortisone injections. Sbor. nauch. rab. vrach. san.-kur. uchr. profsoiuzov no.1:178-181 '64. (MIRA 18:10)

1. Sanatoriy "Latviya".

BENUA, F.F., kandidat tekhnicheskikh nauk, dotsent; Katler, A.I., inzhener.

Automatic, slag-shielded arc welding with high current density for steel parts with large cross sections. Avtog.delo 24 no.5:17-19 My '53. (MLRA 6:5)

1. Laboratoriya svarki Leningradskogo instituta inzhenerov vodnogo transporta. (Electric welding)

KATLER A.I.

HENUA, F.F., dotsent, kandidat tekhnicheskikh nauk; KATLER, A.I., inzhener

Automatic submerged-arc welding of steel sheets in the downhand position. Svar. proizv. no.7:1-4 Jl '55. (MLRA 8:9)

1. Laboratoriya svarki Leningradskogo Instituta inzhenerov vodnogo transporta. (Steel—Welding)

KATLER, A.I

137-58-2-3040

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 115 (USSR)

AUTHOR: Katler, A.I.

TITLE: An Investigation of Stable Regimes of Slag Welding and the Conditions for the Appearance and Extinction of the Arc in the Melt (Issledovaniye ustoychivykh rezhimov shlakovoy svarki i usloviy vozniknoveniya i gasheniya dugi v rasplave)

PERIODICAL: Tr. Leningr. in-ta inz vodn. transp., 1957, Nr 24, 133-141

ABSTRACT: The effect of the welding current, the voltage in the bath, the depth of the layer of fused slag (S), the diameter of the electrode wire, and the non-immersed length upon the transition of a slag process to the arc stage are experimentally established. The experiments were run with a single-electrode AC welder. The data obtained make it possible to establish the most practicable slag-welding schedules and permit a study of phenomena related to the appearance and extinction of the arc in the fused S. As indicated by the calculated and experimental data, the cause of transition from the arc to the slag process and vice versa is the intensive effervescence of the S, which is explosive in character. The function of the shunt resistance of the liquid S resolves itself to a heating of the S, as this facilitates effervescence of the arcing bubble. Propeller shafts for ships and crankshafts for steam engines were welded in accordance with the data obtained on the stable S process. A.N.

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1. Arc welding--Slag factors 2. Arc welding--Analysis

BENUA, Fedor Frantsevich,; KATLER, Anna Izrailevna,; SAGALOVICH, D.N., otv. red.; KUSKOVA, A.I., red.; SHISHKOVA, L.M., tekhn. red.

[Automatic submerged-arc welding in shipbuilding and ship repair] Avtomaticheskaia vannoshlakovaia svarka v sudostroenii i sudoremonte. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl. 1958. 127 p. (MIRA 11:10)

(Electric welding)
(Shipbuilding)
(Ships--Maintenance and repair)

KATLEK, A. I.

135-58-5-1/17

AUTHORS: Benua, F.F., Candidate of Technical Sciences, Vologdin, I.V., Engineer and Katler, A.I., Candidate of Technical Sciences.

TITLE: Study of the Effect of Vibration on the Crystallization and Structure of Metal Welded-on by the Slag-Bath Method (Issledovaniye vliyaniya vibratsii na protsess kristallizatsii i strukturu naplavlennogo metalla pri vanno-shlakovoy svarke)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 5, pp 1-5 (USSR)

ABSTRACT: The problem of preventing hot cracks and obtaining fine-grained equiaxial structures of weld metal in electric slag welding processes is only partially solved. The data provided by different investigators [Ref. 1 - 8] indicates that the effect of vibration on the crystallization process depends on the frequency of vibration. Other investigations [Ref. 9 - 11] confirmed the assumption. In 1956-57, the authors of this article carried out experiments with vibration frequencies of 25 to 50 cycles/sec. The techniques and results are given in detail. The vibration device is described and shown in a schematic drawing. The results of the experiments indicate that vibration in a low-frequency range

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Study of the Effect of Vibration on the Crystallization and Structure of Metal Welded-on by the Slag-Bath Method

of 1,500 to 2,000 cycles/min, applied to the weld metal during the entire crystallization period, breaks large dendrites into small. Differently directed, it compresses the metal, reduces the size of grains, and essentially increases impact resistance.
There are 5 figures, 2 tables and 12 references, 11 of which are Soviet and 1 English.

ASSOCIATION: Leningradskiy institut inzhenerov vodnogo transporta (Leningrad Water-Transport Engineering Institute)

AVAILABLE: Library of Congress

Card 2/2

S/125/60/000/010/003/015
A161/A133

1.2300 also 1573

AUTHORS: Benua, F.F., Katler, A.I.

TITLE: Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 10, pp. 19-22

TEXT: The automatic slag welding process with plate electrodes is often used for the welding of parts with large cross sections but since the weld metal has a coarse dendritic structure it requires heat treatment. In experiments carried out at the Laboratoriya svarki МРФ (the MRF Welding Laboratory) in 1954-1958, it was discovered that the metal structure can be improved and the heat treatment after welding eliminated by using an additional filler metal in the pool, or low-frequency vibration. An installation for welding with two plate electrodes (Fig.1) is described. During the operation, the vibrator motor transmits vertical reciprocating movements to head (4) the plate electrodes (5). The material welded in the MRF Welding Laboratory experiments was round rolled СТ3 (St.3) steel bar 85 mm in diameter, two 8x35 mm

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S/125/60/000/010/003/015
A161/A133

Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

electrodes and the filler metal. АН- 348А (AN-348A) flux was used for the slag pool; two СТЭ-34 (STE-34) welding transformers were connected into open delta. The electrode plates only were fed into the welding zone in the initial period of the process (0.5-1.5 min), and the electrode and filler plates together during the whole process. A steady 550 amp and 32 volt current was maintained throughout the process. The vibration accelerated the transfer of metal drops 1.5 times. The authors arrive at the following conclusion: 1) Vibration (of 50 cps and 1.8 mm amplitude) of the plate electrodes increased the productivity of the process and the melting rate by 45% and reduced the consumption of electric power by 32%; 2) Vibration reduces the process costs owing to a more frequent transfer of metal drops from the electrodes; 3) An addition of filler metal in proper quantities into the pool during the welding process, doubles the efficiency and cuts the electric power consumption by 50%. There are 3 figures and 3 Soviet-bloc references.

Card 2/5

S/125/60/000/010/003/015
A161/A133

Technological and Economic Factors of the Melting Process in Automatic Electro-Slag Welding With Plate Electrodes

ASSOCIATIONS: Bazovaya nauchno-issledovatel'skaya laboratoriya svarki MRF (The MRF Base Welding Research Laboratory

SUBMITTED: March 16, 1960

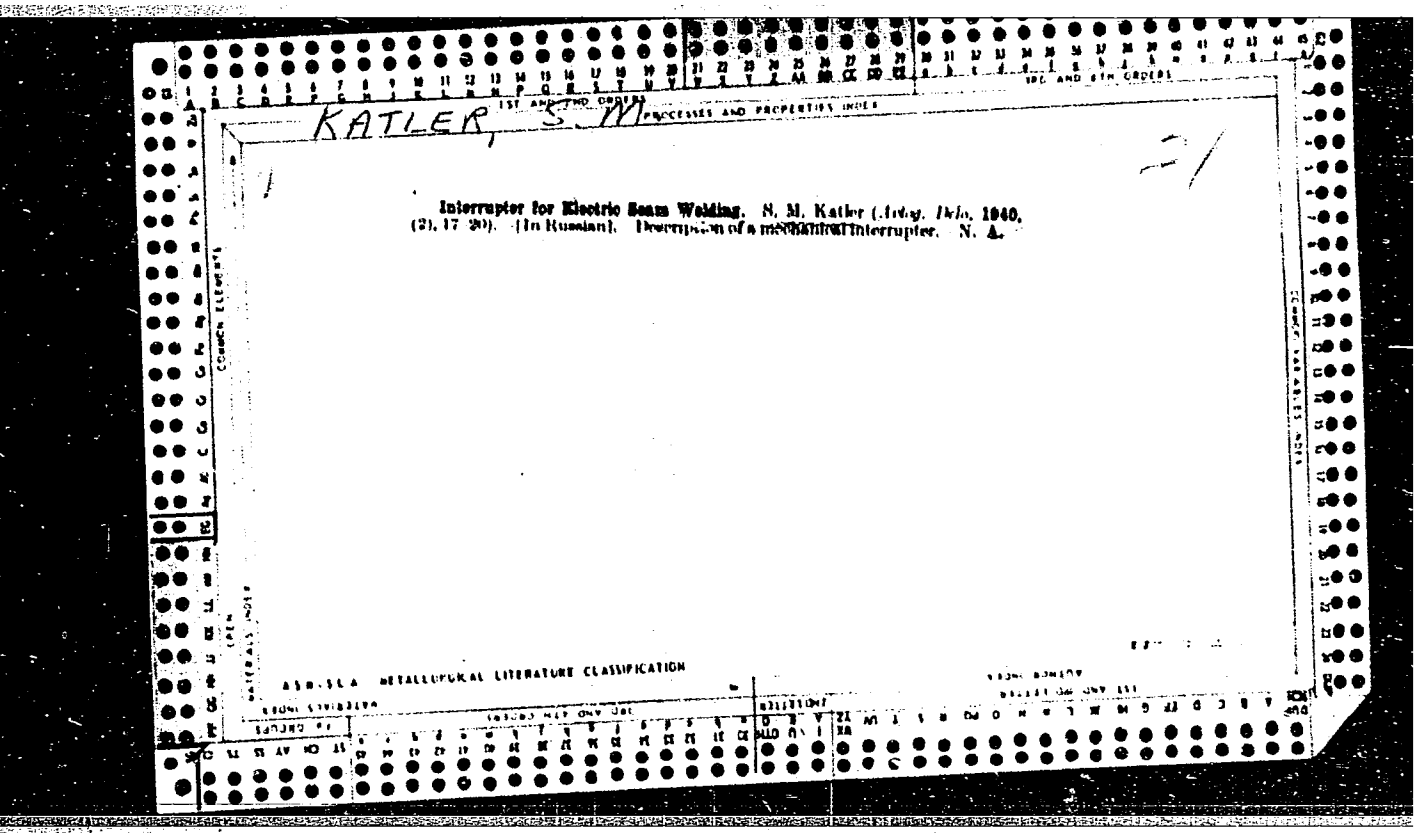
Card 3/5

BENUA, F.F.; DUKOR, Z.G.; KLYUSHENKOV, I.S.; KONSTANTINOV, V.P.; KATLER, A.I.; MAYKOV, N.K.; PRAYSMAN, A.D.; SERGEYEV, V.I.; TRUFANOV, V.G.; FEDOROV, V.F.; FRUMIN, S.R.; CHERTKOV, Kh.A.; SHIBANOV, B.V.; VATASHKINA, S.A., red.izd-va; CHERNOV, M.I., red.; BODROVA, V.A., tekhn. red.

[Handbook on ship repairs in two volumes] Spravochnik po remontu sudov v dvukh tomakh. Pod obshchei red. M.I.Chernova. Moskva, Izd-vo "Rechnoi transport." Vol.2. 1963. 600 p. (Ships--Maintenance and repair) (MIRA 16:9)

KATLER, A.I., kand. tekhn. nauk

Reconditioning cylindrical steel parts by thin-layer build-up welding. Trudy LIVT no.80:12-16 '65. (MIRA 18:10)



KATLER, S. M.

Interrupter for Electric Beam Welding. S. M. Katler (Avtog. Delo, 1940, (2), 17-20). (In Russian). Description of a mechanical interrupter. N. A.

SOV/137-57-6-10363 D

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 6, p 137 (USSR)

AUTHOR: Katler, S.M.

TITLE: An Investigation of Conditions Prevailing During Fusion of Electrode Rods Employed in Arc Welding at Normal and Increased Current Densities (Issledovaniye usloviy rasplavleniya elektrodnoy provoloki pri dugovoy svarke na normal'nykh i povyshennykh plotnostyakh toka)

ABSTRACT: Author's dissertation for the degree of Candidate of Technical Sciences, presented to the Leningr. politekhn. in-t (Leningrad Polytechnic Institute), Leningrad, 1956. The following topics were studied experimentally: 1) Fusion characteristics (C) of electrode rods (ER), and 2) electrical C of the arc core in the immediate vicinity of the electrodes (investigated with the aid of fusible probes). The computation of the fusion C of ER is based on the assumption that the heat of the arc is transmitted to the electrode (E) through an area occupied by the active zone of the arc. The dependence of the coefficient of fusion of the ER on the magnitude of current is presented in the form of experimental evidence for certain instances when the active zone of the arc occupies the tip surface of an ER

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An Investigation of Conditions Prevailing During Fusion (cont.)

completely or only partially or when it is narrowed down. It is shown that in the latter case the potential existing between a probe and the article, as well as between two probes which have been introduced into the arc, is independent of the current I. The author concludes that changes in the arc potential which accompany corresponding changes in I are brought about only be the portion of the arc in the immediate vicinity of the E. As the current density is decreased (the active zone occupies a portion of the tip surface of the E) the potential at any segment of the arc, and on the arc as a whole, is independent of the I (this statement pertains to voltage and current values during a half-period). If the active zone is not narrowed down, the potential on a section of the arc adjoining the E is independent of the I; in the case of a narrowed-down active zone the potential increases with increasing magnitudes of I. A simplified analysis of the phenomena occurring in the immediate vicinity of the E is carried out on the basis of fusion characteristics and the energy-balance equations. The quantity of work connected with the yield of Fe, as determined by the author, closely approaches an analogous value which was obtained under vacuum and which may be found in technical publications. A.N.

ASSOCIATION: Leningr. politekhn. in-t (Leningrad Polytechnic Institute), Leningrad

KATLER, S.M.

LYUBAVSKIY, K.V., prof., doktor tekhn.nauk, otvetstvennyy red.; ZVEGINTSEVA, K.V., inzh., red.; KATLER, S.M., kand.tekhn.nauk, red.; TYUL'KOV, M.D., kand.tekhn.nauk, red.; PETROV, A.V., kand.tekhn.nauk, red.

[Gas-shielded arc welding; papers at the All-Union Scientific Conference on Gas-Shielded Welding] Voprosy dugovoi svarki v zashchitnykh gazakh; doklady k Vsesoiuznomu nauchno-tekhnicheskomu soveshchaniiu po svarke v zashchitnykh gazakh. Moskva, 1957. 250 p. (MIRA 11:5)

1. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Sektsiya svarki metallov.
(Electric welding) (Protective atmospheres)

KATLER, S. M. (Candidate of Technical Sciences)

""Equipment for Argon-Arc Welding with Tungsten Electrodes of Aluminium Alloys,"

paper presented at All-Union Scientific-Technical Conference on Welding in Shielding Gases, LEningrad, Dec 1957.

(Svarochnoye Proizvodstvo, 1958, No. 4, pp 46-47 - author Tyul'kov, M. D.)

KATLER, S.M.

AUTHOR: Kondratovich, V.M., Engineer 135-58-6-6/19

TITLE: All-Union Conference on Prospects and Trends of the Development of Electric Welding Equipment in the USSR from 1959-1965 (Vsesoyuznoye soveshchaniye po perspektivam i napravleniyu razvitiya elektrosvarochnogo oborudovaniya v SSSR na 1959-1965 gg)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 6, pp 13-17 (USSR)

ABSTRACT: The conference was organized by VNIIESO, and convened from 3 to 5 February 1958 in Leningrad. N.Ya. Kochanovskiy (VNIIESO) made a report (published separately in this copy of periodical, pp 1-7) on the planned development of the production of welding equipment in 1959-1965. P.M. Sevbo of the Institut elektrosvarki imeni Ye.O. Patona (Welding Institute imeni Paton) reported on the work of his institute, pointing out that it is capable to satisfy only 10% of requirements of the industry. The institute is now operating a small plant in Kiyev and will be able to double its production. The Kiyev Sovnarkhoz has decided to have one more plant specialize in welding equipment, and to build one plant near Kiyev for the production of special heavy equipment for electric slag, arc and contact welding. Candidate of Technic-

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All-Union Conference on Prospects and Trends of the Development of Electric Welding Equipment in the USSR from 1959-1965

al Sciences, S.M. Katler, (VNIIESO), made a report on the tasks of producing arc welding equipment and described the work accomplished by VNIIESO. He mentioned a new installation for argon-arc welding aluminum alloys with a non-fusing electrode, "UDAR-300", designed jointly by the VNIIESO and the laboratory headed by L.A. Mordvintsev (Engineers Lemarin'ye and Belyy participated in this work), production of which is under way at the plant "Elektrik". Engineer A.D. Shapiro told of the development of the Vil'nyusskiy zavod elektrosvarochnogo oborudovaniya (Vil'nyus Electric Welding Equipment Plant) which is now one of the main manufacturers of such equipment in the country. The plant's planned production of welding transformers is indicated in table 1. The following persons participated in the discussions: G.A. Maslov, (NIAT) ("Outlook of Electric Welding Development in Aviation Industry"); Engineer K.V. Vasil'yev (VNIIAvtogen) (this report is printed separately in this copy of periodical, pp 12-13); Professor A.S. Gel'man (TsNIITMASh) ("The Needs of the Heavy Machine

18(5) SOV/135-59-8-1/24

AUTHORS: Kochanovskiy, N.Ya., Candidate of Technical Sciences, Feder, Ye.S., Engineer, and Katler, S.M., Candidate of Technical Sciences

TITLE: Welding With Electric Arc Rotating in the Magnetic Field

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 8, pp 1-4 (USSR)

ABSTRACT: The fact that the electric arc rotates in a magnetic field has repeatedly been examined in regard to its utilization for practical purposes in several technical fields. It was found in these investigations that the electric arc is stable only if the spot on the cathode, which is the center of the rotation, remains immovable. The immovability of one of the active spots of the rotating arc limited its practical applicability for welding. In the Scientific Research Institute for Electric Welding Equipment welding devices were developed which had electric arcs with active anode and cathode spots rotating in the magnetic field. As investigations showed the electric arc, of which both

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active spots are rotating, can be produced either between the two parts that are to be welded or between the work piece and an auxiliary electrode. In the first case the two parts, for instance the two pipes 1 and 1' (Figure 1), and the field coils 2 and 2' are arranged coaxially. The coils cause magnetic currents which are inversed and therefore create a radial magnetic field in the gap between the pipes. The axes of the arc and consequently that of the arc current coincide in their direction with the axes of the pipes. The interaction of the axial current of the arc and the radial intensity of the magnetic field create a force which is applied to the arc. The force which is directed tangentially produces a rotating movement of the arc and evenly heats the rims of the pipes. Visually an uninterrupted ring of glowing plasma may be seen. When the welding temperature is reached, the pipes are pressed together. In the second case, the pipes, the copper ring, and the field coils are arranged coaxially. The ring is cooled with

water which is following through the channel (4). The electric arc is produced between the inner surface of the ring (2) and the rims of the pipes. The arc current has radial direction and the magnetic field in the gap between the ring and the pipe's axial direction. From the interaction between the radial arc current and the axial field of given intensity a force results, which is called R_1. Under the influence of this force the arc starts turning and the rims of the pipes are heated. The pipes are pressed together until the necessary temperature is reached. Thin-walled pipes may be welded without pressing. The following part of the article describes in detail: the use of the rotating arc if it burns between the two parts which are to be welded; the heating of the pipe rims; the heating of the rims to the welding temperature and the subsequent pressing; the heating of the front sides of round workpieces with compact section to the welding temperature; the use of a rotating arc burning between the workpiece and an auxiliary electrode.

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The author comes to the following conclusions: A new method of welding with an electric arc was developed, in which the arc rotates in a magnetic field. This method id distinguished by a simultaneous movement of the anode and the cathode spots. The application of this method makes it unnecessary to use welding heads and burners which have to be moved along the seam, and this makes it much easier to automate the process, especially in places which are narrow and hard to reach. The rotating electric arc makes it possible to weld clumsy seams of pipes with big diameters and thick walls, of workpieces with compact section, of side connections, and of workpieces with other profiles, such as round sections. The welding method can be used for sheet iron, non-ferrous metals, and alloys, applying gas shielding where it it necessary. Welding with electric arc, which is rotating, makes it possible to use feeders of relatively low power. Further research in the new welding process should go in

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the direction of utilizing the arc not only on the periphery of the magnetic field but also inside. There are 7 photographs, 2 tables, 2 diagrams and 5 references, 3 of which are Soviet and 2 English.

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AUTHORS: Katler, S. M., Engineer, Sinikov, V. A., Engineer

TITLE: Automatic Steel Welding (Fusion) by Electrode Copper Wire

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 3, pp. 3-6

TEXT: Characteristics of electrode copper wire fusion, geometrical parameters of fusion-welded layers, properties of Fe-Cu filler metal formed by welding (fusion) and possibilities of its practical use are given. Tests were carried out by an improved АДС-1000-2 (ADS-1000-2) automatic welding machine with an ОСЦ-45 (OSTs-45) flux and 2 mm М3 (M3) electrode copper wires. The influence of the current and arc voltage on the electrode copper wire fusion was tested on a filler rod at a rate of 15 m/h, and 30, 35 and 40 arc voltage. The results showing the reciprocal polarity (dotted line) and straight polarity (full line) are given in Figures 1 and 2. Variations of 30-60 mm in the throat depth of the electrode had no effect on the melting capacity of the wire due to its low specific resistance. On low-carbon steel fusion-welded 8-20 mm layers provided data on the influence of the current, arc voltage and filler rod rate on their geometric parameters. The influence of filler rod rate on the shape of fusion-welded layers at varying

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Automatic Steel Welding (Fusion) by Electrode Copper Wire

current values and optimum arc voltages are shown in Figure 3. Figure 4 shows the dependence of the amount of basic metal (steel) in the seam on current, arc voltage and filler rod rate. During tests this amount varied from 5-70 %. Low-copper-content layers could not be obtained with electrode copper wires. The homogeneity of the Fe-Cu alloy was examined by determining the copper content at three points of the seam cross section. A chemical analysis of 14 samples containing 1.5-95 % copper showed that its content in these three points did not differ by more than 4 %. The table on Page 4 shows the copper content based on chemical analysis and macrosection. Maximum hardness was registered in alloys containing 10 % copper (Fig. 5). Electric conductivity of the alloy was determined on samples containing 55-97 % of copper and its dependence on the latter is shown in Figure 6. Tensile strength and flexion angle were tested on samples cut out from copper butt-welded steel disks. The tensile strength determined on flat samples according to ГОСТ6996-54 (GOST 6996-54) at 80 % of copper was 46-48 kg/mm^2 and at 60 % of copper 70-72 kg/mm^2. A fractured sample consisting of several parallel seams and containing 75-80 % copper is shown in the lower part of Figure 7. The fracture occurred in the basic metal. The flexion angle of samples con-

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taining 80 % copper was 180°. Two of these samples are shown in the upper part of Figure 7. At a 60 % copper content the flexion angle did not exceed 120°. Corrosion tests performed on samples exposed to sea water for 10 months showed no corrosion on fusion-welded layers containing 80-93 % copper (Figure 8). Electrode copper wire can be used for welding of low-carbon steel of sufficient thickness, e.g., in production of closed parts operating in alternative magnetic fields with safe limit temperatures. √ Fe-Cu alloys containing no more than 10 % Cu fusion-welded on steel surfaces can increase the wear resistance of abrasive strain-subjected surfaces. High corrosion-resistance of alloys containing no less than 80 % of Cu renders them suitable for surfacing of faucets, valves, flanges, etc. Figure 9 shows fusion-welded copper-steel collector bars of a ПС-300 (PS-300) welding converter and Figure 10 a copper-steel contact-plate with reinforced copper ribs. There are 10 figures and 2 Soviet references.

ASSOCIATION: VNIIESO (All-Union Scientific Research Institute of Electric Welding Equipment)

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KOCANOVSKIJ [Kochanovskiy], kand.tehn. nauka; FEDER, inzenjer; KATLER, S.M., kand.tehn.nauka; KATALINIC-UDOVCIC, Palma, prof. (Zagreb)

Welding with electric arc which is rotating in magnetic field. Zavarivanje 4 no.7:138-142 S '61.

1. Visoka tehnicka skola u Zagrebu, Zagreb (for Katalinic-Udovcic).

ACCESSION NR: AP4013291 S/0135/64/000/002/0011/0014

AUTHORS: Katler, S. M. (Candidate of technical sciences); Bokshteyn, R. L. (Engineer)

TITLE: Welding of pipes to pipe boards with a cylindrical arc regulated by a magnetic field

SOURCE: Svarochnoye proizvodstvo, no. 2, 1964, 11-14

TOPIC TAGS: welding, pipe welding, arc welding, cylindrical arc, magnetic welding regulation, steel welding, 1Kh18N9T steel, argon arc welding, ring electrode

ABSTRACT: The article presents the results obtained in the experimental welding of pipes to pipe-boards by the procedure developed at the VNIIESO. This method involved using an annular arc under argon, with the anode and cathode points rotating in a magnetic field. The arc was activated between the welded object and an infusible electrode shaped to fit the object being welded (in this case a ring). The electrode was cooled by running water. The pipes were 6, 15, 28 and 29 mm in diameter and varied from 1 to 2 mm in thickness. They were welded to the boards

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ACCESSION NR: AP4013291

10 mm thick made of steel 1Kh18N9T. It was established that: 1) best results were obtained when current was delivered in pulses and the arc was reversed during each pulse; 2) the optimal length of the pipe-end projecting above the board was 0.2-0.5 mm for pipe diameter 6 mm, 0.5-1 mm for 15 and 28 mm diameters, and 0.5-1.5 mm for 29 mm diameter; 3) the optimal clearance between the pipe (29 mm in diameter) and the opening in the pipe-board was 1 mm; 4) the optimal electrode diameter for welding with an annular groove was 28-29 mm (for 29 mm pipes) and 31 mm for welding without encircling grooves. "Engineer A. I. Zakrzhevskiy participated in the experimental work." Orig. art. has: 5 tables and 6 figures.

ASSOCIATION: VNIIESO

SUBMITTED: 00 DATE ACQ: 26Feb64 ENCL: 00

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

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L 40316-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) JD/HW

ACC NR: AP6005335 SOURCE CODE: UR/0413/66/000/001/0072/0072

INVENTOR: Katler, S. M.; Alekseyev, Yu. Ye.; Belinskiy, S. M.; Temkin, B. Ya.

ORG: none

TITLE: Device for activation and maintenance of an a-c welding arc. Class 21, No. 177574 [announced by the All-Union Scientific Research Institute for Electric Welding Equipment (Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudo aniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 72

TOPIC TAGS: ~~arc activation~~, arc welding ~~arc~~, ~~arc maintenance~~, ~~arc~~ welding arc equipment

ABSTRACT: An Author Certificate has been issued describing a device for activating and maintaining an a-c arc generating one pulse per cycle or half cycle of voltage from the welding-arc power source; it also contains a storage battery, a commutator, a control block. In order to phase the pulse against the shape of the voltage curve on the

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arc gap, the control block contains a series-connected resistor-bridged capacitor, a resistor, and a unilaterally conducting element all connected in parallel to the arc gap, with the commutator input circuit connected in parallel to the element. A grid circuit and a thyratron cathode serve as the unilaterally conducting element (see Fig. 1). Orig. art. has: 1 figure.

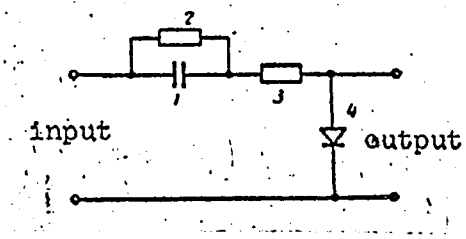

Fig. 1. Device for activation and maintenance of an a-c welding arc. 1— capacitor; 2—resistor bridge; 3—resistor; 4— unilateral conducting element

[LD]

SUB CODE: 13/ SUBM DATE: 11Feb64

Card 2/2 MLP

KATLYARENKO, V. [Katliarenka, V.], uchastkovyy vrach (selo Zagor'ye, Shklovskiy rayon)

Protect your children against the whooping cough. Rab. i sial. 38 no.10:23 O '62. (MIRA 15:10)

(Whooping cough)

69714

SOV/81-59-9-30772

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 9, p 102 (USSR)

AUTHORS: Kindyakov, P.S., Katlinskiy, V.M., Shpirt, M.Ya.

TITLE: On the Mechanism of Chlorination of Elemental Selenium and Tellurium and Some Selenides in an Aqueous Medium

PERIODICAL: Tr. Mosk. in-ta tonkoy khim. tekhnol., 1958, Nr 7, pp 158 - 164

ABSTRACT: The oxidation of Se, Cu_2Se, Ag_2Se and Te powders by a HOCl solution obtained by the reaction $2Cl_2 + Bi_2O_3 + H_2O = 2HOCl + 2BiOCl$, has been studied. The experiments were carried out at 25°C in a vessel with a mixer. In the oxidation of Se and selenides H_2SeO_3 and H_2SeO_4 are formed, at the same time the ratio $Se^{6+} : Se^{4+}$ varies from 1 to 3 in the case of retardation of the revolution of the mixer. The darkening of the reaction vessel does not affect the reaction rate. The reaction of Te with HOCl produces mainly H_2TeO_4. It has been shown that only HOCl from all possible oxidants in the $Cl-H_2O$ system interacts with Se. Oxidation takes place in 2 stages: $Se^0 \rightarrow Se^{4+}$ (heterogeneous reaction) and $Se^{4+} \rightarrow Se^{6+}$ (homogeneous reaction).

V. Rosolovskiy

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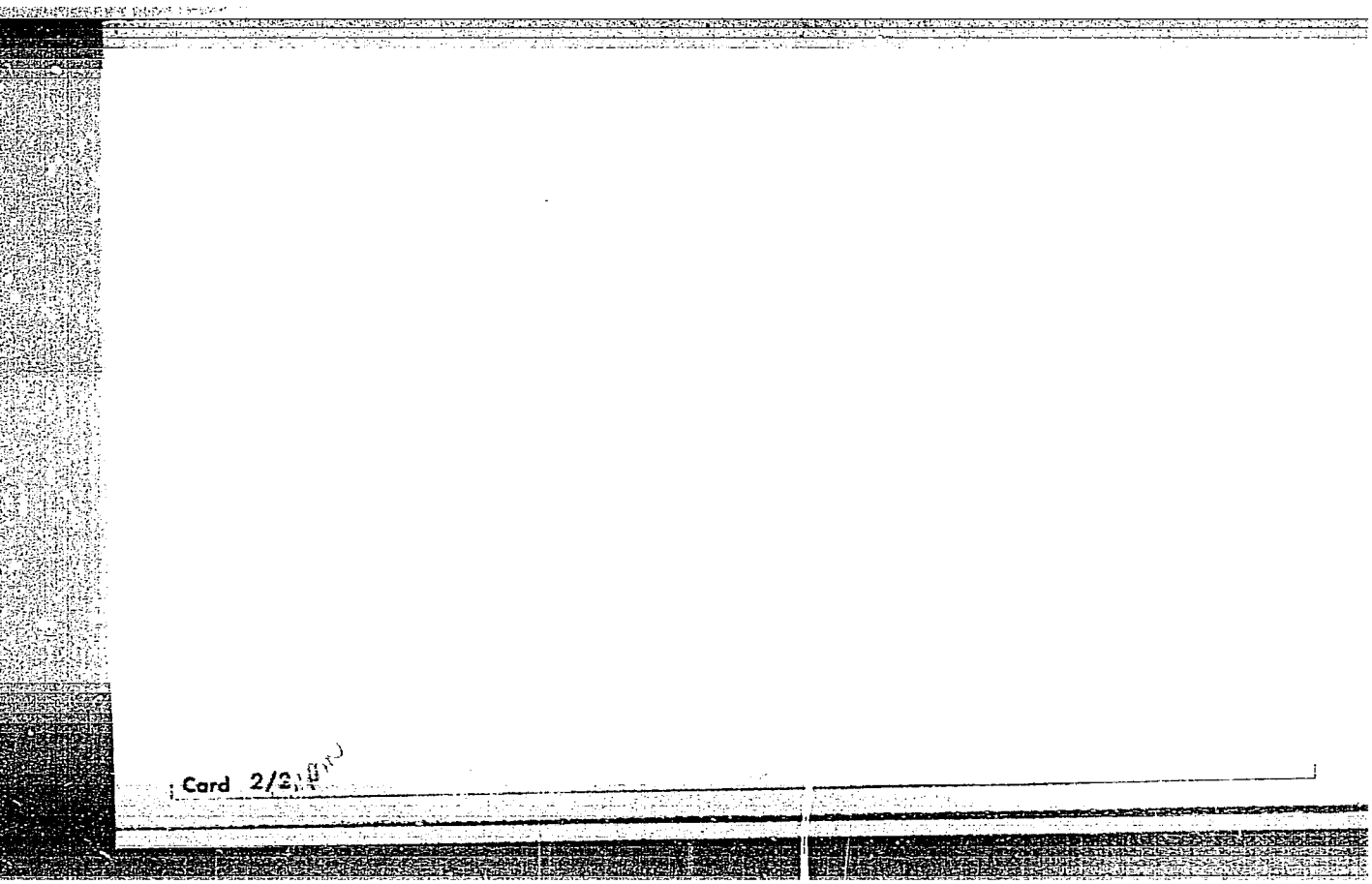
TITLE: Formation of cracks during [illegible]



APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721120007-1"

KINDYAKOV, P.S. [deceased]; SHPIRT, M.Ya.; KATLINSKIY, V.M.

Methods for determining Cl_2, Cl^-, HOCl, and H^+ present simultaneously. Zhur.anal.khim. 17 no.1:97-101 Ja-F '62. (MIRA 15:2)

1. M.V.Lomonosov Moscow Institute of Fine Chemical Technology.
(Chlorine--Analysis) (Chlorine compounds)