~~65993~~ 69593

S/131/60/000/04/06/015
B015/B008

15.2220

AUTHORS: Kaynarskiy, I.S., Degtyareva, E.V., Kukhtenko, V.A.

TITLE: Carborundum Products With Silicon Nitride Bond

PERIODICAL: Ogneupory, 1960, No. 4, pp. 175-180

TEXT: The properties of these carborundum products are investigated and described by the authors in the paper under review. Silicon-nitride (Si_3N_4) melts at 1900° and may be used as refractory material. Its strength scarcely changes in the temperature range of from 20 - 1200°. A number of patents has been granted lately for the use of silicon-nitride as bond for the manufacture of high-quality carborundum refractories. The charge composition and the properties of the carborundum samples with silicon-nitride bond are mentioned in table 1. In the course of the determination of refractoriness, the pyroscope of metallic silicon was deformed at a temperature of 1680° and that of a sample of 100% technical silicon, previously nitrated at 1500°, at over 1900° (Fig. 1). The properties of the samples are compared in table 2. The influence of the carborundum granulation and of the amount of silicon on the ceramic properties of the samples may be seen from table 3. The thermal expansion of the carborundum

Card 1/2

~~65999~~ 69593

Carborundum Products With Silicon Nitride Bond

S/131/60/000/04/06/015
B015/B008

samples with silicon-nitride bond is shown in Fig. 2. The oxidizability of the carborundum samples in air at 1600° is mentioned in table 4. The authors state in conclusion that, as a result of the investigations, the manufacturing technique of high-quality carborundum refractories with silicon-nitride bond was worked out, its advantage consisting in its constancy against influences of acid and slag. There are 2 figures, 4 tables, and 20 references, 4 of which are Soviet.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov
(Ukrainian Scientific Research Institute of Refractories)

Card 2/2

87133

S/131/60/000/012/003/003
B021/B058

18.6100

AUTHORS: Kaynarskiy, I. S., Degtyareva, E. V., and Kukhtenko, V. A.

TITLE: Hot-pressed Ultradense Products of Carborundum

PERIODICAL: Ogneupory, 1960, No. 12, pp. 562-566

TEXT: The authors carried out hot-pressing on an installation designed by the Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR). Experiments showed that an addition of 20% boron results in a considerable increase of density (Table 1) when pressing the carborundum at 2200°C. The porosity is still high at a pressure of 100 kg/cm^2 and a temperature of 2000°C (Table 2). Reducing the pressure below 100 kg/cm^2 leads to an increase in porosity (Table 3). The compression of the samples continues during temperature increase under pressure (Table 4). A reduction of the boron addition to 10% scarcely alters the density of the samples (Table 5). The influence of the introduction of large carborundum granules on the density of hot-pressed samples at a pressure of 100 kg/cm^2, a temperature of 2140° - 2170°C, and a duration of 5 min is illustrated in Table 6. The properties

Card 1/2

Hot-pressed Ultradense Products of Carborundum

S/133/60/000/012/003/003
B021/B056

of hot-pressed carborundum samples with a boron admixture pressed at a pressure of 100 kg/cm^2, a temperature of 2140-2170°C, and a duration of 5-7 min are listed in Table 7. Studies showed that ultrahigh carborundum samples, i.e., with 96 to 98% of the theoretical density, may be manufactured through hot-pressing at 2140-2170°C, a pressure of 100 kg/cm^2, and a slight boron admixture. The compression of the carborundum samples through hot-pressing and boron addition could be increased by the formation of a eutectic melt in the system B_4C - SiC. An addition of finely ground graphite together with boron for the purpose of producing B_4C failed as the porosity increased by 1.5-2 times. There are 7 tables and 9 references: 5 Soviet, 2 US, and 1 German.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (Ukrainian Scientific Research Institute of Refractory Materials)

S/081/62/000/010/063/085
B168/B180

AUTHORS: Degtyareva, E. V., Kukhtenko, V. A., Kaynarskiy, I. S.

TITLE: On the recrystallization of silicon carbide in manufactured articles fired at high temperature under reducing conditions

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 10, 1962, 415, abstract 10K214 (Sb. nauchn. tr. Ukr. n.-i. in-t ogneuporov, no. 5(52), 1961, 92 - 107)

TEXT: It was established that high-temperature firing under reducing conditions brings about a slight decrease in the volume of a body together with a substantial increase in its porosity, which in recrystallized carborundum articles is extremely high; this is due to evaporation of SiC. The optimum conditions for the manufacture of recrystallized carborundum articles were found to be as follows: granular composition (in %) 0.9 - 0.7 mm 50 - 60, 0.3 - 0.2 mm 0 - 10, < 0.06 mm 40; compacting pressure 500 kg/cm^2; recrystallization temperature 2170 - 2200°C; soaking $\geq$ 1 hr. Under optimum conditions recrystallized articles were obtained with a porosity of 23 - 25% and with the addition of 20 - 22% boron

Card 1/2

S/081/62/000/010/063/085
B168/B180

On the recrystallization of...

they showed high resistance to oxidation. [Abstracter's note: Complete translation.]

Card 2/2

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; KUKHTENKO, V.A.

Technology of a dust-free, granulated, moisture-absorbing dinas mortar. Ogneupory 27 no.2:53-59 '62. (MIRA 15:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.
(Fireclay) (Mortar)

S/131/63/000/003/003/003
B101/B186

AUTHORS: Degtyareva, E. V., Kukhtenko, V. A.

TITLE: Experience in using a vibration mill for determining the wearability of refractories

PERIODICAL: Ogneupory, no. 3, 1963, 138-140

TEXT: It is suggested to determine the wearability of refractories by a 1-hr treatment in a vibration mill (3,000 vibrations per minute) filled with quartz sand. The specimens were cylinders of 36 mm diameter and 50 mm height, or cubes of 50 mm edge length. The wearability was expressed by the loss in weight as a percentage of the initial weight, or by the grams loss in weight per cm^2 surface. Maximum deviations of measurement were ±3% for magnesite and carborundum refractories. The wearability increased with increasing porosity of the specimen. 0.201 g/cm^2 was found for magnesite refractory material of 20% porosity, and 0.065 g/cm^2 for carborundum material of 23% porosity. The wearability in g/cm^2 was independent of the specimen shape. Advantages over the known method of testing the wearability in a rotating drum: the specimen's edges do not

Experience in using a vibration mill ...

break by knocking against each other, the results are therefore better reproducible, and the wearability depends linearly on the duration of the test. The use of other abrasives instead of quartz sand showed that the wearability depended on the hardness of the abrasive, but a hardness of more than 9 Mohs degrees showed little influence. Further experiments are required to find all possibilities and advantages of the method proposed. There are 4 figures and 1 table.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (Ukrainian Scientific Research Institute of Refractory Materials)

KAYNARSKIY, I.S.; DEGTYAREVA, E.V.; PINDRIK, B. Ye.; KUKHTENKO, V.A.; KULAKOV, N.I.; BEL'CHENKO, B.I.; IVNITSKAYA, N.S.; SMORODA, I.M.; SHAROV, M.F.; KOZIN, L.M.; KVASHA, A.S.; PELESHCHUK, M.I.; PRYAKHIN, L.G.; LEVINA, L.I.; DANILOV, V.I.; DIDENKO, S.Yu. PROTSENKO, G.A.

Reducing dust formation from dinas bricks and dinas mortar. Ogneupory 29 no.3:109-112 '64 (MIRA 17:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (for Kaynarskiy, Degtyareva, Pindrik, Kukhtenko). 2. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy koksokhimicheskoy promyshlennosti (for Kulakov, Bel'chenko, Ivnitskaya). 3. Vsesoyuznyy trest po stroitel'stvu i montazhu koksokhimicheskikh zavodov (for Peleshchuk, Pryakhin, Levina). 4. Ukrainskiy nauchno-issledovatel'skiy institut gigiyeny truda i professional'nykh zabolevaniy (for Danilov, Didenko, Protsenko).

ACC NR: AP6024373 SOURCE CODE: UR/0280/66/000/002/0141/0148

AUTHOR: Kukhtenko, V. I. (Moscow); Petrov, A. I. (Moscow)

ORG: none

TITLE: Using self-adjusting systems to compensate for the errors due to "parasitic" feedback

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1966, 141-148

TOPIC TAGS: self adaptive system, noise jamming, circuit design, automatic control system, harmonic oscillation

ABSTRACT: The dynamics of certain automatic control systems is characterized by the presence of harmful ("parasitic") feedback which disturbs the specific characteristic of the control circuit. A typical block diagram of such a system is shown in Fig. 1 where W_1 and W_2

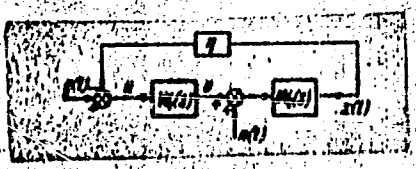

Fig. 1

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are the operators of basic-circuit elements and "parasitic" feedback, which may be either positive or negative, arises via the coefficient $\eta(t)$ which, compared with the transient process in the basic circuit, is a slowly varying time function. The control effect is represented by the signal g(t); the noise, by the signal n(t); and the output coordinate, by the quantity x(t). The article considers a possible method of compensating such parasitic feedback with the aid of a self-adjusting system with forced oscillations and compares the dynamic characteristics of two types of systems of this kind: multiplier type and narrow-band filter type. This method consists in introducing additional feedback into the control system by adding a series-connected element with the coefficient u(t) which is adjusted by means of a self-adjusting system so as to equal in magnitude (and reverse in polarity) to the coefficient $\eta(t)$, as well as an element with the transfer function $W_{1\delta}(s)$ (Fig. 2).

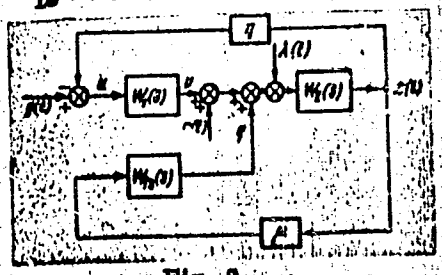

Fig. 2

ACC NR: AP6024373

The operation of the self-adjusting system is based on the analysis of the harmonic oscillations introduced into the system. The calculations proceed from the premise that the error in the compensation of parasitic feedback is small and that the automatic control system (Fig.2) is asymptotically stable. It is shown that the dynamic characteristics of adjustment processes in both types of self-adjusting systems are the same. Orig. art. has: 59 formulas, 7 figures.

SUB CODE: [illegible], 12, 00/ SUBM DATE: 08Oct64/ ORIG REF: 001/ OTH REF: 001

Card 3/3

L 06503-67 EWP(k)/EWT(d)/EWP(h)/EWP(l)/EWP(v)

ACC NR: AP6010281 SOURCE CODE: UR/0103/66/000/003/0056/0069

AUTHOR: Kukhtenko, V. I. (Moscow); Mityurina, V. Ye. (Moscow)

ORG: none

TITLE: Some problems of the dynamics of self adjusting systems with stabilization of the frequency characteristics

SOURCE: Avtomatika i telemekhanika, no. 3, 1966, 56-69

TOPIC TAGS: self adaptive control, frequency characteristic

ABSTRACT: The tuning dynamics of self adjusting control systems with stabilization of the frequency characteristics were analyzed by considering the effect of the program steps, including jump instructions and interferences in the main loop. The main loop is defined as the control circuit including the plant, the final control and parallel adjusting elements without the tuning circuit. The differential equation of the main loop was developed and solved. The equations of motion of the system with stabilization of one point of the frequency gain characteristic of the open-loop system were derived. A specific example of determining the tuning dynamics of a system with control of the frequency gain characteristic is included. Orig. art. has: 9 figures, 85 formulas.

SUB CODE: 13,12/ SUBM DATE: 10Nov65/ ORIG REF: 005/ OTH REF: 002

UDC: 62-506.1

Card 1/1

L 02464-67 EWP(k)/EWP(h)/EWT(d)/EWP(l)/EWP(v)

ACC NR: AP6016135 SOURCE CODE: UR/0103/66/000/005/0056/0069

AUTHOR: Kukhtenko, V. I. (Moscow); Mityurina, V. Ye. (Moscow)

69
B

ORG: none

14

TITLE: Certain problems in dynamics of self-adaptive systems with frequency response stabilization. II

SOURCE: Avtomatika i telemekhanika, no. 5, 1966, 56-69

TOPIC TAGS: optimal control, self adaptive control, linear automatic control, optimal automatic control, automatic control design, automatic control R and D, automatic control system, linear automatic control system, automatic control theory, frequency characteristic, autocorrelation function, electric filter, filter circuit

ABSTRACT: The analysis of dynamic performance in self-adjusting systems with frequency stabilization using linearized transfer functions with respect to the choice of the measuring element is reported. In particular, closed and open loop systems are considered: those utilizing bandpass filters and rectifiers to extract the required frequency components in order to compare their magnitudes with the desired values and those based on autocorrelation operations. The authors call the first type "additive" and the second type "multiplicative". Both use either special harmonic input signals at the specified frequencies corresponding to the adjustable points on the frequency

UDC: 62-506.1

Card 1/2

L 02464-67

ACC NR: AP6016135 O

response characteristic, or extract these signals from the normal input to the system by means of narrow band filters. The transfer functions for both types of self-adaptive systems are derived for steady state and transient responses. These equations are subsequently "linearized" and used to compare performance of the two systems. The authors conclude that the self-adjusting processes are the same in both systems if a filter, having transfer function identical to that of the bandpass filter used in the additive system, is included in the multiplicative system after the multiplier and if all other linear elements are also identical. Since smoothing filters theoretically cannot be used after the multiplier, the multiplicative system should have faster response but a higher noise level. However, if lead networks are used to compensate the lags in the additive systems their performance can be made for practical purposes identical to that of multiplicative systems. An example is included in which the performance of the two types of self-adaptive systems are analyzed and compared. Orig. art. has: 13 figures, 74 formulas.

SUB CODE: 09/ SUBM DATE: 10Nov65/ ORIG REF: 005/ OTH REF: 002

Card 2/2 gd

KUKATENKO, V.I.

Kukatenko, V. I. D...

...mean square value of the random component of the ... error. It is shown that the impulsive response ... optimal system satisfies a Wiener Hopf equation whose ... right hand member involves terms of the form

$$\int_0^{\infty} A(t)\cos\beta_k t \exp(-\Delta+\alpha_k)t,$$

where the $p_k=\alpha_k+i\beta_k$ are poles of the non-random component and Δ is a constant. A ... solution ... [illegible] is found. L. A. Zadeh ...

KUKHTENKO, V. I., Candidate Tech Sci (diss) -- "The computation of linear systems of automatic control under the influence of signals of a single frequency class". Moscow, 1959. 14 pp (Inst of Automatics and Telemechanics of the Acad Sci USSR), 150 copies (KL, No 22, 1959, 116)

27988
S/194/61/000/004/025/052
D201/D302

13.2000

Authors: Kozanov, A.V. and Kukhtenko, V.I.

TITLE: A method of designing an automatic control system with a near optimum transient

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 4, 1961, 33, abstract 4 V284 (V sb. Samoletnoye elektrooborud., no. 1, M., Oborongiz, 1960, 63-69)

TEXT: A method is given of designing an approximately optimum follow-up system as described by a differential equation of the second order. The results obtained are used to obtain a near-optimum transient in a system of a higher order. The analyzed system consists of a mismatch-meter, an inertialess amplifier and a motor (the aperiodic and integrating networks being connected in series). When limiting the voltage applied to the motor, the value of the error at which the switching-over of the control input should occur, and the duration of the second interval of the transient do not

Card 1/2

27988
S/194/61/000/004/025/052
D201/D302

A method of designing...

depend on the input signals, but are determined by the time constant of the motor and by its maximum speed. A correcting circuit is given to provide the necessary switching. The transient of the follow-up system described in the first approximation by a differential equation of the fifth order is also obtained as a near optimum one, providing a similar correcting circuit is used. [Abstracter's note: Complete translation]

Card 2/2

L 18400-63 EWT(d)/BDS AFFTC/ASD/APGC/IJP(C) Pg-4/Pk-4/Pl-4/Fo-4/
Pq-4 BC
ACCESSION NR: AP3003742 S/0103/63/024/007/0950/0961 77

AUTHOR: Bozhukov, V. M. (Moscow); Kulchtenko, V. I. (Moscow)

TITLE: Method for designing self-adapting automatic control systems with stabilization of frequency characteristics

SOURCE: Avtomatika i telemekhanika, v. 24, no. 7, 1963, 950-961

TOPIC TAGS: self-adapting system, automatic control

ABSTRACT: Self-adapting automatic-control systems that vary their own frequency characteristics were studied by A. A. Krasovskiy, et al. (Fundamentals of automation and technical cybernetics, published by VVIA im. Zhukovskogo, 1961). The self-resetting method considered in the article includes stabilizing a few points on the amplitude-frequency characteristics of the open and closed automatic-control systems. Hence, the values of these characteristics at some fixed frequencies serve as indicants of resetting. The law that governs the

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L 18400-63
ACCESSION NR: AP3003742

correcting circuits is formulated thusly: The signal of difference between the measured and the required resetting quantities is fed, through an integrating circuit, to a variable-coefficient-generating unit and varies the coefficient until the difference signal vanishes. A number of functional diagrams are discussed and analyzed mathematically. The above theoretical work amplified by an "investigation of a laboratory model of an industrial controller" permitted the formulation of the fundamental properties of the self-adapting systems. Orig. art. has: 9 figures and 24 formulas.

ASSOCIATION: none

SUBMITTED: 03Oct62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: IE NO REF SOV: 002 OTHER: 001

Card 2/2

L 52564-65 EWT(d)/EPF(n)-2/EWP(1) Po-4/Pq-4/Pg-4/Pae-2/Pu-4/Pk-4/Pl-4 IJP(c)
WW/BC

ACCESSION NR: AP5006321 S/0103/65/026/003/0475/0484

59
B

AUTHOR: Kukhtenko, V. I. (Moscow); Mityurina, V. Ye. (Moscow)

TITLE: Method for synthesizing adaptive systems with stabilized frequency characteristics

SOURCE: Avtomatika i telemekhanika, v. 26, no. 3, 1965, 475-484

TOPIC TAGS: adaptive control system, automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: This is a continuation of an earlier authors' work (Avt. i telemekhanika, v. 24, no. 7, 1963). The method of synthesizing is based on the stabilization of a few points of amplitude-frequency and phase-frequency characteristics; it promises an adaptive system able to cope with an intensely-varying input parameter and noise. The essential features of the adaptive system are: (1) Trial sinusoidal signals (alignment signals) are applied to the system and

Card 1/2

L 52584-65

ACCESSION NR: AP5008321

also to three reference filters k_0, k_1, and k_2; (2) A special alignment system maintains $k(\omega_i) = k_0(\omega_i)$; (3) Signals $V_1 - V_2$ are formed which monotonously depend on the phase differences $\varphi(\omega_i) - \varphi_0(\omega_i)$; these signals, via final actuators, control corrective circuits in such a way that the phase characteristics of the system and the reference unit become equal. Equations are developed that describe the alignment process. Orig. art. has: 11 figures and 33 formulas.

ASSOCIATION: none

SUBMITTED: 02Jan64 ENCL: 00 SUB CODE: IE

NO REF SOV: 004 OTHER: 005

Card 2/2

KUKHTENKOV, M. M.

"Investigation of the Stability of the Butt of a Bolt Connection Under Extended Alternating Stresses in Relation to the Fineness of the Surfaces of the Joined Materials." Cand Tech Sci, Khar'kov Polytechnic Inst, Khar-kov, 1954. (RZhMekh, Mar 55)

SO: Sum. No. 670, 29 Sep 55--Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

Kukhtenkov, M.M.

USSR/ Engineering - Bolt joints

Card 1/1 Pub. 128 - 3/33

Authors : Kukhtenkov, M. M.

Title : The rigidity of a tightened bolt joint

Periodical : Vest. mash. 36/1, 12-13, Jan 1956

Abstract : A device designated for checking the rigidity of tightened bolt joints exposed to prolonged operation under variable loads is described, together with testing methods. Two references: 1 USSR, 1 Germ. (1940-1952). Diagrams; drawings.

Institution : .....

Submitted : .....

SOV/124-58-7-8207

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 123 (USSR)

AUTHOR: Kukhtenkov, M.M.

TITLE: The Variation in Junction-stress Amplitude in Bolted Joints as a Function of Bolt Design (Izmeneniye amplitudy napryazheniy styka boltovogo soyedineniya v zavisimosti ot konstruktsii bolta)

PERIODICAL: Tr. Khar'kovsk. politekhn. in-ta, 1957, Vol 16, pp 95-99

ABSTRACT: Bibliographic entry

1. Bolted joints--Stresses 2. Bolts--Design

Card 1/1

SOV/122-59-5-9/32

AUTHOR: Kukhtenkov, M.M., Candidate of Technical Sciences, Docent

TITLE: The Effect of Lubrication on the Consistency of Tightening of Bolt Connections (Vliyaniye smazki na stabil'nost' zatyazhki boltovogo soyedineniya)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 34-35 (USSR)

ABSTRACT: Tests are reported designed to examine the effect of a lubricant introduced between the joint faces on the consistency of the tightening of bolt connections subjected to prolonged alternating loads. Different micro-geometries of the butting surfaces were tested. In the test rig, a plummer block housing was bolted to a sole plate with 10 mm bolts of steel 45. The components were made of cast iron. The pre-tension and its relaxation were measured by strain gauges arranged in a d.c. bridge. An alternating stress amplitude of 500 kg/cm^2 was excited in the bolts and measured with a 6-channel amplifier equipment by strain gauges. The pre-tension amounted to 1000 kg/cm^2,

Card 1/2

SOV/122-59-5-9/32

The Effect of Lubrication on the Consistency of Tightening of Bolt Connections

Its change during 12 hours of alternating load applied at 2900 cpm was checked each hour. In a family of curves, the drop in the bolt pre-tension is plotted against the number of alternating cycles for different surface finishes and in the presence or absence of lubricants in the joint. The graph shows the greatest drop of pre-tension to occur with the coarsest surface and with lubricant. There are 2 figures and 3 Soviet references.

Card 2/2

KUKHTENKOV, M.M., kand.tekhn.nauk, dotsent

Effect of the surface smoothness of joints and of the orientation marks caused by machining on the stability of tightening stresses in bolt joints. Izv.vys.ucheb.zav.; mashinostr. no.9:50-54 '61. (MIRA 14:12)

1. Khar'kovskiy politekhnicheskiy institut.
(Bolts and nuts)
(Strains and stresses)

IVASHCHENKO, D.P.; KUKHTENKOV, M.M.

Universal dynanometric wrench. Leh. prom. no.2:57-58 Ap-Je '63.
(MIRA 16:7)

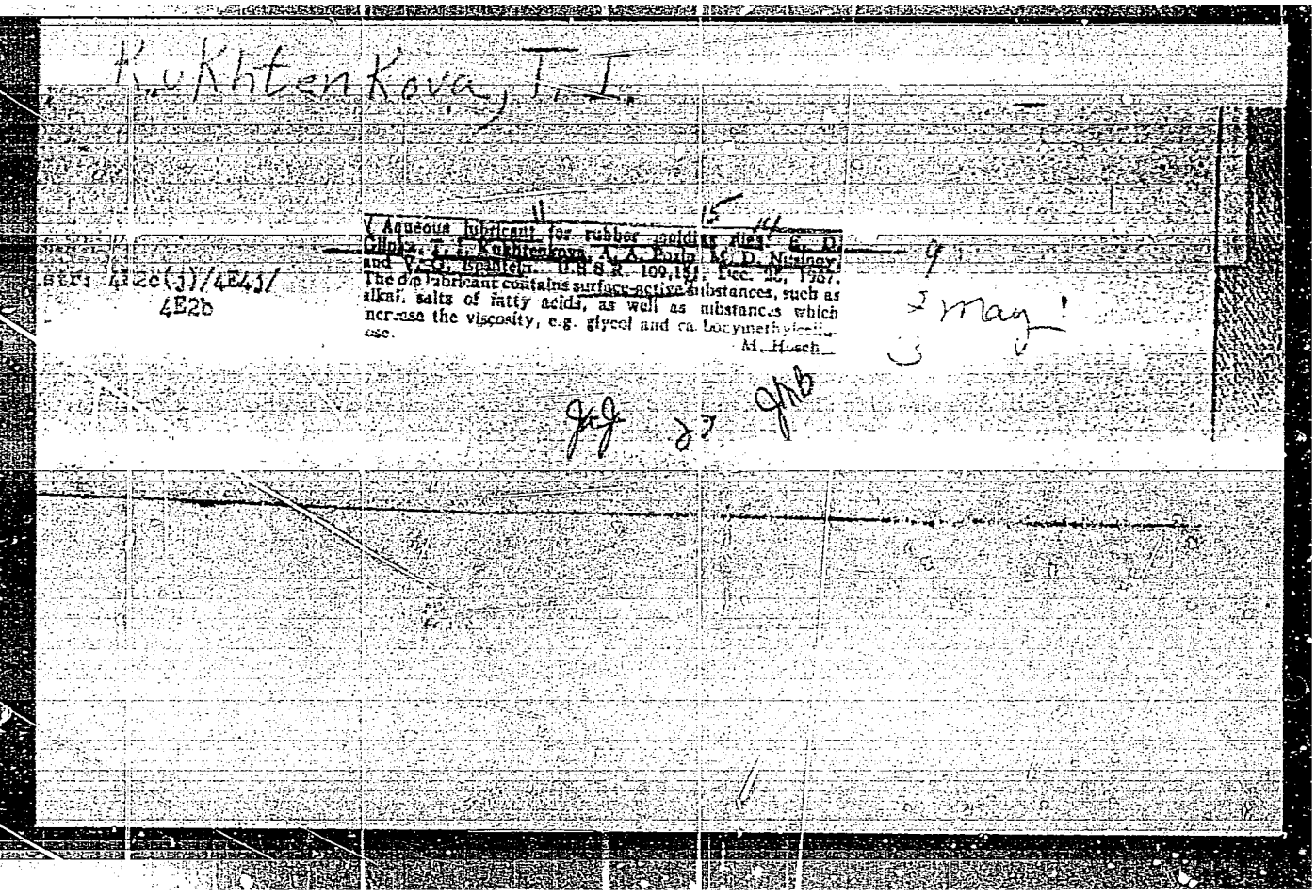
1. Khar'kovskaya fabrika "Chervona nitka" (for Ivashchenko).
2. Khar'kovskiy politekhnicheskiy institut (for Kukhtenkov).
(Wrenches)

KUKHTENKOV, M.M., kand. tekhn. nauk; IVASHCHENKO, D.A.

Dynamometric wrench. Mashinostroitel' no.7:16 Jl '65.
(MIRA 18:7)

PEDAN, G.P.; KARAVANSKAYA, Yu.T.; KUKHTENKOVA, G.V.

Complexometric determination of magnesium oxide in ferrites. Zav.lab. 30 no.12:1448 '64. (MIRA 18:1)



Kukhtenkova, I. I.

Aqueous lubricant for rubber goods. Olga I. Kukhtenkova, A. A. Berlin, S. D. Nikolaev, and V. S. Ivanich. U.S.S.R. 109,151, Dec. 22, 1957. The lubricant contains surface-active substances, such as alkali salts of fatty acids, as well as substances which increase the viscosity, e.g. glycol and carboxymethylcellulose.

M. Hosch

KUKHTENKOVA, T.I.

NUSINOV, M.D.; PAVLOV, V.P.; POZIN, A.A.; EPSHTEYN, V.G.; KUKHTENKOVA, T.I.

Mechanical properties of rubber mixtures and peculiarities of their flow through slit passages. Kauch. i rez. 16 no.8:24-27 Ag '57. (MIRA 10:11)

1. Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy.
(Elastomers--Testing) (Rheology)

SOV/84-58-11-48/58

AUTHORS: Bogatyrev, P., Kukhterin, Ye., Engineers

TITLE: Stationary Equipment in Aircraft Servicing (Statsionarnoye oborudovaniye dlya obsluzhivaniya samoletov)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 11, pp 34-35 (USSR)

ABSTRACT: The authors tell about the installation of stationary tanks for fueling aircraft used at airports of the Kazakh GVF Territorial Administration for the past years. Their low cost resulted in considerable annual savings. Two drawings illustrate the mobile and stationary arrangements used in fueling aircraft. There is one photograph.

Card 1/1

MASLOVA, N.P.; KUKHTERINA, Ye.A.

Vectorcardiography in mitral defects of the heart. Kardiologiia 5 no.2:22-27 Mr-Ap '65. (MIRA 18:7)

1. Kafedra fakultetskoy terapii (zav. - prof. T.S.Istamanova) I Leningradskogo meditsinskogo instituta imeni I.P.Pavlova.

S/032/60/026/011/026/035
B004/B067

AUTHORS: Kukhtevich, G. M. and Litvinenko, N. A.

TITLE: Electroinduction Thickness Gage

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 11, pp. 1304-1306

TEXT: Ultrasonic thickness measurements of pipe walls by means of a B4-8P (V4-8R) apparatus require a complicated preliminary treatment of the specimen surface. Therefore, an electroinduction thickness gage was constructed which makes it possible to measure the wall thickness of austenitic 6 - 15 mm-steel pipes. The apparatus consists of an audio-frequency generator, an amplifier, a phase detector, and a separator. The generator operates with 550 - 3500 cps, 4 w, according to the thickness of the wall. The specimen is placed before the first pickup and the standard before the second. The primary windings of the pickup are connected in parallel and the secondary windings in the opposite direction. As long as the specimen complies with the standard, the emf in the secondary windings is equal to zero. With different values of specimen and standard, the emf produced in the secondary winding is increased. An instrument indicates the difference,

Card 1/2

Electroinduction Thickness Gage

S/032/60/026/011/026/035
B004/B067

an automatic device stops the transport of the specimens, and switches on a signal lamp. The apparatus was tested at the Yuzhnotrubnyy zavod (Southern Pipes Plant) with austenitic steel pipes which, with the aid of a ferritometer, had been previously examined for the disturbing alpha phase. It is planned to combine the thickness gage with a ferritometer designed at the Institut elektrosvarki im. Ye. O. Patona AN USSR (Electric Welding Institute imeni Ye. O. Paton of the AS UkrSSR) which eliminates the pipes containing the alpha phase at once. There are 2 figures.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'nyy trubnyy institut (Ukrainian Scientific Research Institute of Pipes)

Card 2/2

KUKHTEVICH, G.M.

Equipment for the automatic detection of a welded joint in the production flow during continuous rolling. Defektoskopiia 1 no.4:3-8 '65. (MIRA 18:12)

1. Institut chernoy metallurgii, Dnepropetrovsk.

KUKHTEVICH, G.M.

Effect of the natural frequency of a transducer on the accuracy of measurement during the eddy current method testing. Defektoskopiia 1 no.4:40-44 '65.

(MIRA 18:12)

1. Institut chernoy metallurgii, Dnepropetrovsk.

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S/118/61/000/006/001/002
D/204/D306

AUTHORS: Kukhtevich, G.M., Litvinenko, N.A. and Russkevich, Yu. N., Engineers

TITLE: Automatic checking of pipes

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 6, 1961, 21-23

TEXT: The Ukrainskiy nauchno-issledovatel'skiy trubnoy institut (Ukrainian Scientific Research Pipe Institute) has developed an apparatus for automatically checking the wall thickness of pipes during production. It consists of a thickness gauge and an automatic checking block. The thickness gauge is based on the Eddy current and can detect differences of wall thickness of a pipe round its perimeter and along its length. It has a short time lag which is important when the signal caused by a difference in wall thickness is short and when it is necessary to transmit it quickly to a recording mechanism. Its recording mechanism can be

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Automatic checking of pipes

used as a part of the thickness gauge for checking the pipes manufactured from a non-magnetic material. A standard pipe made from the same material as the measured one is used by this apparatus for detecting the difference in wall thickness. This thickness gauge indicates the difference in wall thickness by means of a mid-scale zero ammeter calibrated in microns and connected to a finger type detector. The automatic checking block switches off the engine moving the pipe into the gauge by means of the light signal when the deviation from the wall thickness is bigger than the given tolerances. Since the thickness gauge detects the positive and negative sign of deviation of the wall thickness then the automatic block circuit has two pulse height discriminators, each of which is designed for emitting the signal of specific polarity. The circuit can be adjusted for different values of the threshold voltage for each discriminator. Potentiometers R_{10} and R_{21} are used for signal limitation by means of a discriminating voltage. Pulse

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D204/D306

Automatic checking of pipes

height discriminators are tuned on crystal diodes D_1, D_2, D_3 and D_4. To express clearly the threshold of discrimination the operating point should be on the rectilinear portion of the diode characteristic, and direct current amplifiers in the form of semiconductor triodes Π_1 and Π_2 are connected before the discriminator. The bigger the coefficient of cascade amplification, the shorter the signal and smaller the accuracy of the automatic block. For this automatic block, the accuracy is 2-3%. The source of supply should be stabilized to keep the magnitude of the threshold voltage and the amplifier supply voltage constant. The lamp L_3, Fig.1 indicates the supply voltage to the thickness gauge. When the deviation from the wall thickness is bigger than the given tolerances, the polarized relay P_1 is actuated and closes the corresponding circuit of signal lamp L_1 or L_2. Simultaneously, the

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24184

S/118/61/000/006/001/002
D204/D306

Automatic checking of pipes

actuated relay P_2 switches off the drive mechanism of the pipes. The apparatus gave good results. There are 2 figures.

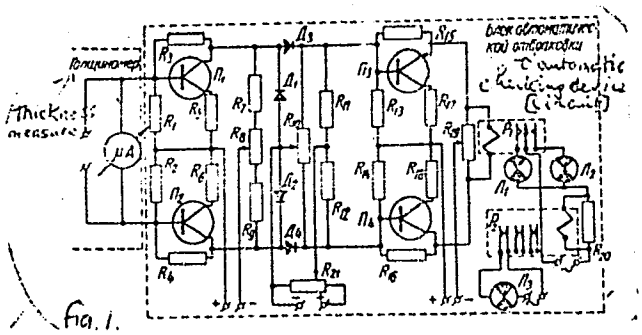

Fig. 1

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B124/B138

1.8000

AUTHORS: Kukhtevich, G. M., Litvinenko, N. A., and Amelina, L. S.

TITLE: Features of the magnetic testing of thin bimetallic coatings

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 1, 1962, 71 - 72

TEXT: The magnetic flaw detector (Fig.) described in this paper is based on the magnetic suspension method, and is used to test a soft-magnetic metal coating 40 to 100μ thick, applied to nonmagnetic steel by hot rolling. The device consists of d. c. operated electromagnets 1 and 2 each composed of two cores and having a common shaft 3 which is fixed to test table 4, ВСА (VSA)-type rectifier 5 with a rectified voltage of 24 v, container 6 capacity ~15 liters, equipped with a pump, special supply duct 7, illuminator, and flexible rubber hoses for circulating the suspension. The electromagnet coils have 1700 turns of the wire ПЭЛ (PEL), 1 mm in diameter, and are contained in an aluminum housing. The current in the coil was controlled with an ferro-resonance voltage controller. Products are tested in a magnetic field of 70 to 80 oe. The suspension is pumped to the test article, passes round it and is returned to container 6 through connecting pipes and an outlet in the test table. The

Card 1/2

Features of the magnetic...

test specimen is attached to the test table with holder 8; the test articles are either brought to the test table by hand or by device 9. Experience has shown that if the sensitivity of the device is so high that scratches 10 - 15μ deep can be detected, "imaginary" defects would be recorded. With a coating up to 50μ thick, bands of the precipated suspension form in the case of defects, and disappear again when the sensitivity of the leak detector is lowered. The maximum sensitivity for a flaw detector used on magnetic metals 30 to 50μ thick is a depth of 20μ. There is 1 figure.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut
(Ukrainian Scientific Research Institute of Tubes)

Fig. Magnetic flaw detector.

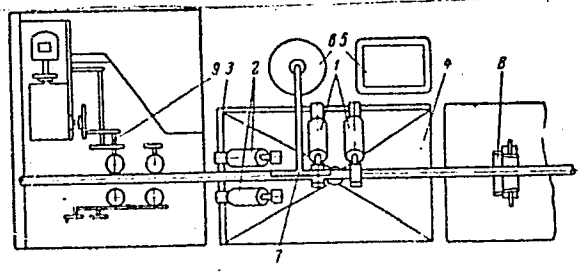

Fig.

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KOZHEVNIKOV, S.N.; KUKHTEVICH, G.M., inzh.; KAZAKOV, Ye.A., inzh.; YEGOROV, V.S., inzh.; NEVEYKIN, A.V., inzh.

Analyzing the accuracy of weighing on lever-type hopper scales. Trudy Inst.chern.met.AN URSR 16:15-25 '62. (MIRA 15:12)

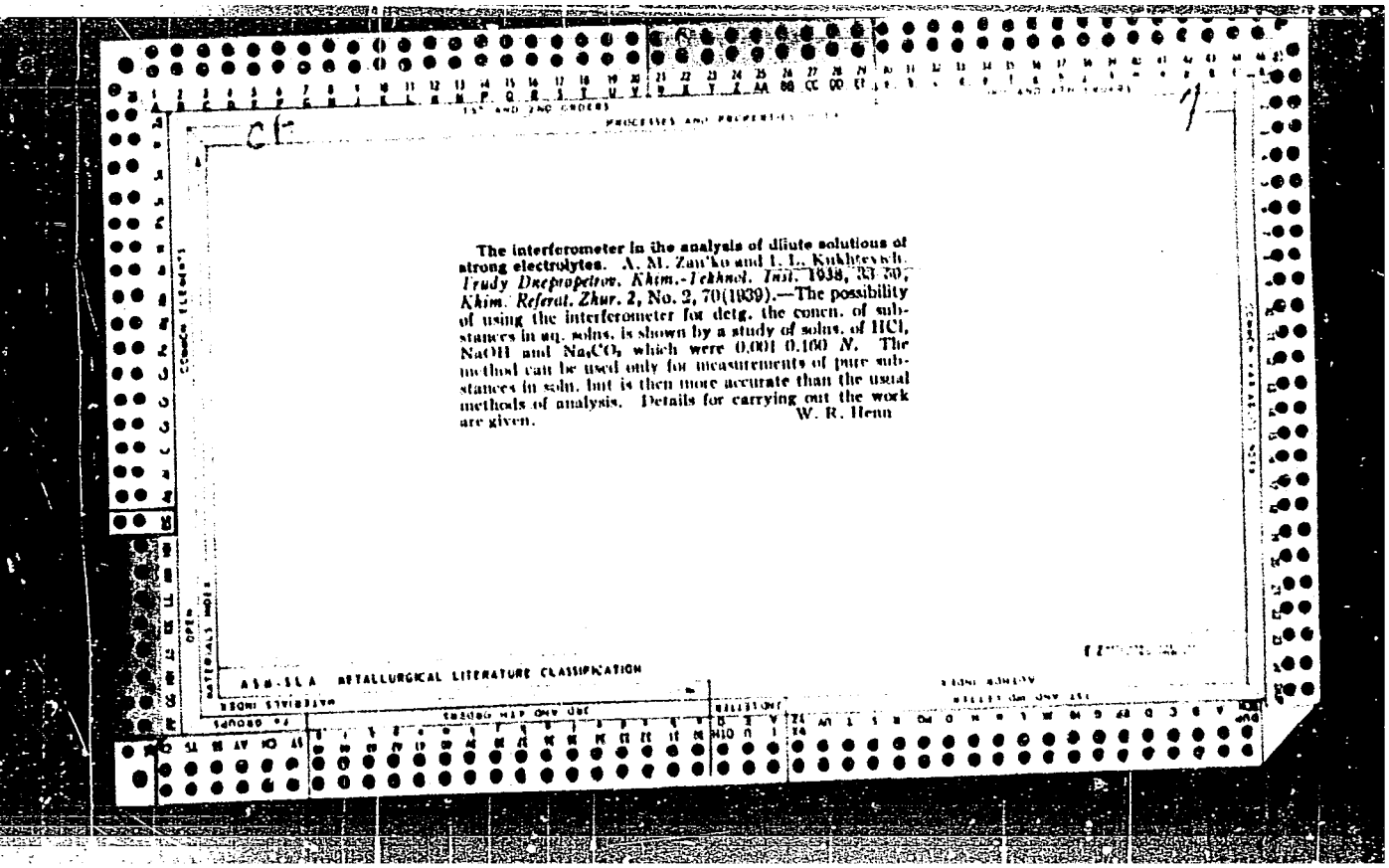
1. Chlen-korrespondent AN UkrSSR (for Kozhevnikov).
(Blast furnaces--Equipment and supplies)
(Remote control)

KUKHTEVICH, G.M.; DRYUCHENKO, A.K.

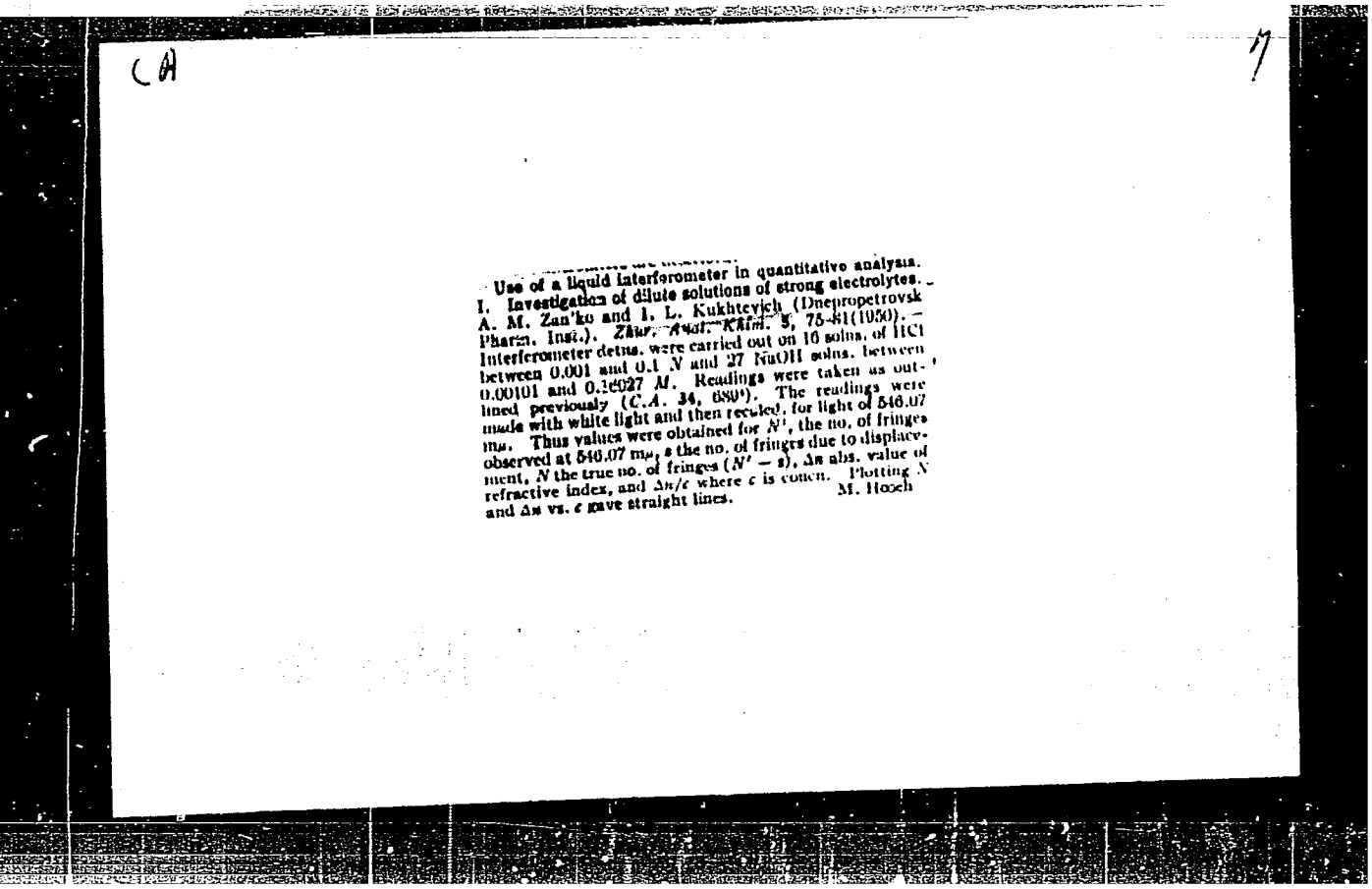
Technique for reducing the sensitivity of an eddy-current emitter to fluctuations in the gap between the emitter and a metal. Zav. lab. 31 no.1:69-72 '65.

(MIRA 18:3)

1. Institut chernoy metallurgii, Dnepropetrovsk.



The interferometer in the analysis of dilute solutions of strong electrolytes. A. M. Zan'ko and I. L. Kukhtevich. *Trudy Dnepropetrov. Khim.-Tekhnol. Inst.* 1938, 33 30; *Khim. Referat. Zhur.* 2, No. 2, 70(1939).—The possibility of using the interferometer for detg. the concn. of substances in aq. solns. is shown by a study of solns. of HCl, NaOH and Na_2CO_3 which were 0.001 0.100 *N*. The method can be used only for measurements of pure substances in soln. but is then more accurate than the usual methods of analysis. Details for carrying out the work are given.
W. R. Henn



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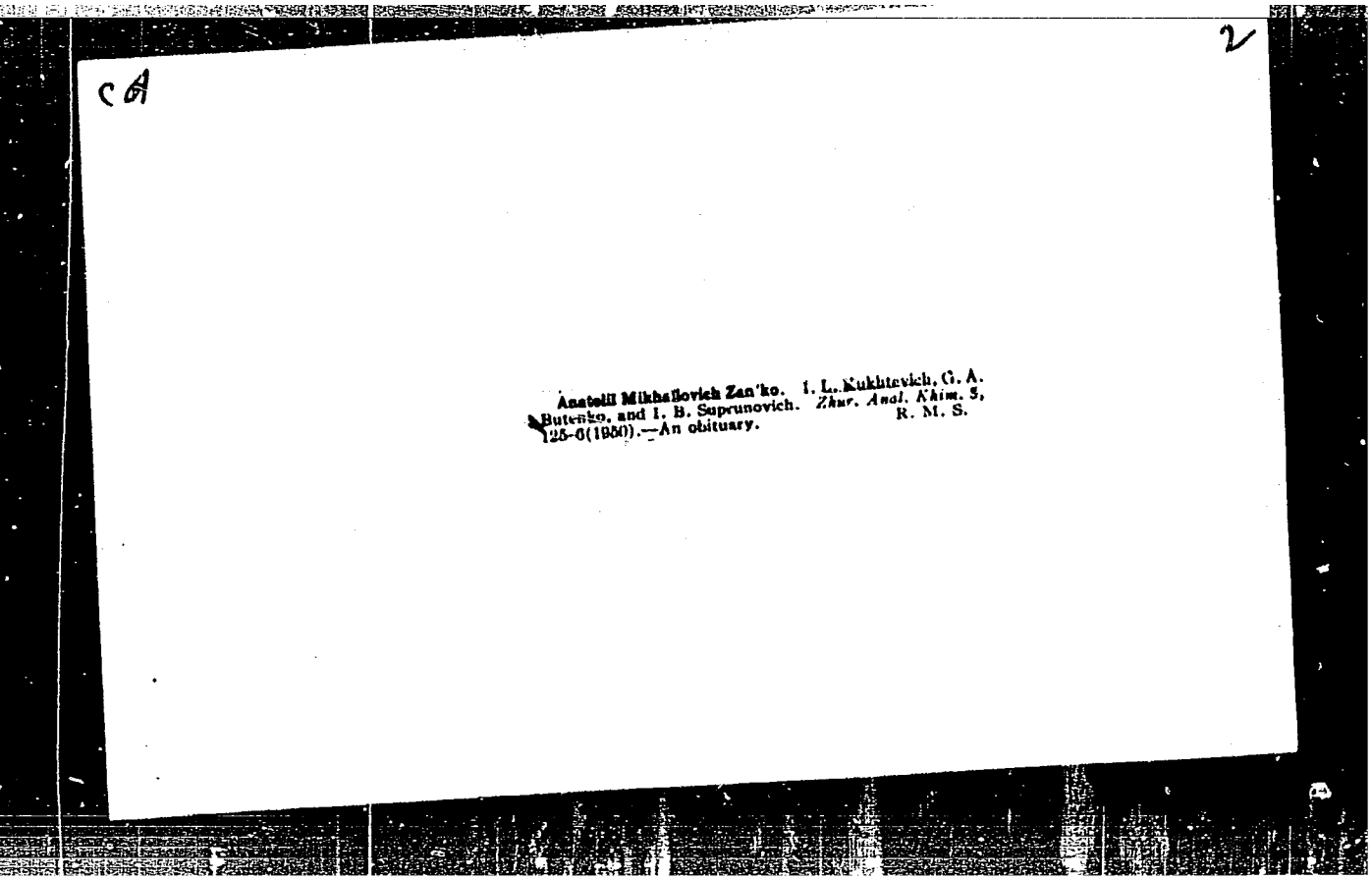
Use of a liquid interferometer in quantitative analysis. I. Investigation of dilute solutions of strong electrolytes. A. M. Zan'ko and I. L. Kukhtevich (Dnepropetrovsk Pharm. Inst.). *Zhur. Anal. Khim.* 5, 78-81(1950).—Interferometer detns. were carried out on 16 solns. of HCl between 0.001 and 0.1 *N* and 27 NaOH solns. between 0.00101 and 0.1c027 *M*. Readings were taken as outlined previously (*C.A.* 34, 689⁹). The readings were made with white light and then recked, for light of 546.07 mμ. Thus values were obtained for *N'*, the no. of fringes observed at 546.07 mμ, *s* the no. of fringes due to displacement, *N* the true no. of fringes (*N'* − *s*), Δn abs. value of refractive index, and Δn/*c* where *c* is concn. Plotting *N* and Δn vs. *c* gave straight lines. M. Hooch



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Anatolii Mikhailovich Zan'ko. I. L. Kukhtevich, G. A. Butenko, and I. B. Suprunovich. *Zhur. Anal. Khim.* 5, 125-6(1950).—An obituary. R. M. S.

KUKHTEVICH, I..L.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Analytical Chemistry

(3) 4

Use of a liquid interferometer in quantitative analysis. III. Study of dilute solutions of hydrolyzable salts. I. L. Kukhtevich and A. M. Zan'ko (Dnepropetrovsk. Pharm. Inst.). *J. Anal. Chem.* (U.S.S.R.) 7, 320-33(1952) (Engl. translation).—See *C.A.* 47, 1523i. H. L. H.

11-8-54

13A

C
2

78. Use of the liquid interferometer in quantitative analysis. II. Study of dilute solutions of weak electrolytes. I. L. Kukhtevich *Zavod. lab. Chem., USSR*, 1931, 6, 239—245; see C., 1930, 350.—Experiments on interferometric measurements of dil. aq. solutions of oxalic and acetic acids are described. G. S. Smith.

KUKHTEVICH, I.L.; ZAN'KO, A.M.

Use of liquid interferometer in quantitative analysis. IV. Shifts and determination of the number of lines between shifts. Zhur. Anal. Khim. 8, 84-9 '53. (MLRA 6:4)
(CA 47 no.20:10308 '53)

1. Dnepropetrovsk Pharm. Inst.

KUKHTEVICH, I. L.

C

The physico-chemical properties of metal derivatives of pheophytins. I. The ability of complex formation of pheophytin. I. L. Kukhtevich (Pharm. Inst., Dnepropetrovsk). *Ukrain. Khim. Zhur.* 20, 257-63(1954)(in Russian).—Soln. of pheophytin (0.2 mg./ml. of EtOH) was treated with alc. or aq. solns. of acetates, nitrates, chlorides, and sulfates of bivalent Cu, Co, Zn, Cd, Pb, Ni, etc., in a concn. of 0.5 mg./ml. Completion of the reaction was indicated by a green coloration. Intensity of color was compared with the ability of the particular metal ion to form a complex. No complex was established for Ni. In general acetates possessed a much greater tendency to form complexes. Among sulfates, only those Cu and Zn (in aq. soln.) formed complexes.

Michael Dymicky

KUKHTEVICH, I.L.

Photochemical stability of pheophytin a and b. Ukr. khim. zhur. 24 no.3:336-339 '58. (MIRA 11:9)
(pheophytin) (Photochemistry)

KUKHTEVICH, I.L.

Chemical stability of a- and b-pheophytinates of copper and zinc. Ukr. khim. zhur. 26 no.6:697-699 '60. (MIRA 14:1)

1. Dnepropetrovskiy meditsinskiy institut.
(Pheophytin) (Copper compounds)
(Zinc compounds)

KUKHTEVICH, I.L.

Reply to B.D.Berezin's remarks on the article "On chemical stability of α- and β-pheophytins of zinc and copper." Ukr. khim.zhur. 28 no.4:534-537 '62. (MIRA 15:8)
(Pheophytins)

S/073/62/028/007/003/004
E075/E136

AUTHOR: Kukhtevich, I.L.

TITLE: Dissociation of pheophytin and certain metal pheophytinates

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v.28, no.7, 1962, 791-798

TEXT: Dissociation of pheophytin (a + b) and Cu, Zn, Co and Cd pheophytinates was investigated, as it was expected that pheophytin may form more stable metal compounds than chlorophyll. Pheophytin denoted as $H_2\Phi$ is regarded as a dibasic acid. The distribution of $H_2\Phi$ between butyl alcohol and water was determined by shaking 1×10^{-4} M $H_2\Phi$ in butyl alcohol with buffers at the pH range of 9.0 - 11.28. The dissociation constants K_1 and K_2 for $H_2\Phi$ were 2.3×10^{-11} and 1.0×10^{-20} respectively. It was confirmed that $H_2\Phi$ interacts with heavy metal ions as a dibasic acid as follows:

$$MA_2 + H_2\Phi \rightleftharpoons M\Phi + 2HA \qquad (9)$$

where HA = acetic acid. The constants for the reactions were determined previously (I.L. Kukhtevich, Ukr. khim. zh., v.25, 1959, 162). Constants for the extraction of CuΦ, ZnΦ, CoΦ and CdΦ in the n-butyl alcohol - water system are:

$$K_{Cu\Phi} = 2 \times 10^{-23} ; \quad K_{Co\Phi} = 5.2 \times 10^{-20} ;$$

$$K_{Zn\Phi} = 5 \times 10^{-20} ; \quad K_{Cd\Phi} = 1.7 \times 10^{-11} .$$

For the separate forms a and b pheophytinates of Cu and Zn the extraction constants are:

$$K_{a\text{-}Cu\Phi} = 1.7 \times 10^{-23} ; \quad K_{a\text{-}Zn\Phi} = 3 \times 10^{-20} ;$$

$$K_{b\text{-}Cu\Phi} = 2.3 \times 10^{-23} ; \quad K_{b\text{-}Zn\Phi} = 4 \times 10^{-20} .$$

The values of the instability constants of the metal pheophytinates increase in the order Cu, Zn, Co, Cd. The considerable differences in the extraction constants for the various metal pheophytinates suggest that pheophytin could be used for the analytical separation of certain metals.

Dissociation of pheophytin and ... S/073/62/028/007/003/004
E075/E136

There are 8 tables.

ASSOCIATION: Dnepropetrovskiy meditsinskiy institut
(Dnepropetrovsk Institute of Medicine)

SUBMITTED: February 14, 1961

Card 3/3

KUKHTEVICH, I.I.; BILYAK, A.I.

Structure of metal derivatives of pheophytin(a+b); an electronographic study. Biofizika 10 no.3:424-428 '65. (MIRA 18:11)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut i Dnepropetrovskiy gosudarstvennyy universitet. Submitted April 3, 1964.

KUKHTEVICH, I.L.; BILYAK, A.I.

Electronographic study of chlorophyll analogs. Ukr. khim. zhur. 31 no.9:934-935 '65. (MIRA 18:11)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut i Dnepropetrovskiy gosudarstvennyy universitet.

KUKHTEVICH, I.L.

Absorption spectra of pheophytin metal derivatives. Ukr. khim. zhur. 31 no. 11:1168-1170 '65 (MIRA 19:1)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.

KUKHTEVICH, V.I.

USSR/Nuclear Physics - Penetration of Charged and Neutral Particles Through Matter, C-6

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34108

Author: Tsypin, S. G., Kukhtevich, V. I., Kazanskiy, Yu. A.

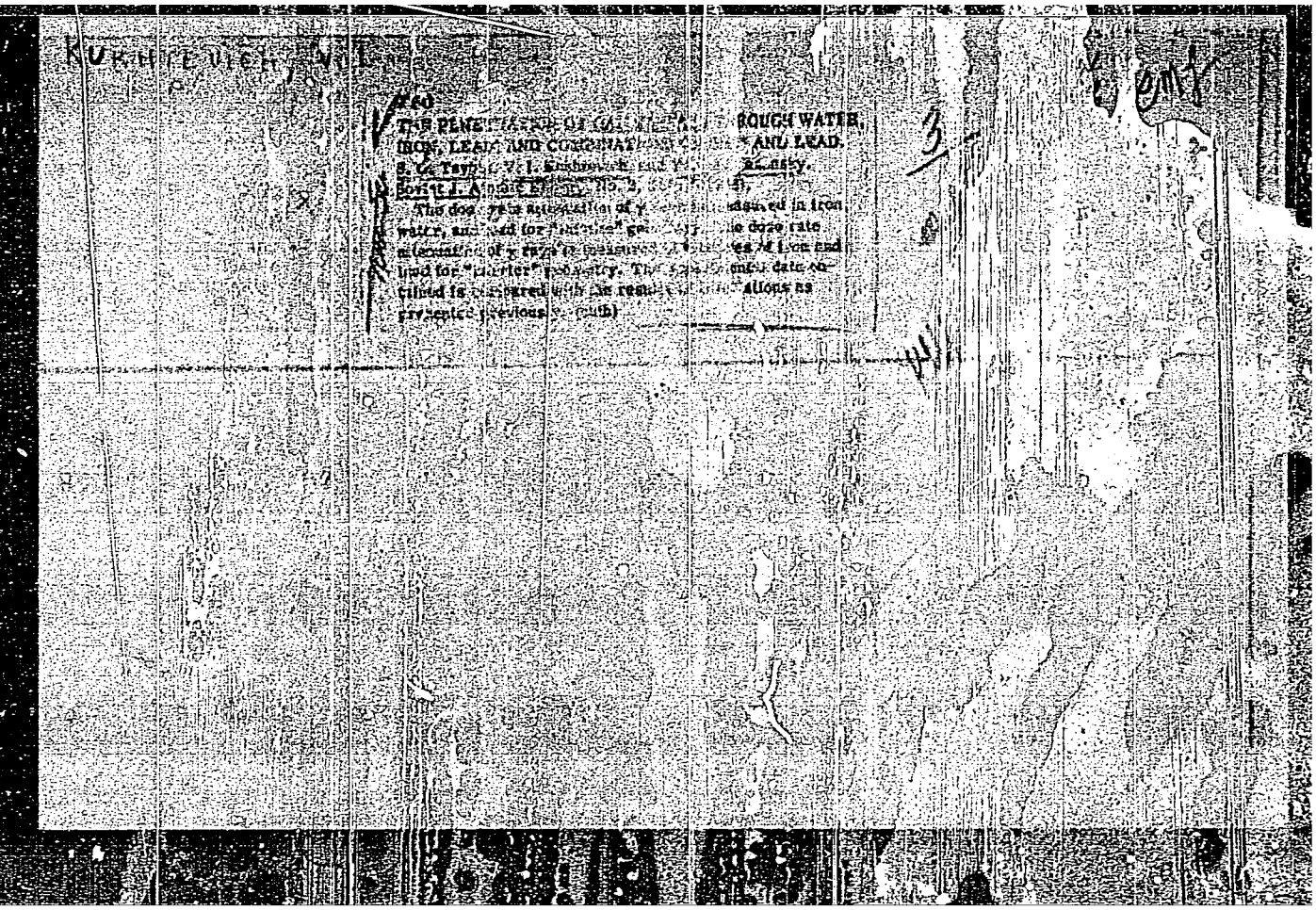
Institution: None

Title: Penetration of Gamma Rays Through Water, Iron, Lead, and a Combination of Iron and Lead

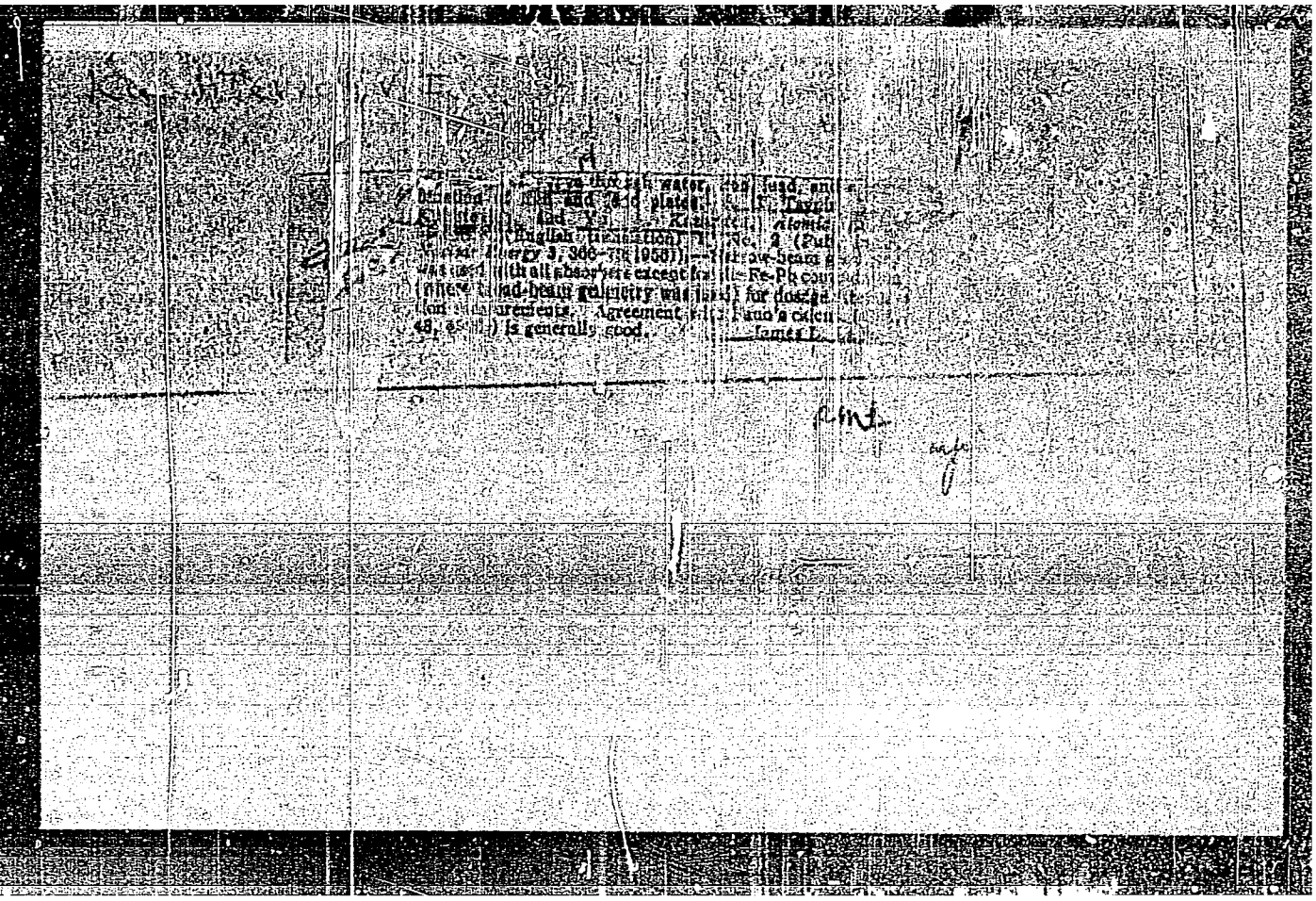
Original Periodical: Atom. Energiya, 1956, No 2, 71-74

Abstract: The attenuation of the dosage of gamma rays in Fe, water, and Pb is measured for an "infinite" geometry. In the "barrier" geometry, the dosage attenuation of gamma rays was measured for mixtures of iron and lead. The experimental data obtained are compared with the results of calculations based on the Fano theory.

1 of 1



ROUGH WATER,
AND LEAD.



AUTHORS: Kukhtevich, V.I., Tsypin, S.G. 89-7-15/32

TITLE: Weakening of γ-Rays Formed During the Capture of Neutrons in Chalybeate Mixtures (Oslableniye γ-luchey, obrazuyushchikhsya pri zakhvate neytronov v zhelezovodnykh smesyakh)

PERIODICAL: Atomnaya Energiya, 1957, Vol. 3, Nr 7, p 56 (USSR)

ABSTRACT: The present paper investigates the influence exercised by the concentration of iron in water on the relaxation-length of the γ-rays which are produced in the capture of neutrons. The nuclear reactions $D(d,n)He^3$ (energy of the neutrons $E_0 = 4.0 \pm 0.2$ MeV) and $T(d,n)He^4$ (energy of the neutrons $E_0 = 14.9 \pm 0.4$ MeV) were used as neutron sources. These energy values correspond to the emission of neutrons under the angle 0^0 contrary to the direction of the deuteron beam. The experimental device consisted of a vessel with water in which iron foils 60x60 were arranged. Interspaces filled with water remained between these foils. The concentration of iron in water was modified by the modification of the thickness of these cores while the distance between them was not changed. An ionization chamber with a sensitive volume of 1.5 cm^3 and a γ-counter with a volume of about 4 cm^3 were used as detectors of the γ-rays.

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The Weakening of γ-Rays Produced on Capture of Neutrons in Iron-Water Mixtures

89-7-15/32

The casing of the ionization chamber was made of graphite, the insulator of teflon. The neutron source and the detector of the γ-rays were fastened in the water vessel between the cores, the neutron source being firmly arranged and the detector being set up in different distances from the source. The contribution of the neutrons to the deflections of the γ-detectors was estimated by calculation and experiment. A diagram illustrates the dependence of the effective relaxation-length of the γ-rays produced on capture of the neutrons on the volume concentration of iron in the iron-water mixture for the two initial energies of the neutrons E_0 = 4 MeV and E_0 = 14.9 MeV. The effective relaxation-lengths were calculated from the curves for the weakening of the γ-rays (which were produced by the capture of neutrons in an iron-water mixture with a thickness of 25-80 cm). Both curves have a distinctly marked minimum of the effective relaxation length at a concentration of the iron of 60% in the iron-water mixture. An empirical formula for the calculation of the

Card 2/3

Weakening of -Rays Formed During the n Capture of Neutrons in Chalybeate Mixtures 89-7-15/32

effective relaxation lengths is given. There are 1 figure and 2 Slavic references.

SUBMITTED: March 7, 1957

AVAILABLE: Library of Congress

Card 3/3 1. Gamma rays - Attenuation - Effects of iron in water
2. Neutron capture 3. Gamma counters - Applications

KUKHTEVICH, V I.

HIGH-ENERGY NUCLEAR PHYSICS; PARTICLE BOMBARDMENT OF NUCLEI

"The Passage of Scattered -Rays Through Water," by V. I. Kukhtevich, A. A. Kazanskiy, Sh. S. Nikolayshvili, and S. G. Tsypin. Atomnaya Energiya, No 2, February 1958, pp 136-143.

Measurements were made of the attenuation of the dose of scattered quanta from Au^{198}, Co^{60}, and Na^{24} sources, as functions of the distance between the source and detector at various angles of collimation, which excluded the possibility of a primary -ray entering into the detector. Measurements were carried out at distances from 3 to 4 to 8 to 10 mean free paths of the -quanta. The collimation angles varied from 30 to 80 degrees. The experimental data obtained are compared with the results of theoretical calculations, based on an assumption that makes it possible to reduce the problem to the calculation of the triple integral, instead of a direct solution of the kinetic equation. Satisfactory agreement between the experimental and theoretical results is obtained.

Card: 1/1

CYPIN, S.G. [Tsypin, S.G.]; KUCHTEVIC, V.I. [Kukhtevich, V.I.]; KAZANSKIJ, J.A. [Kazanskiy, Yu.A.]; KAPLAN, J. [translator]

Penetration of gamma rays through water, iron, lead and combined layers of iron and lead. Jaderna energie 4 no.7:191-193 Jl '58.

AUTHORS: Kukhtevich, V. I., Tsypin, S. G. SOV/89-5-4-1/24

TITLE: Physics- and Engineering Problems of the Construction of ... tective Shields of Small Dimensions (Fizicheskiye i inzhenernyye problemy konstruirovaniya malogabaritnykh zashchit)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 4, pp 393-402 (USSR)

ABSTRACT: The following physical problems which have to be taken into account when designing protective shields for small devices are dealt with in an article compiled from numerous foreign and Soviet data:
Type of radiation from the reactor.
Interaction of γ-rays with materials of various thicknesses and composition.
Interaction of neutrons with materials of various thicknesses and composition.
Production and attenuation of capture-γ-rays.
Shadow shields.
With respect to engineering the following problems are raised and described:
Composition of the protective shield.

Card 1/2

Physics- and Engineering Problems of the Construction of Protective Shields of Small Dimensions

Selection of material.
Optimum arrangement of various good protective layers.
Although it is possible numerically to calculate a series of factors which influence the protective properties, an experimental examination of the protective properties of the completed shield is nevertheless advisable. There are 3 figures and 52 references, 23 of which are Soviet.

SUBMITTED: May 10, 1958

Card 2/2

21(7)

AUTHORS: Kukhtevich, V. I., Sinitsyn, B. I., Tsypin, S. G.

SOV/89-5-5-11/27

TITLE: The Removal Cross Section of Fast Neutrons With an Energy of 2,9 MeV (Secheniye vyvedeniya bystrykh neytronov s energiyey 2,9 Mev)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 5, pp 565-566 (USSR)

ABSTRACT: Measurement was carried out in a rectangular container of water, in which the material to be investigated (80.80.10 to 20 cm) was placed against one of the walls. The neutron source was located on the outside of this wall. The $D(d,n)He^3$ reaction was used. Neutron energy: 2,9 ± 0,1 MeV. A BF_3-counter could be freely moved along the axis of the container. The following removal cross sections were measured:

Element	σ_r in b	distance absorber - detector in cm
B	1,38 ± 0,13	20
C	1,58 ± 0,02	42

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The Removal Cross Section of Fast Neutrons With an Energy of 2,9 MeV

Element	σ_r in b	distance absorber - detector in cm
Al	1,68 ± 0,07	47
Fe	1,96 ± 0,04	45
Ni	1,90 ± 0,03	57
Cu	2,34 ± 0,13	66
Nb	2,93 ± 0,52	20
Pb	3,72 ± 0,13	65

The grave measuring error committed with respect to B may be explained by the fact that B_4C was used as an absorber. In the case of niobium the inaccuracy is caused by the fact that niobium powder was used which contained 15 per cent of weight of water.

By plotting the dependence of the removal cross section referred to the mass unit upon the weight of the atoms of the absorber, a curve is obtained which can be represented by means of the following empirical formula:

The Removal Cross Section of Fast Neutrons With an Energy of 2,9 MeV

$\Sigma r/\varrho = 0{,}385\ A^{-0{,}688}$, for 2,9 MeV neutrons.

The results obtained were discussed with I. I. Bondarenko, Doctor of Physico-Mathematical Sciences. A. N. Serbinov, Candidate of Technical Sciences , and I. A. Vorontsov assisted in carrying out experiments. There are 1 figure, 2 tables, and 6 references, 1 of which is Soviet.

SUBMITTED: June 25, 1958

Card 3/3

21(7)

AUTHORS: Kukhtevich, V. I., Tsypin, S. G., Shemetenko, B. P. SOV/89-5-6-5/25

TITLE: The Angular Distribution of the Dose of the Scattered γ-Radiation of a Co^{60}-Source in Water (Uglovoye raspredeleniye dozy rasseyannogo γ-izlucheniya ot istochnika Co^{60} v vode)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 6, pp 638 - 641 (USSR)

ABSTRACT: In a vessel filled with water (2.2,2.1,6 m^3) a Co^{60}-source (spherical-shaped, diameter: 0,5 cm, activity: 0,197 ±0,020 and 1,370 ±0,014 C respectively) and a γ-detector were arranged at a maximum distance from each other. The γ-detector was a scintillation-dosimeter (anthracene crystal: height 0,5 cm, diameter 1,2 cm (for case a) and 0,7 cm (for case b). Between the crystal and the photocathode of the multiplier there was a light pipe from organic glass. By means of the dosimeter it was possible to measure doses of from $0,4.10^{-2}$ to 40r/h (diameter of crystal 1,2 cm) and of $2,33.10^{-2}$ to 233 r/h (diameter of crystal 0,7 cm).

Card 1/3

In the case of a, an uranium truncated cone of 4 cm height was placed between the source and the detector in front of the source. The aperture angles are 3; 5; 7; 10; 18,5; 28,5; 45; 65; and 80°. In the case b, the uranium truncated cone is in front of the detector. The aperture angles were 9,5; 12; 19,5; 27; 37; 55; and 71°.
The dependence of dosage on the various aperture angles (the distances between source and detector were varied up to 80 cm within the range of 14 cm) is graphically represented.
Furthermore, the ratio (P in %) of dosage efficiency with and without uranium truncated core was measured in dependence on the aperture angle.
The results obtained show that dosage efficiency and P decrease in a higher degree for case a, in dependence upon the aperture angle.
A comparison with data supplied by other papers shows that in all papers the same regularity as regards quality is found.
The results obtained were discussed with I. I. Bondarenko, Doctor of Physico-Mathematical Sciences, and with Sh. S. Nikolayshvili. V. P. Saltykova assisted in carrying out

The Angular Distribution of the Dose of the Scattered γ-Radiation of a Co^{60}-Source in Water

SOV/89-5-6- 5/25

measurements. There are 5 figures and 7 references, 1 of which is Soviet.

SUBMITTED: June 25, 1958

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21(7)

SOV/89-6-6-11/27

AUTHORS: Belov, S. P., Dulin, V. A., Kazanskiy, Yu. A., Kukhtevich, V. I., Tsypin, S. G.

TITLE: Space and Energy Distribution of the Neutrons in Boron Carbide (Prostranstvennoye i energeticheskoye raspredeleniye neytronov v karbide bora)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 6, pp 663 - 665 (USSR)

ABSTRACT: The authors report on investigations of space and energy distributions of 3 and 15 Mev neutrons in boron carbide. The 3 Mev neutrons were the product of the reaction $H^2(H^2,n)He^3$, the 15 Mev neutrons from $H^2(H^3,n)He^4$. The test arrangement (infinite geometry) is briefly described. Boron carbide $\gamma = 1.18 \pm 0.05$ g/cm^3; neutron detectors: 1) proportional counter with BF_3 enriched to 88% with B^{10}; 2) fission chamber with natural uranium, U^{235} (enriched to 75%), and Th^{232}; 3) threshold indicators: $P^{31}(n,p)Si^{31}$, $Al^{27}(n,p)Mg^{27}$, $Fe^{56}(n,p)Mn^{56}$, $Sb^{121}(n,2n)Sb^{120}$, $Cu^{63}(n,2n)Cu^{62}$, $In^{115}(n,\gamma)In^{116m}$. Figure 1 shows the space neutron distribution (3 and 15 Mev) in the passage through

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boron carbide. Detectors for the 3 Mev neutrons: 1) and 2), for the 15 Mev neutrons, 2) and 3). It was found among others that an increase of the threshold energy of the detector increases the inclination of the attenuation curves of the neutrons. In measuring the 15 Mev neutron attenuation by means of the indicator $Cu^{63}(n,2n)Cu^{62}$ (E_{thresh} = 10.9 Mev) the relaxation path for the distance source - detector $R > 16$ cm does not change and is close to the transport path $\lambda_{tr} = 18 \pm 2$ cm. A comparison of the data contained in the present paper with those from reference 1 (Geneva Paper Nr 2147, 1958) is briefly discussed. The following relative capture figures are determined:

indicator:	Cu^{63}	Sb^{121}	Fe^{56}	Al^{27}	P^{31}	In^{115}
measurement by counter	6.5±1	8±2	1	0.73±0.15	1.04±0.15	-
by spectrometer	-	-	1	0.65±0.15	-	6±2

Figure 2 shows the energy distribution of the neutron flux in boron carbide for different intervals (energy interval 1.5 - 15 Mev, results standardized in the interval 13.5-15 Mev). Moreover, the ratio between $\sigma_{U\ 235}(E_{eff})$ and $\sigma_{B\ 10}(E_{eff})$ of the reaction (n,α) with B^{10} in boron carbide was determined. In the case of 3 Mev neutrons 0.97 ± 0.03 was obtained at E_{eff} = 120±10 kev. In conclusion, the authors thank I. I. Bondarenko for advice and discussions, N. D. Proskurnina, V. F. Bashmakov, A. N. Nikolayev, and V. I. Popov for assistance in the experiments as well as A. N. Serbinov and I. A. Vorontsov for work at the neutron generator. There are 2 figures, 1 table, and 4 references, 2 of which are Soviet.

SUBMITTED: January 6, 1959

80291

S/170/60/003/04/23/027
B007/B102

21.5200

AUTHORS: Kukhtevich, V. I., Matusevich, Ye. S., Shemetenko, B. P., Trykov, L. A.

TITLE: Dose Characteristics of Ionization Chambers and of Large Scintillation Crystals

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 4, pp. 125-126

TEXT: The present paper describes the measurement of the I/D ratios in the range of from 0.08-2.0 Mev for ionization chambers the dimensions of which are comparable with the path of secondary electrons (produced by γ-rays) in air, for organic scintillation crystals (which absorb primary γ-radiation considerably), and for a terphenyl crystal. I/D stands for the ratio between detector indication and the dose produced in the place of the detector by γ-radiation of different intensity. The method employed is briefly described, the results of measurement are diagrammatically shown in Fig. 1. This diagram shows that the "large" air chambers with air-equivalent walls are dosimetric with sufficient accuracy in the energy range investigated. The I/D curves of small and large crystals agree well with each other with respect to their shape. There are 1 figure and 2 references,

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77224
SOV/89-8-1-18/29

AUTHORS: Kukhtevich, V. I., Shemetenko, B. P., Sinitsyn, B. I.

TITLE: Co^{60} Gamma-Rays Dosage Measurement in the Neighborhood of the Separation Border of the Two Media. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 1, pp 66-68 (USSR)

ABSTRACT: Authors measured in water near the separation border the strength of the dose $D_1(\rho, h)$ whose influence on the γ-rays crossing it can be characterized by the coefficient $L = \frac{D_0(\rho, h)}{D_1(\rho, h)}$ where $D_0(\rho, h)$ is the dose strength in an infinite medium. Co^{60} γ-rays were used in a geometric arrangement as shown in Fig. 1. Medium I was water, and for II the authors used air, Pb, Ni, and Al. Distance ρ varied from 0.7 to 5.0 of the mean free path, and H from 0.05 to 2.0 free path length of γ-rays in water. The water container was 2.0 x 2.2 x 1.6 m in size, and for the medium II

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Co^{60} Gamma-Rays Dosage Measurement in the Neighborhood of the Separation Border of the Two Media. Letter to the Editor

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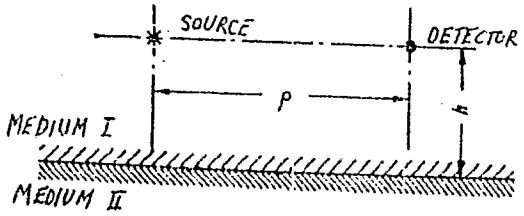

Fig. 1. Diagram of experiment.

the authors used layers with a 90 x 150 cm surface and a thickness equal to 2.5 mean free path of Co^{60} γ-rays in the respective material used. Water-air measurements were performed with the container placed on an unobstructed platform. An anthracene crystal γ-dosimeter was used as detector, and the source was of spherical shape, 0.5 cm in diameter, and an activity of

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0.153 ± 0.005 Curie. Results are contained in Fig. 3, where the errors in L never exceeded 3%. Using the Monte-Carlo method, Berger calculated the 1.28 mev γ-ray energy dissipation in a medium having a Z close to that of H_2O and assuming two limiting situation for the region of II Medium. In the first case $K = 1/L$ was computed for a Z in Medium II similar to that in I, but was either vacuum or a material with a negligible albedo. This situation is represented by the coefficient K^1 on Fig. 2, giving comparison between theoretical and experimental curves. S. G. Tsypin discussed the above results. There are 3 figures; and 2 references, 1 Soviet, 1 U.S. The U.S. reference is: M. Berger, J. Appl. Phys., 28, 1502 (1957).

SUBMITTED: August 10, 1959

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ZABELIN, Petr Alekseyevich; KUKHTEVICH, V.I., red.; MAKAROV, L.V., red.; BORUNOV, N.I., tekhn.red.

[Dosimetric and special technological control at an atomic power plant] Dozimetricheskii i spetsial'nyi tekhnologicheskii kontrol' na atomnoi elektrostantsii. Moskva, Gos. energ.izd-vo, 1961. 239 p. (MIRA 14:4)
(Atomic power plants) (Radioactivity--Safety measures)

ORLOV, V.V., kand. fiz.-mat. nauk, red.; TSYFIN, S.G., kand. fiz.-mat. nauk, red.; KAZANSKIY, Yu.A.[translator]; KUKETEVICH, V.I. [translator]; MATUSEVICH, Ye.S. [translator]; NIKOLAYSHVILI, Sh.S. [translator]; SINITSYN, B.I. [translator]; YUS, S.V. [translator]; VISKOVA, M.V., red.; RYBKINA, V.P., tekhn. red.

[Protection of transportation units having nuclear engines; translated articles] Zashchita transportnykh ustanovok s iadernym dvigatelem; sbornik perevodov. Moskva, Izd-vo inostr. lit-ry, 1961. 619 p. (MIRA 14:12)

(Radiation protection) (Nuclear reactors--Safety measures)

32994
S/641/61/000/000/021/033
B108/B102

26.2245

AUTHORS: Kukhtevich, V. I., Sinitsyn, B. I., Deg'tyarev, S. F.

TITLE: Fast neutron removal cross sections for 3 and 15 Mev

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 278 - 282

TEXT: Results are given of measurements of the removal cross sections of various elements. The method of measurement has been described by the authors (Atomnaya energiya, 11, 565 (1958)). The neutrons with 3 and 15 Mev were obtained from the reactions $D(d,n)He^3$ and $T(d,n)He^4$, respectively. The mean errors in the measurements were 7 and 5%. The great difference in the cross sections at 3 and 15 Mev in the case of light nuclei is explained by the relatively greater scattering anisotropy on light nuclei with increasing energy. There are 2 figures, 2 tables, and 17 references: 2 Soviet and 15 non-Soviet. The four most recent references to English-language publications read as follows: Hughes D. J., Schwartz R. B. Neutron Cross Sections, N. Y., 1958; Nakada M. P. et al. Phys. Rev., 110, 1439 (1958); Cooner J. P., Phys. Rev., 109, 1268 (1958); Anderson J. O.

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Fast neutron removal cross...

et al. Phys. Rev., 110, 160 (1958).

Table 1. Cross sections (in barns) for 3-Mev neutrons.
Legend: (1) element or compound, (2) total, (3) elastic scattering, (4) mean cosines, (5) total transport, (6) microscopic removal, (7) mass removal cross section, (8) least distance from test medium at which thermal neutron detector indicates reduction of neutron intensity. The figures in brackets refer to publications quoted by the authors.

Table 2. Cross sections (in barns) for 15-Mev neutrons.
Legend: see Table 1. (A) Result obtained by interpolating the differential elastic scattering cross sections of Be and C.

Card 2/2

KUKHTEVICH, V.I.; SINITSYN, B.I.

Passage of 0.5 and 1.0 Mev neutrons through water in a mixture of water with a heavy component. Atom.energ. 10 no.5:511-513 My '61. (MIRA 14:5)

(Neutrons)

33966

S/089/62/012/003/003/013
B102/B108

26.2246

AUTHORS: Kukhtevich, V. I., Shemetenko, B. P.

TITLE: Spatial distribution in water of multiply scattered gamma quanta from monodirectional Au^{198}, Co^{60}, and Na^{24} sources

PERIODICAL: Atomnaya energiya, v. 12, no. 3, 1962, 204 - 210

TEXT: The spatial dose-rate distributions in water were measured for initial energies of 0.411, 1.25, and 2.07 Mev of gamma quanta from collimated sources. The measurements were carried out in the angular range $0 \leq \alpha \leq 150°$C and at distances R (collimator output to detector) of from 9 to 39 cm. The water tank (2·2.2·1.6 m) was large enough to be considered infinite. The following sources were used: (1) Au^{198} of 1.2·1.1·0.05 cm, initial activity 56.6 ± 3.0 c, gamma emission: 0.411 Mev (99.7%), 0.678 Mev (1.09%) and 1.089 Mev (0.28%). Luminescence radiation was screened off by 0.1 cm of Cd. (2) Co^{60} cylinder 0.6 cm high, 1.8cm thick; activity: 5.3 ± 0.4 c. This source was used without filter

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Spatial distribution in water...

since the contribution from scattered radiation was at R = 15 cm only 3%. (3) Na^{24} in the form of NaF powder pressed with glycerin to a little ball, enclosed in an 0.04-cm Ni shell; diameter 2.8 cm, initial activity 3.88 ± 0.2 c, contribution of scattered radiation at R = 15 cm: 3 - 3.5%, bremsstrahlung intensity: ~1% of total intensity. A scintillation dosimeter (anthracene crystal) and a pulse dosimeter (halide counter) were used as gamma detectors. The sensitivity of the former was $2.81 \cdot 10^{-4}$ r/hr per scale unit. The dependence of $D'_{scatt}/D_{non\text{-}scatt.}$ on E_o at various angles α was determined, too (Fig. 3a). Calculations carried out with the relation $\log(D'_{scatt}/D_{non\text{-}scatt.}) = \frac{10}{7}(e^{0.26E_o} \cdot e^{0.188E_o} \log\alpha)$ were in good agreement with the measured results. S. G. Tsypin is thanked for discussions. There are 5 figures and 8 references: 6 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: R. Carr, G. Hine. Nucleonics, 11, No. 11, 53 (1953).

SUBMITTED: April 25, 1961

Fig. 3a. $D'_{scatt}/D_{non\text{-}scatt}$ versus E_o(Mev) for $\mu_o R = 1$.

Card 2/2

ACCESSION NR: AT4019051 S/0000/63/000/000/0210/0214

AUTHOR: Kukhtevich, V. I.; Try*kov, L. A.

TITLE: Oblique incidence of Gamma rays

SOURCE: Voprosy* fiziki zashchity* reaktorov; sbornik statey (Problems in physics of reactor shielding; collection of articles). Moscow, Gosatomizdat, 1963, 210-214

TOPIC TAGS: nuclear reactor, reactor shielding, Gamma ray, lead shield, lucite shield, incidence angle

ABSTRACT: The passage of γ rays through a barrier was studied as a function of the angle of incidence, varying the angle between the barrier surface and the γ-ray beam between 0 and 80°. The barrier material was either lead (r = 0.7, 0.8, 1.4, and 2.75 cm), lucite (r = 3, 8, 11 and 14 cm) or a combination of lead (r = 0.8 cm) and lucite (r = 8 cm.), where r is the barrier thickness. The source of γ rays was Co^{60} (1 curie), and the detection system consisted of a stilbene crystal (r = 30 and h = 15 mm), an FEU-12B photomultiplier, a cathode repeater, an amplifier (Siren type) and an impulse integrator. The results are plotted. Fig. 1 of the Enclosure shows the dosage behind a combined barrier of lead and lucite as a function of the angle of incidence. The total error in the measurements was

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ACCESSION NR: AT4019051

estimated to be of the order of 5 -10%. These experimental results were then compared with the theoretical calculations of Berger and Doggett (J. Res. Nat. Bur. Standards 56, 89, (1956)) for perpendicular beams and with the calculations of G. H. Peebles (Report R-240, the Rand Corp., Santa Monica, California (1952)) for other angles of incidence. The experimental data were in good agreement with the theoretical. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 14Aug63 DATE ACQ: 27Feb64 ENCL: 01

SUB CODE: NP NO REF SOV: 000 OTHER: 005

Card 2/3

ACCESSION NR: AT4019051 ENCLOSURE: 01

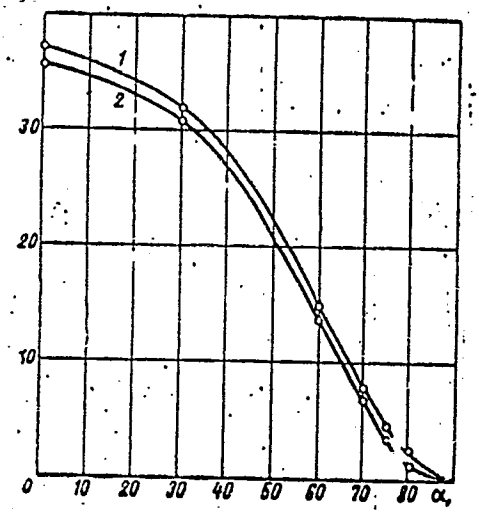

Fig. 1. Dose behind a barrier as a function of the angle of incidence.

1 - lucite behind lead; 2 – lead behind lucite

Ordinate = dose of γ rays in relative units; abscissa = angle of incidence in degrees.

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ACCESSION NR: AP4036533 S/0089/64/016/005/0453/0455

AUTHOR: Kukhtevich, V. I.; Matusevich, Ye. S.; Try*kov, L. A.

TITLE: Space distribution of a dose of scattered radiation from a source of unidirectional gamma quants in an infinite medium in the vicinity of the source

SOURCE: Atomnaya energiya, v. 16, no. 5, 1964, 453-455

TOPIC TAGS: gamma quanta scattering, scattering space distribution, air gamma ray scattering, compton scattering, radiation space distribution, gamma ray

ABSTRACT: The scattering in air of gamma rays, whose energy was between 0.5 and 10 Mev, was measured. The effective collimation angles were 4.8 and 15.6°. The radioactive isotopes used were: A^{198} (0.412), Cs^{137} (0.661), Co^{60} (av. energy 1.25) and Na^{24} (av. en. 1.86 Mev). The ratio D_{se}/D_{nse} was measured, where D_{se} is the power scattered, D_{nse} - that not scattered. The results are compared with the theoretical formula for single scattering. The deviations between the experimental and calculated values increase with the increase of scattering angle. "The authors are grateful to I. I. Bondarenko, S. G. Tsy*pin, and Ya. A. Kazanskiy for useful advise." Orig. art. has: 5 figures.

Card 1/2

ACCESSION NR: AP4036533

ASSOCIATION: None

SUBMITTED: 19Jul63 DATE ACQ: 03Jun64 ENCL: 00

SUB CODE: AA, NP NO REF SOV: 002 OTHER: 001

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