

DAVIDKOVICH, A.S., inzh.; TKACHENKO, N.A., inzh.; GEYZENBLAZEN, B.Ye.,
inzh.; GONCHAROV, Yu.G., AFANAS'YEV, V.D., inzh.; RUDOY, V.S.,
inzh.; KONOGRAY, B.Ya., inzh.

Investigating the electroacoustic method of controlling the loading
of ball mills. Gor. zhur. no.5:50-51 My '65. (MIRA 18:5)

1. Trest po avtomatizatsii metallurgicheskikh predpriyatii "Metal-
lurgavtomatika", Dnepropetrovsk (for Davidkovich, Tkachenko Geyzen-
blazn Goncharov). 2. Nauchno-issledovatel'skiy gornorudnyy institut
(for Afanas'yev, Rudoy, Konogray).

AFANAS'YEV, V. I.

USSR/General Division. Congresses. Meetings. Conferences. A-4

Abs Jour : Ref Zhur-Biologiya, No 20, 1957, 85066

Author : V. F. Afanas'yev

Inst :

Title : Field-Seminar of Biology Teachers

Orig Pub : Biol. v shkole, 1957, No 1, 96

Abstract : A short report on three seminars of biology teachers of the Yakutsk ASSR. At the first seminar (Summer 1954), the teachers received some practical information on the agrotechnics of agricultural plants, on the cultivation of fruit-trees and berry plants in the North, got acquainted with the work in hot-houses, with the technique of pollination, of sprinkling, of grafting, etc. The second

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USSR/General Division. Congresses. Meetings.
Conferences.

A-4

Abs Jour : Ref Zhur-Biologiya, No 20, 1957, 85066

Abstract : seminar (Summer 1955) permitted the participants to become acquainted with the general organization of natural science teaching in schools, in particular with the work of the experimental training section; a living strip of Nature; the museum of regional studies, etc. The third seminar (Summer 1956) acquainted teachers with the principles of plant culture, of livestock raising and machine building.

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L 62539-65 EPP(c)/EWP(k)/EWP(z)/EWT(m)/EWP(b)/T/DNA(d)/EWP(e)/EWP(w)/EWP(t)
PF-L/PC-L/Pr-L IJP(e) -JAJ/RM/DJ/MJW/JD
ACCESSION NR: AP5012659

UR/0369/65/001/002/0237/0242

AUTHOR: Afanas'yev, V. F.; Severin, P. A.

10
650?

TITLE: Antifriction properties of metallopolymeric compositional materials in gases and in a vacuum

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 2, 1965, 237-242

TOPIC TAGS: friction, metal wear, bronze, stainless steel

ABSTRACT: A previous paper examines friction processes and wear of certain metals in a cryogenic-vacuum assembly. The assembly works on the principle of face friction against an abrasion disc, rotating in a horizontal plane. The coefficient of friction was determined by elastic deformation during twisting of the rods to which the sample holder was fastened. Measurement of wear was based on measurements of linear dimensions and weight loss of samples. Metallographic and x-ray structural analysis show the qualitative changes during these tests. This paper shows results of tests by this method. For a porous base, tin bronze 10 was used with porosity 30-40% obtained by free agglomeration of spherical powder in a reducing medium at 800-850°C. To increase the resistance of the porous layer, the bronze was welded to

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I. 62539-65

ACCESSION NR: AP5012859

a steel base. 1Kh18N9T stainless steel, nitrated to HRC = 75 was chosen as a counter-body of friction. The tests showed that gases and a vacuum have a definite effect on the mechanisms of wear of metalopolymer compositional materials. Wear and coefficients of friction of the tested material in a vacuum (up to 10^{-3} N/cm²) and in argon, nitrogen and helium is somewhat higher than in air. The effect which specific pressure and rate of slipping have on the coefficient of friction during tests in gases and in vacuum is the same as in tests of dry friction in air. Orig. art. has: 4 figures, 2 tables.

ASSOCIATION: IPM AN UkrSSR, Kiev

SUBMITTED: 07Sep64

ENCL: 00

SUB CODE: MM

NO PEF SOV: 003

OTHER: 001

NC
Card 2/2

AFANAS'YEV, V. F., Cand Tech Sci -- (diss) "Study of the Process
of Speed Countersinking of Gray Iron." Kiev, 1957. 16 pp (Min
of Higher Education Ukr SSR, Kiev Order of Lenin Polytechnic
Inst, Chair of Technology of Machine ^{Building} ~~Construction~~), 100 copies
(KL, 48-57, 106)

- 25 -

A. LEVIN, V. L.
AUTHOR: Afanas'yev, V.F., Engineer.

122-4-9/29

TITLE: Accuracy and surface finish in high speed counter-boring of grey cast iron. (Tochnost i chistota obrabotki serogo chuguna pri skorostnom zenkerovanii.)

PERIODICAL: "Vestnik Mashinostroeniya" (Engineering Journal) 1957, No.4, pp. 48 - 49 (U.S.S.R.)

ABSTRACT: Tests carried out with a BKB carbide-tipped counter-boring tool of 32 mm diameter on a vertical drilling machine, model 2A135, machining grey cast iron of about 205 Brinell hardness were accompanied by measurements of hole diameter to $1\ \mu$, of tool dia. to $2\ \mu$ and profile meter recordings with an W31-17 instrument (V.M. Levin system). At low speeds (6.8 m/min) the hole is about $13\ \mu$ smaller than the tool. At about 20 m/min the hole is larger by about $13\ \mu$ and at about 110 m/min the hole is larger by about $47\ \mu$. With further increasing speed the enlargement of the hole is reduced. The conicity and ovality of the hole increased with the cutting speed, both from about 5 to about $20\ \mu$ in the range of speeds between 40 and 120 m/min. The surface finish is at its best at very low speeds and at its worst at about 20 m/min; thereafter it gradually improves and returns to about the low speed value when the speed reaches 120 m/min. The effect of the rate of feed on the

AFANAS'YEV, V.F., inzhener.

Put switch boxes on a solid foundation. Put' i put.khoz. no.3:20-21
Ag '57. (MIRA 10:9)

(Railroads--Switches)

AFANAS'YEV, V.F.

Study of the process of high-speed counterboring. Sel'khoz mashina,
no.8:26-28 Ag '57. (MLRA 10:8)
(Drilling and boring)

AFANAC'YEV, V. F.

Authors' Summaries of Dissertations

SOV/122-58-6-36/37

Vest. Mashinostroyeniya, 1958, No. 6, p. 87

the dynamics of cutting bevel gears with circular teeth of modules up to 2.5 mm and the stiffness of the machine-workpiece-cutting tool system are analysed in the dissertation. The effect of the elastic deformation of the machine tool components on the accuracy of gear cutting is established. The machining finish of the tooth profile depending on the cutting conditions is examined. The studies carried out can be used in designing machines for cutting small pitch spiral bevel gears and for predicting the machining accuracy and the finish obtained on the tooth flanks. x

V.F. Afanas'yev - Investigation of the High-speed Counter-boring Process in Grey Iron (Issledovaniye protsessa skorostnogo zenkerovaniya serogo chuguna). The summary was submitted to the Kiyevskiy ordena Lenina politekhnicheskiiy institut (Kiyev Polytechnical Institute): the effect of various factors on the speed, finish and accuracy of holes related to the dynamics of the cutting process in high-speed machining of grey iron by counter-boring tools tipped with carbide is examined. The results can be used in developing rate-fixing systems under conditions of high-speed counter-boring and for the design of the cutting tools.

Card ~~478~~

AFANAS'YEV, V.F., kand.tekhn.nauk

High-speed countersinking of gray iron. Vest. mash. 38 no.9:
42-44 S '58. (MIRA 11:10)
(Drilling and boring)

SOV/122-59-3-19/42

AUTHOR: Afanas'yev, V.F. (Candidate of Technical Sciences)

TITLE: Rapid Counter-boring of Holes with Increased Rates of Feed
(Skorostnoye zenkerovaniye otverstiy s uvelichennymi podachami)

PERIODICAL: Vestnik Mashinostroyeniya, 1959, Nr 3, pp 63-64 (USSR)

ABSTRACT: Experiments were carried out on cast iron plates 200 - 220 Brinell hardness using three-fluted counter-bores tipped with tungsten carbide. No coolant was used. The bits were used until the flank of the cutting edge near the corner between the opening part of the cutter and the sizing part of the cutter had worn 1.5 mm. Within this limit for wear, the size, form and finish of the counter-bored openings remained substantially correct. Trials were made at rates of feed as high as 4.715 mm/rev, cutting 1 mm deep radially. The length of the sizing edge of the flutes was made $(1.2 \text{ to } 1.5)s_z$, where s_z is rate of feed per tooth of the counter-bore. Cutting speeds were from 53 to 126 meters/min. Curves are given for wear on the flank of the cutting edge of the sizing part of the cutter versus time of use. Separate curves are given for various front and flank angles on this cutting

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SOV/122-59-3-19/42

Rapid Counter-boring of Holes with Increased Rates of Feed

edge. Optimum front angle was found to be 16° , and optimum flank angle to be 5° . Using these optimum angles, formulae are given relating life to cutting speed, to rate of feed, and to radial depth of cut. From these formulae, a high rate of feed is seen to give better life than lower rates of feed with deeper cuts. Correction factors are tabulated for counter-boring cast-irons with other hardnesses, and are compared using 200 - 220 Brinell as the 100% basis. With counter-bores with sizing edges of length determined by the above formula, the quality of the counter-bored surface was unchanged with increased rate of feed. The accuracy of the hole depends mainly upon the symmetry of the opening (i.e. the transverse) edges of the cutters. By using high rates of feed (quoted as between 0.32 and 4.715 mm/rev and cutting speeds between 75 and 130 meters/min), it was found that there was little work-hardening of the surface being cut, and that the depth of the work-hardened

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SOV/122-59-3-19/42

Rapid Counter-boring of Holes with Increased Rates of Feed

layer was substantially less than the usual allowance
for holes which are to be reamed.
There is 1 figure.

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AFANAS'YEV, V.F.

Investigating high-speed hole drilling in parts made of high-strength cast iron. Nauch.zap.Od.politekh.inst. 26:3-16 '60.

(MIRA 15:5)

(Drilling and boring)

AFANAS'YEV, V.F., kand.tekhn.nauk

High-speed drilling of holes in high-grade cast-iron parts. Vest.
mash. 40 no.10:65-66 0'60. (MIRA 13:10)
(Drilling and boring)

RODIN, Petr Rodionovich; BODZICH, M.I., dots., retsenzent;
AFANAS'YEV, V.F., dots., kand. tekhn. nauk, retsenzent
SAMOKHIN, G.I., otv. red.; CHISTYAKOVA, L.G., inzh.,
red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Design and manufacture of metal-cutting tools] Proektirovanie
i proizvodstvo rezhushchego instrumenta. Moskva, Mashgiz,
1962. 254 p. (MIRA 15:4)

(Metal-cutting tools)

24.7000

28088

S/181/61/003/009/022/039
B104/B102

AUTHORS: Maslova, L. V., Matveyev, O. A., and Afanas'yev, V. F.

TITLE: Electropolishing of n-type silicon

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2699 - 2702

TEXT: n-type and p-type silicon single crystals have been etched and polished electrolytically. Preliminary tests showed that electrolytic etching is reproducible, and is also more favorable with respect to the effective durability than chemical etching. Electrolytic etching increased the effective durability of samples having a resistivity of 5 - 50 ohm.cm by 30 - 50%. The results of D. R. Turner (Ref.1: J. Electrochem. Soc., no. 7, 402, 1958) have been verified by using low-resistance p-type silicon. For data concerning p-type silicon c. f. Ref.1. The electropolishing process was applied to n-type silicon samples having a resistivity of 150 ohm.cm. The contacts were obtained by depositing nickel electrolytically, or by melting on tin with an antimony impurity. Hydrofluoric acid dissolved in water and containing admixtures of glycerin and acetic acid was used for

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28988

S/181/61/003/009/022/039
B104/B102



Electropolishing of n-type...

electropolishing n-type silicon. The best results for n-type silicon were obtained with electrolytes containing 0.9-2% of hydrofluoric acid. Solutions with higher concentrations required higher current densities, whereby the samples were heated too much; at concentrations lower than 0.9%, the polishing rate was too low. It was found that the optimum current strength increased linearly with the hydrofluoric acid concentration in water. The best results were obtained with a 7 - 8 ma/mm² current density and with an electrolyte having 1.8 % of hydrofluoric acid; the polished surface of the samples measured 4 mm². The same current density caused a considerable heating of samples with 25 mm² surfaces. Using a 0.9 % hydrofluoric acid concentration and a current density of 2.5 - 3 ma/mm² made it possible to polish the larger surfaces without cooling. The time of polishing was increased from 3 - 5 minutes to 10 - 15 minutes. In order to keep the necessary concentration gradient at the surface of the sample, it was very important that the viscosity of the electrolyte was kept constant. For this purpose, glycerin was added to the electrolyte. The resistance

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S/181/61/003/009/022/039
B104/B102

Electropolishing of n-type...

was decreased by adding acetic acid. Grinding of the sample before etching had a considerable effect on the electropolishing process. The surfaces of the silicon samples polished electrolytically were examined under an MIM-7 (MIM-7) microscope. It was found that 2 minutes of polishing at a current density of 7 - 8 ma/mm² in an electrolyte with a 1.8% hydrofluoric acid concentration will furnish the same surface structure as 20 minutes of polishing at 2.5 - 3 ma/mm² and a 0.9% concentration. After 10 minutes of polishing at a current density of 7 - 8 ma/mm² (1.8%), the surface structure in the center of the sample was the same as on the edge; a longer polishing resulted in a very uniform and fine-grained structure of the sample surface. The grain size of the polished surface decreases with increasing time of polishing and increasing current density. At 7 ma/mm², a surface is obtained, which appears rippled but has no film; at 8 ma/mm², the surface is ideally smooth but has a film showing interference properties. Momentary etching at 2 - 3 ma/mm² or reversing the polarity will remove this film easily. There are 4 figures and 2 non-Soviet references. They read as

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Electropolishing of n-type...

²⁰⁸⁸
S/181/61/003/009/022/039
B104/B102

follows: D. R. Turner, J. Electrochem. Soc., No. 7, 402, 1958; A. Uhler,
Bell Syst. Techn. 32, 333, 1956.

ASSOCIATION: Fiziko-tekhnicheskii institut im. A. F. Ioffe AN SSSR
Leningrad (Institute of Physics and Technology imeni A. F.
Ioffe, AS USSR, Leningrad)

SUBMITTED: April 21, 1961

Card 4/4

S/276/63/000/004/003/007
A052/A126AUTHOR: Afanas'yev, V.F.

TITLE: High-speed countersinking and broaching of deep holes

PERIODICAL: Referativnyy zhurnal, Tekhnologiya mashinostroyeniya, no. 4, 1963, 171, abstract 4B934 (Nauchn. zap. Odessk. politekhn. in-t, 47, 1962, 36 - 43)

TEXT: According to the new technology for processing deep holes in Si-Cr-Mn steel tubes the countersinking and broaching operations are carried out on a boring machine. In the process of machining the workpiece is stationary and the tool rotates and realizes the feed travel. An investigation of the tool wear was carried out with the purpose of establishing the optimum geometry of countersinks and broaches furnished with T15K6 (T15K6) hard-alloy plates. When investigating the wear-off process and determining the criterion of bluntness of countersinks the following conditions were adopted: $V = 45 - 48$ m/min., $S_0 = 0.4 - 0.5$ mm/rev., $t = 0.75 - 1.25$ mm. It has been established that the maximum summary service life of a countersink is secured when as a criterion of bluntness the wear along the front edges $h_f = 0.8$ -1mm in the place where the cutter head passes over into the guiding part, which

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High-speed countersinking and broaching of ...

S/276/63/000/004/003/007
A052/A126

corresponds to the wear on the strip along the axis $h_A = 0.5 - 0.6$ mm. Thereby the finish is within $V_5 - V_6$ limits and the 4th class precision is secured. The optimum countersink geometry is $\gamma = 15^\circ$, $\alpha = 8 \div 10^\circ$, $\varphi = 60^\circ$, $\varphi = 15^\circ$, the length of the transition blade $l = 1.5$ mm, the strip width $\varphi = 1.2$. With an increase in the cutting speed the height of microroughness decreases and the hole spreading increases. A change of the feed within $S_0 = 0.3 - 1.1$ mm/rev. does not affect the precision and finish of the surface. In broaching the effect of the cutter head angle of hard-alloy broaches was investigated. The work was carried out under the following conditions: $V = 46$ m/min., $S_0 = 0.788$ mm/rev., $2t = 0.3 - 0.35$ min. It has been established that the optimum cutter head angle $\varphi = 15^\circ$. When investigating the wear-off process of the broaches it has been found that the wear occurs over the front surfaces of the teeth and along the strips in the place where the cutter head passes over into the calibrating part. Over the back surfaces of the teeth no wear is observed. With an increase of the cutting speed to within $48 - 78$ m/min. the hole spreading increases from 25 to 37.5 microns. A change of the feed from 0.2 to 0.788 mm/rev. has an inconsiderable effect on precision and finish of the hole. A change of the hole diameter allowance within $2t = 0.35 - 0.12$ mm does not affect precision and finish of the hole.

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High-speed countersinking and broaching of ...

S/276/63/000/004/003/007
A052/A126

An application of a lubricating-cooling liquid results in a considerable decrease of the hole spreading (40 - 14 micron) the hole having second class precision. The introduction of the new technique has cut labor for this operation by 600%. There are 3 figures and 2 tables.

L. Bozin

[Abstracter's note: Complete translation.]

Card 3/3

ITKIN, Abram L'vovich; AFANAS'YEV, V.F., kand. tekhn. nauk, dots.,
retsenzent; CHISTYAKOVA, L.G., inzh., red.; GORNOSTAYPOL'SKAYA,
M.S., tekhn. red.

[Manufacture and use of hard-alloy metal-cutting tools] Izgotovlenie
i ekspluatatsiia tverdosplavnogo rezhushchego instrumenta. Moskva,
Mashgiz, 1962. 119 p. (MIRA 15:7)
(Metal-cutting tools)

KOSHARNOVSKIY, Viktor Pavlovich; AFANAS'YEV, V.F., otv. red.;
KURILOVA, T.M., red.; ALEKSANDROVA, G.P., tekhn. red.

[Metal cutting and metal-cutting tools] Rezanie metallov i metallovezhushchie instrumenty; bibliograficheskiy spravochnik.
Khar'kov, Izd-vo Khar'kovskogo univ. 1962. 127 p.

(MIRA 15:10)

(Metal cutting) (Metal-cutting tools)

S/276/63/000/002/003/052
A052/A126

AUTHOR: Afnas'yev, V.F.

TITLE: Technological precision of spatial-complex surface machining

PERIODICAL: Referativnyy zhurnal, Tekhnologiya mashinostroyeniya, no. 2, 1963, 13, abstract 2B47 (Nauchn. zap. Odessk. politsehn. in-t, v. 47, 1962, 15-18)

TEXT: Calculation formulas are given which in workin out of the technological process of machining spatial-complex surfaces (of elements of turbine blade type) enable one to allow for possible errors caused by the thermal elongation of the cutter during cutting and also to calculate the errors of fixing and basing shaped surfaces. There is 1 figure.

L. Tsukerman

(Abstracter's note: Complete translation.)

Card 1/1

BORISOV, Boris Yakovlevich; AFANAS'YEV, V.F., kand. tekhn. nauk, retsenezent; BASKAKOV, I.G., kand. tekhn.nauk, retsenezent; KOVALENKO, V.V., kand. tekhn. nauk, red.; FURER, P.Ya., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Laboratory manual in metal cutting]Laboratornyi praktikum po rezaniyu metallov. Moskva, Mashgiz, 1963. 79 p.

(MIRA 16:4)

(Metal cutting—Study and teaching)

YAKOVENKO, Grigoriy Aleksandrovich; GOLUBOV, Nikolay Polikarpovich;
DUMANSKAYA, Valentina Avksent'yevna; AFANAS'YEV, V.F., kand.
tekh.nauk, retsenzent; NIKIFOROVA, R.A., inzh., red.;
GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Rapid machining of stainless steel] Skorostnaia obrabotka nerzha-
velushchikh stalei. Moskva, Mashgiz, 1963. 72 p. (MIRA 16:6)
(Steel, Stainless) (Metal cutting)

KACHER, Vladimir Aleksandrovich; AFANAS'YEV, V.F., kand.tekhn.nauk,
retsensent; NIKIFOROVA, R.A., inzh., red.; GORNOSTAYPOL'SKAYA, M.S.,
tekhn. red.

[Precision turning of hardened cast iron] Tonkoe tochenie
zakalennogo chuguna. Moskva, Mashgiz, 1963. 129 p. (MIRA 16:6)
(Cast iron) (Turning)

FILONENKO, Serafim Nikolayevich; AFANAS'YEV, V.F., kand. tekhn.
nauk, retsenzent; BARAB-TARLE, M.Ye., inzh., red.;
PILIPENKO, Yu.P., inzh., red.; GORNOSTAYPOL'SKAYA, M.S.,
tekhn. red.

[Metal cutting] Rezanie metallov. Moskva, Mashgiz, 1963.
209 p. (MIRA 16:7)

(Metal cutting)

AFANAS'YEV, V.F.; PARITSKIY, L.G.; PRIKOT, N.F.; RYVKIN, S.M.

Effect of trapping levels on the lux-ampere characteristics in silicon. Fiz. tver. tela 5 no.11:3179-3182 N '63. (MIRA 16:12)

1. Fiziko-tehnicheskij institut imeni A.F.Ioffe AN SSSR, Leningrad.

L 16304-65 EWP(e)/EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(k)/EWP(b) Pf-h IJP(c)
ACCESSION NR: AP4045900 MW/NT S/0021/64/000/009/1168/1172

AUTHOR: Fedorchenko, I. M. (Academician AN UkrSSR); Dravgor, D. A. (Deceased)
Afnas'yev, V. F.; Filatova, N. O.; ~~Malinich, V. S.~~; Filatova, N. A.

TITLE: Investigation of the wear of sintered powder materials in
different gaseous media

SOURCE: AN UkrSSR, Dopovidi, no. 9, 1964, 1168-1172 B

TOPIC TAGS: sintered powder material, iron powder material, bronze
powder material, friction coefficient, wear 18

ABSTRACT: Sintered powder materials, two on an iron powder base and two on a bronze powder base, were subjected to friction and wear tests in air, nitrogen, argon, and helium. The counterbody was nitrided 1Kh18N9T [AISI 321] steel hardened to 75 HR; testing was done at a specific pressure of $245 \cdot 10 \text{ n/m}^2$ and a sliding speed varying from 0.5 to 10.5 m/sec. The test results showed that the ambient gaseous medium has a significant bearing on the mechanism of wear, friction coefficient, and temperature of the friction surfaces of all the sintered materials tested. The friction temperature and wear

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L 16304-65

ACCESSION NR: AP4045900

were much lower in air than in gaseous nitrogen, argon, or helium. Under identical operating conditions, the wear rate of sintered iron-powder materials was appreciably higher than that of the bronze-powder materials. The value of the friction coefficient and its time-dependent changes at a constant speed were determined by the processes which occur on the friction surfaces, and which, in turn, depend on the ambient medium. At a constant sliding speed, the effect of the specific pressure on the friction coefficient is independent of the ambient gaseous medium. Orig. art. has: 3 figures.

ASSOCIATION: Institut problem materialoznavstva AN USSR [Institute of the Problems of the Science of Materials AN USSR]

SUBMITTED: 25Jan64

ENCL: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 001

Card 2/2

AFANAS'YEV, V.F.; SEVERIN, P.A.

Investigating antifriction properties of metal-reinforced polymer materials in gaseous media and in a vacuum. Fiz.-khim. mekh. mat. l no.2:237-242 '65. (MIRA 18:6)

1. Institut problem materialovedeniya AN UkrSSR, Kiyev.

AFAN 1964, 1965, 1966.

design of rails with block foundations. Vest. TSNII MPS 24 no.6:
1964 1965. (MIRA 18:9)

L 40055-56 EMI(m)/T/EMI(w)/EMI(t)/ETI IJP(c) WH/JD/JG

ACC NR: AP6025937

SOURCE CODE: UR/0226/66/000/007/0049/005259

AUTHOR: Afanas'yev, V. F.; Karpinos, D. M.

55
B

ORG: Institute of Problems in the Science of Materials, AN UkrSSR
(Institut problem materialovedeniya AN UkrSSR)

TITLE: Antifriction characteristics of boron nitride during dry friction in gaseous media and at low temperatures

SOURCE: Poroshkovaya metallurgiya, no. 7, 1966, 49-52

TOPIC TAGS: boron nitride, chemical compound, ~~boron nitride~~ friction, friction coefficient, ~~boron nitride wear, wear loss~~, wear resistance

ABSTRACT: The friction behavior of five series of boron nitride disks was studied under conditions of dry friction against nitrided 1Kh18N9T steel at 300, 273, 195 and 77K in air at a pressure of 133.322 n/m² and in argon, helium, and nitrogen at 300K. The series differed from one another by the density of the specimens (unspecified). Temperature was found to have a pronounced effect on the friction coefficient and wear resistance. With decreasing temperature the friction coefficient increased from 0.17—0.19 at 300K to 0.32—0.34 at 79K, and the weight loss increased from 20—21 g at 300K to 30—32 g at 77K in a two-hour test. With increasing specific pressure the weight loss increased

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Card 2/2 *gd*

L 10325-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) DJ/JD
ACC NR: AP6020919 SOURCE CODE: UR/0369/66/002/002/0209/0212

AUTHORS: Afanas'yev, V. F.; Khimich, G. S. 39

ORG: Institute for the Problems of Materials Science, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Effects of low temperature, vacuum, and gaseous environment on the friction and wear of materials. //

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 2, 1966, 209-212

TOPIC TAGS: metal friction, friction, wear resistance

ABSTRACT: The major portion of the report represents a qualitative citing and discussion of references on the effects of temperature, vacuum, and gaseous environment on friction and wear of materials. These include L. A. Plutalova (Sb. Treniye i iznos v mashinakh, M. 1962, vyp. 15) and "Effects of Vacuum on Space Metals", Metal Age, 1962, 20, No. 1, 2. It is concluded that the work (to date) on the effects of environment on friction and wear is insufficient and inadequate because only small ranges of operating parameters have been investigated and most work has not considered the microstructure of the metal and/or oxide surface layers. The last half page of the report briefly describes a friction test apparatus which has been developed to study friction and wear in a vacuum (to 10^{-9} mm Hg) or in a controlled atmosphere (at 100--6000 rpm or 0.2--20 m/sec sliding velocity). Orig. art. has: 2 figures and 1 table.

SUB CODE: 11, 13/ SUBM DATE: 15Oct64/ ORIG REF: 006/ OTH REF: 002

Ccrd 1/1 B.B.

ACC NR: AP6034196

coefficient on addition of ZnS is due to the formation of a protective sulfide film. However, an increase of ZnS content over 10% adversely affected the mechanical properties of the powder metallurgy products. An iron-based material with added 1.5% graphite, 2% copper and 8 to 10% zinc sulfide is recommended for operations in dry friction with 45 steel. Orig. art. has: 6 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 31Mar65/ ORIG REF: 004/ OTH REF: 004/

Card 2/2

AFANAS'YEV, V.G.

Tunnel tachymeter of the Ministry of Transportation Construction.
Transp. stroi. ll no.5:19-20 My '61. (MIRA 14:6)

1. Nachal'nik geodezicheskogo-marksheyderskogo upravleniya
Glavtonnel'metrostroya.
(Tachymeter)

AFANAS'YEV, Vasilii Grigor'yevich; FILATOV, Leonid Sergeevich;
CHUPEYEV, A.I., spets.red.; PESTRYAKOV, A.I., red.;
SOKOLOVA, N.N., tekhn. red.; DUDAKOV, V.A., tekhn. red.

[Innovators and efficiency promoters in agriculture] Izobretateli i ratsionalizatory sel'skomu khoziaistvu. Moskva, Sel'khozizdat, 1963. 333 p. (MIRA 16:12)
(Agricultural machinery--Technological innovations)

AFANAS'YEV, V.G., inzhener.

Instructions on geodetic work and mine surveying for the construction
of subways and tunnels. Transp. stroi. 7 no.3:32 Mr '57.
(Geodesy) (Tunneling) (MLRA 10:6)

AFANAS'YEV, V.G., inzh.; LABUTIN, E.B., inzh.; SUKHACHEV, V.E., inzh.

Remote control system for a bridge crane. Mekh. i avtom. proizvod.
18 no.10:22-23 0 '64. (MIRA 17:12)

AFANAS'YEV, Vasilii Gavrilovich; ALEKSEYEV, Aleksandr Onisimovich;
SOKOLOV, Yevgeniy Nikolayevich; CHEREMISIN, M.S., doktor
tekhn. nauk, red.

[Geodesy and mine surveying in the construction of tunnels
and subways] Geodeziia i markshreideriia pri stroitel'stve
tonnelei i metropolitenov. Moskva, Nedra, 1965. 299 p.
(MIRA 18:9)

AFANAS'YEV, V. I.

"Leading Research of Russian Scientists on the Pathogens of Malaria," Medgiz,
Moscow, 1952

AFANAS'YEV, V. I., CAND MED SCI, "EVALUATION OF ^{immediate} ~~THE BEST~~
RESULTS ^{of the} ~~IN~~ ^{present} TREATING CANCER OF CERVIX UTERI WITH RADIUM AND
X-RAYS. (CLINICO-ANATOMICAL COMPARISON)." STALINGRAD, 1961.
(MIN OF HEALTH RSFSR, STALINGRAD STATE MED INST). (KL, 3-61,
230).

AFANAS'YEV, V.I.

Eliminating ascariasis and Heterakis infestation of hens.
Veterinariia 41 no.7:55-57 J1 '64. (MIRA 18:11)

1. Glavnyy veterinarnyy vrach Sovkhoza "Rogachevskiy", Rostovskoy oblasti.

L 24131-66 EWT(1)/EWT(m)/T/EMP(t) IJP(c) JD/JG
ACC NR: AP6010970 SOURCE CODE: UR/0056/66/050/003/0520/0524

AUTHOR: Garber, R. I.; Afanas'yev, V. I.; Dranova, Zh. I.; Mikhaylovskiy, I. M.

ORG: Physicotechnical Institute, AN UkrSSR, (Fiziko-tehnicheskii institut AN Ukrainskoy SSR) 39
B

TITLE: Low temperature recrystallization of tungsten microcrystals 21 2/ 18

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 3, 1966, 520-524 27

TOPIC TAGS: low temperature, recrystallization, crystal dislocation, grain structure, microcrystal, tungsten deformation

ABSTRACT: Tungsten deformed at liquid nitrogen temperature has been investigated in a field ion microscope after being kept at room temperature. It is shown that new recrystallization centers may arise at 600--700C in the deformed boundary region of the microcrystals. The transverse size of the stable grain is 20--60Å at a disorientation angle of 8--10°. The dislocation structure of the boundaries was discussed. Orig. art. has: 2 figures. [Based on author's abstract] [NT]

SUB CODE: 20/ SURM DATE: 06Aug65/ ORIG REF: 003/ OTH REF: 001 2

Card 1/1 BK

L 45671-66 ENT(m)/T WE
ACC NRI AP6023622

SOURCE CODE: UR/0318/66/000/004/0012/0015 8

AUTHOR: Apafonov, A. V.; Osipov, L. N.; Rogov, S. P.; Uzunkoyan, P. N.; Finelonov, V. P.; Zhandanovskiy, N. B.; Perezhigina, I. Ya.; Kol'man, I. V.; Pisarchik, A. N.; Afanas'yev, V. I.; Khavkin, V. A.; Laz'yan, N. G. 477

ORG: All-Union Scientific Research Institute of Petroleum Refining (Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefi); Novokuybyshev Petroleum Refinery (Novokuybyshevskiy neftepererabatyvayushchiy zavod) 116

TITLE: Experience with catalytic hydrocracking¹¹ of vacuum distillate on the hydrofining assembly of the Novokuybyshev Petroleum Refinery

SOURCE: Neftopererabotka i neftekhimiya, no. 4, 1966, 12-15

TOPIC TAGS: catalytic cracking, petroleum product, gas oil fraction, diesel fuel, gasoline

ABSTRACT: The VNIINP has developed a variant of the process for producing diesel fuel involving one-step hydrocracking of sulfur-containing vacuum distillates on an alumina-cobalt-molybdenum catalyst. The results of laboratory experiments with this variant were successfully applied at the experimental industrial hydrofining assembly of the Novokuybyshev Petroleum Refinery. The operation of the hydrocracking assembly is described. The feed stock for the plant hydrocracking was vacuum gas oil obtained from distillation of sulfur feed stock. Distillation of the hydrogenate produced:

Card 1/2

UDC: 665.644.2.048.51665.658.2

L 45674-66

ACC NR: AP6023622

diesel oil which met all the requirements of GOST 4749-49 for DL grade; a gasoline fraction characterized by a low sulfur content (0.002-0.03), a relatively heavy fractional composition (molting range 120-180°), and a low octane number (42), and is recommended as feed stock for catalytic reforming; the gaseous products methane (49.2 wt. %), ethane (29.4%), propane (17.8%) and butanes (3.65). The residue of the distillation of fuel fractions is recommended as feed stock for catalytic cracking. It is concluded that the hydrocracking of vacuum gas oil on the hydrofining assembly of NKNPZ confirmed the results of work carried out by the VNIINP on pilot plants for the purpose of designing high-capacity units. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 003

Card 2/2 fv

REKHOVSKIY, Yu.D.; AFANAS'YEV, V.K.

Specialized crews for bridge painting. Put' i put.khoz.
5 no.7:31 J1 '61. (MIRA 14:8)

1. Rukovoditel' gruppy Nauchno-issledovatel'skogo instituta mostov (for Rekhovskiy).
2. Zamestitel' nachal'nika Leningrad-Finlyandskoy distantzii, Oktyabr'skoy dorogi (for Afanas'yev).
(Railroad bridges--Painting)

REKHOVSKIY, Yu.D., inzh.; AFANASYEV, V.K., inzh.

Introduction of a new technology of cleaning and painting bridges.
Sbor.trud.NII mostov no.7:129-133 '62. (MIRA 16:12)

KHRUSHCHEV, G.G., kand.tekhn.nauk; AFANAS'YEV, V.K., inzh.; YADROVA, G.I.,
inzh.

Combined wool spinner-twister. Tekst.prom. 22 no.2:30-32 F '62.
(MIRA 15:3)

1. Tsentral'nyy nauchno-issledovatel'skiy institut
sherstyanyoy promyshlennosti (TsNIIShersti).
(Spinning machinery)

KHRUSHCHEV, G.G., kand. tekhn. nauk; Prinsipalni uchastiyev: YADROVA, G.I.,
inzh.; STEPANOV, I.T., konstruktor; AFANAS'YEV, V.K., inzh.;
DODONOVA, V.I., laborant; VORONOVA, R.G., laborant

Method of combined spinning, slubbing, and twisting in woolen
manufacture. Nauch.-issl. trudy TSNiIShersti no.17:29-38 '62.
(MIRA 17:12)

AFANAS'YEV, V.K.; SIMAKOVA, L.N.

The PK-114-ShG spinning and twisting machine for worsted
manufacture. Biul. tekhn.-ekon. inform. Gos. nauch.-issl.
inst. nauch. i tekhn. inform. 18 no.3:38-40 Mr '65. (MIRA 18:5)

AFANAS'YEV, V.L., tekhnik.

~~Improving the reliability of UGP-51 falling-weight operating mechanisms. Energetik 4 no.8:28-29 Ag '56. (MLRA 9:10)~~
(Electric circuit breakers)

POPOV, I.P., kand.biol. nauk; AFANAS'YEV, V.L., mladshiy nauchnyy sotrudnik;
SUKHOVA, G.V., mladshiy nauchnyy sotrudnik

Washing synthetic fabrics in automatic laundries. Gor. khoz. Mosk.
32 no.9:19-20 S '58. (MIRA 11:9)

1. Akademiya kommunal'nogo khozyaystva imeni K.D. Pamfilova (for
Afanas'yev, Sukhova).
(Synthetic fabrics) (Laundry)

KOGAN, M.A., kand.istor.nauk; AFANAS'YEV, V.L.

Legends about visitors from outer space. Priroda 50 no.4:77-79
Ap '61. (MIRA 14:4)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
(Plurality of worlds) (Interplanetary voyages)

KOGAN, M.A.; AFANAS'YEV, V.L.

Are there any grounds for revising the generally accepted idea concerning the prehistory and purpose of Columbus' first voyage?
Izv.Vses.geog.ob-va 93 no.5:384-394 S-0 '61. (MIRA 14:10)
(Colombo, Cristoforo)

AFANAS'YEV, V.L. (Leningrad); KOGAN, M.A. (Leningrad)

A new world map by Martellus. Priroda 53 no.5:102-104 '64.
(MIRA 17:5)

AFANAS'YEV, V.L.; KHACHATUROV, A.A.

Recording of the microprofile of highways and its statistical characteristics. Avt. dor. 27 no.9:11-12 S '64.

(MIRA 17:11)

L 25511-66 EWT(1)/EWT(m) IJP(c) AT/JD

ACC NR: AP6011401

SOURCE CODE: UR/0057/66/036/003/0526/0532

AUTHOR: Afanas'yeva, V.L.; Lukin, A.V.; Mustafin, K.S.

ORG: none

TITLE: Determination of electron energy distribution functions in hollow cathode discharges in helium-neon mixtures

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 3, 1966, 526-532

TOPIC TAGS: gas discharge plasma, excited state, helium, neon, plasma electron temperature, metastable state, particle collision, electron density, energy distribution, cold cathode tube

ABSTRACT: Electron concentrations and energy distributions were measured and excited state populations were calculated in 100-200 mA hollow cathode discharges in helium-neon mixtures. The neon partial pressure was 0.1 mm Hg in all the measurements; the helium partial pressure was varied from 0.3 to 7 mm Hg. The discharges took place in a 30 cm long 1.2 cm diameter water-cooled kovar tube which served as cathode. The two anodes were mounted in branch tubes. The electron density and distribution measurements were made with three 6 mm long 0.06 mm diameter molybdenum probes, which could be retracted into side tubes to prevent their destruction during preliminary cleansing discharges. The distribution functions were calculated from the probe characteristics with the formula of M. Druyvestein (Zs.f. Phys., 64, 781, 790, 1963).

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UDC: 537.525

85
83
B

L 25511-66

ACC NR: AP6011401

The second derivative of the probe characteristic required for this calculation was obtained by modulating the probe potential at 1 MHz and measuring the 2 MHz component of the probe current. This technique and the electronic equipment with which the measurements were performed was tested by measuring electron distributions in mercury positive columns; the results of these measurements were in satisfactory agreement with corresponding data in the literature. The distribution curves obtained for the hollow cathode helium-neon discharges were rather close to Maxwellian. No high energy maxima were found, although there was a pronounced bulge at about 17 eV on the distribution curve for the discharge in which the helium pressure was 0.3 mm Hg. The observed electron temperatures and concentrations ranged between 19.5×10^3 and 68.5×10^3 °K and between 3.3×10^{10} and 11×10^{10} cm⁻³. The electron temperatures and concentrations were higher near the anodes than midway between them. The measured electron densities and distribution functions were employed to calculate the populations of the metastable 2^3S_1 helium level and the $1s$, $2p_4$, and $2s_2$ neon levels (Paschen's notation). Cascade and stepwise excitation processes and electron collisions of the second kind were neglected in these calculations, but collisions of the second kind between helium and neon atoms and collisions with the wall were taken into account in calculating the lifetime of the 2^3S_1 helium level. The data of V.P. Bennet (UFN, 81, 119, 1963) were employed for the lifetimes of the $2p_4$ and $2s_2$ neon levels. There was population inversion between the $2s_2$ and $2p_4$ levels. At a helium pressure of 0.3 mm Hg, electron collisions and collisions of the second kind contributed approximately equally to the population of the $2s_2$ neon level; at helium pressures above 3 mm Hg

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L 25511-66

ACC NR: AP8011401

2

the contribution from collisions of the second kind was predominant. As a function of the helium partial pressure, the population of the $2s_2$ neon level went through a minimum at 1-2 mm Hg and a maximum at 4-6 mm Hg. The behavior of the 1.15μ ($2s_2 - 2p_4$) neon line intensity as a function of helium pressure to be expected on the basis of the calculated populations is in agreement with the measurements of V.B.Znamenskiy. The authors thank Yu.M.Kagan for his interest and valuable remarks, and V.B.Znamenskiy for kindly making available the results of his measurements. Orig. art. has: 4 formulas, 9 figures and 2 tables.

SUB CODE: 20

SUBM DATE: 22May65

ORIG. REF: 007

OTH REF: 005

Card

3/3

PB

L 40336-66

ACC NR: AP6017626

(A)

SOURCE CODE: UR/0113/66/000/002/0023/0027

AUTHOR: Afanas'yev, V. L.; Khachaturov, A. A. (Doctor of technical sciences)

33

ORG: Moscow Automobile and Highway Institute (Moskovskiy avtomobil'no-dorozhnyy institut)

32

B

TITLE: Statistical characteristics of road surface irregularities and automobile vibration

SOURCE: Avtomobil'naya promyshlennost', no. 2, 1966, 23-27

TOPIC TAGS: surface roughness, statistic analysis, vibration, spectrum, vehicle suspension system, road

ABSTRACT: The electrical analog method is used to derive formulas for the statistical characteristics of road surface irregularities and automobile vibrations. A diagram is given showing the distribution functions for road surface irregularities which are recorded at a speed of 40 km/hr and in the case of dirt roads at 20 km/hr. It is suggested that the distribution of road surface irregularities is nearly normal. The experimental data prove this. The mean square height of the road surface irregularities is given for various roads. The function $S_q(\omega)$ is given for the spectral density of dispersion in the effect which road surface irregularities have on the automobile. This function shows the distribution of dispersion density in a given frequency range.

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UDC 629.113.001.5

L 40336-66

ACC NR: AP6017626

A spectral analyzer with filters is used to determine the points of the spectral density function. A formula is given for determining dispersion within the given frequency band. The statistical characteristics of vertical vibrations of a truck are considered. Error is estimated for spectral density of dispersion in this case. A statistical study of the interaction between automobile and road may be used to evaluate automobile suspensions and road surface smoothness. Orig. art. has: 8 figures, 1 table, 6 formulas.]

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 001

ms
Card 2/2

AFANAS'EV, V. ...

24381 AFANAS'EV, V. K. Izmeneniya serdtsa pri tuberkuloze u detey. Arkhiv patologii, 1949, VYP. 4, S. 52-61. - Bibliogr: S. 61.

SO: Letopis, No. 32, 1949.

KISLYAK, N.S., AFANS'YEV, V.M.

Clinical diagnosis of periarteritis nodosa in children. Vop. okh.
mat. i det. 3 no. 3:84-96 JI-Ag '58 (MIRA 11:8)

1. Iz kafedry fakul'tetskoy pediatrii (zav. - prof. P.A. Ponomareva)
II-go Moskovskogo meditsinskogo instituta imeni N.I. Pirogova i
proektury Detskoy gorodskoy klinicheskoy bol'nitsy No.1 (nauchnyy
rukovoditel' - deystvitel'nyy chlen AMN SSSR M.A. Skvortso, glavnyy
vrach - zaslyzhenyy vrach RSFSR Ye.V. Prokhorovich).
(ARTERIES--DISEASES)

AFANAS'YEV, V.M. (Moskva)

Morphology of umbilical sepsis treated with antibiotics. Arkh.pat.
21 no.4:64-68 '59. (MIRA 12:12)

1. Iz patologoanatomicheskogo otdeleniya (zav. V.M. Afanas'yeva, nauchnyy
rukovoditel' - deystvitel'nyy chlen AMN SSSR prof. M.A. Skvortsov)
Detskoy gorodskoy klinicheskoy bol'nitsy No.1 (glavnyy vrach - zaslu-
zhennyy vrach RSFSR Ye.V. Prokhorovich).

(ANTIBIOTICS, ther.use,
umbilical sepsis, pathol. aspects (Rus))
(UMBILICUS, dis.
sepsis, antibiotic ther. & pathol. (Rus))

AFANAS'YEV, V.M.....

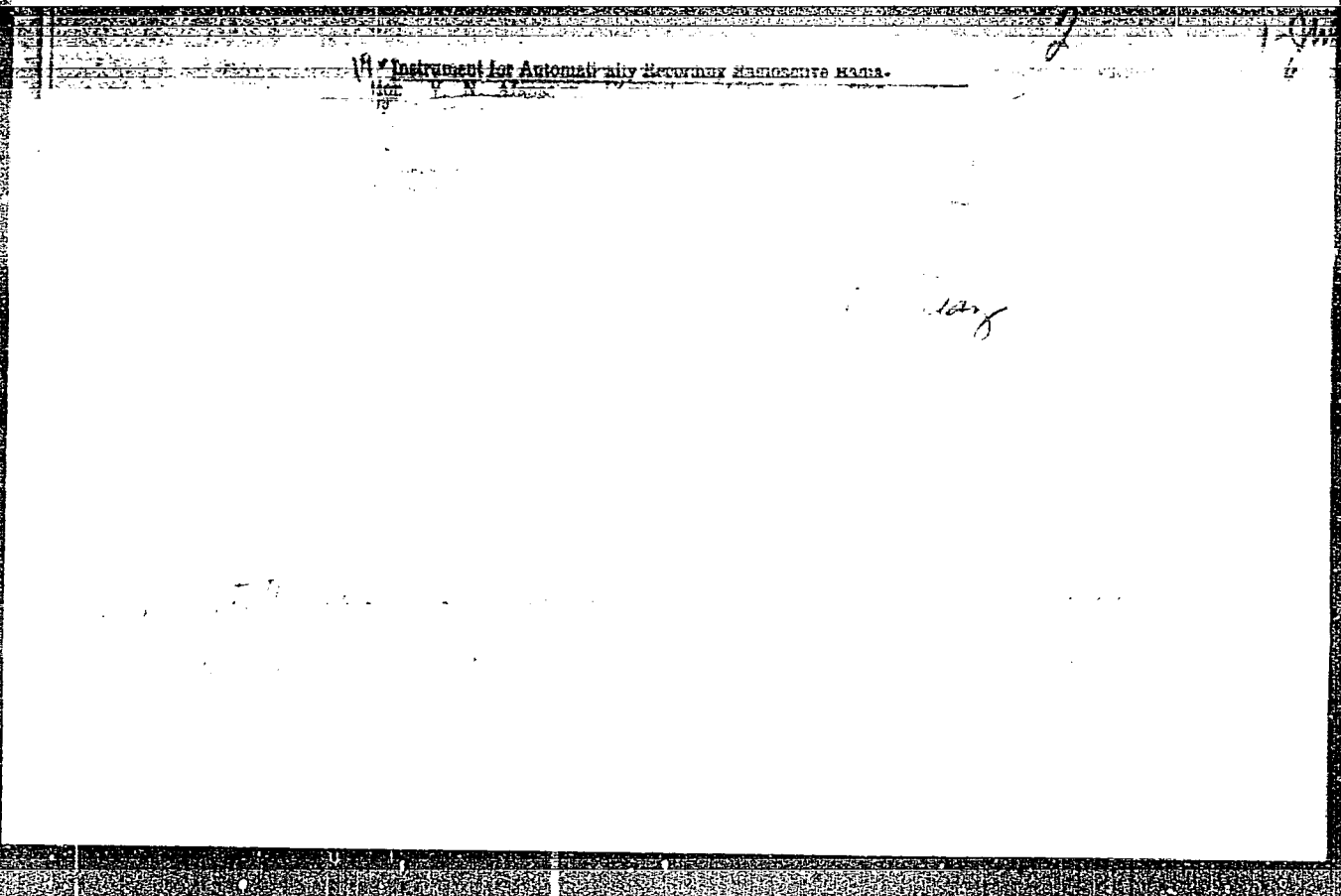
Calculating pipelines for oil and gas mixtures. Trudy Giprovoztoknefti
no.4:26-40 '61. (MIRA 16:8)

(Pipelines)

AFANAS'YEV, V.M.

Calculating pipelines for oil and gas mixtures, Neft, khoz, 40
no.11:56-60 N '62. (MIRA 16:7)

(Pipelines)



A FANAS'YEV, V. N.

137-1958-1-280

Translation from: Referativnyy zhurnal Metallurgiya, 1958, Nr 1, p 43 (USSR)

AUTHORS: Gruzin, P.L., Zemskiy, S.V., Trekalo, S.K., Afanas'yev, V.N.

TITLE: A Study of the Motion of Charge Components in Blast Furnaces
(Izucheniye dvizheniya shikhtovykh materialov v domennykh pechakh)

PERIODICAL: V sb.: Primeneniye radioaktivn. izotopov v chernoy metallurgii.
Chelyabinsk. Knigoizdat. 1957. pp 59-66

ABSTRACT: Radioactive isotopes Fe⁵⁹ and Co⁶⁰ were used to determine the rate of motion of the charge at various distances from the wall of a blast furnace. Photon counters mounted either outside the furnace or in its lining (fixed counters) or introduced within it by A. A. Melikyan's method (mobile counters) were used to trace the progress of the radioactive isotopes through the various levels of the furnace. Data obtained by the investigation show that the time during which the materials remain within a 330 m³ furnace from the stock line to the tuyere belt is 3 hrs. 40 min. for the clinker in the middle of the furnace and 4 hrs. 45 min. at the periphery, while for coke it is 4 hrs. 50 min. both at the center and at the periphery.

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M.O.

1. Blast furnaces--Performance 2. Iron isotopes (Radioactive)
--Applications 3. Cobalt isotopes (Radioactive)--Applications

A. F. AFANAS' YEV, V.N.

120-3-2/20

AUTHOR: Afanas'yev, V.N.

TITLE: Automatic Recording of the Intensity of Radioactive Emission.
(Avtomaticeskaya registratsiya intensivnosti radioaktivnogo izlucheniya)

PERIODICAL: Pribery i Tekhnika Eksperimenta, 1957, Nr 5, pp.36-40
(USSR)

ABSTRACT: A method of automatic recording of the intensity of radioactive emission is described. It is based on measuring the time necessary to count a given number of pulses. Block diagram of the simplest variant of such auto-radiometer is shown in Fig.1. It consists of the usual radiometric blocks 1-4 but has, in addition, mechanical blocks 5-10 and servo blocks 11-12. The mechanical blocks control the movement of the recording pen of a pen recorder and of the paper on which the record is made. The servo block is controlled by the output cascade of the counting block and reverses the motion of the pen carriage, and opens and closes the counting block. Each record consists of a peak, the height of which is proportional to the time taken to count a given number N_0 of pulses. If one has a suitable calibration of the instrument one can determine the intensity of the radiation J .

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Automatic Recording of the Intensity of Radioactive Emission.

It can be shown that:

$$h = (\ln K_0 K/n)/J = \Delta L/J = V_0(t_2 - t_1)$$

where h is the height of the peak, L the width of the peak, n is the speed of the motor M (Fig.1), K is the reduction coefficient (7, Fig.1), a is the number of turns of the worm-screw at a distance L , J is the measured intensity in pulses per/min, and K_0 is a constant. It is clear from this formula that the scale of the instrument is linear. The autoradiometer has four useful characteristics: (1) Intensity range. This property is estimated by the ratio of the maximum to minimum intensity measured by the instrument, i.e., $A = J_{\max}/J_{\min}$. Values of A obtained were up to 1000 to 1500. (2) Range of measurable times. This sets a limit to the recording of very brief phenomena or phenomena which are very variable. It is expressed in the form $T = aK_0/J_{\min}$ where a is a constant of the instrument and is equal to 1 or 2. The autoradiometer is suitable for given measurement only if its T is less than the smallest time interval during which it is necessary to know the mean value of the intensity. The quantity T

Jan 1/3

13-7-1/45

A graphic Recording of the Intensity of Radioactive Emission.

characterises the inertia of the autoradiometer. (3) Errors. The statistical error is given by $\delta = 100/(N_0)^{1/2} \%$ and

its magnitude is determined by the chosen value N_0 . The instrument error is determined in the main by the time of reversal of the pen carriage (about 0.5 sec) which at $T = 1$ min. is less than 1%. (4) Resolving time of the counting channel. This is only important for small T . Fig. 2 shows typical readings obtained with constant intensity sources. The instrument can be conveniently used for pre-set times greater than 1 sec. There are 3 figures, no tables and 3 references, 1 Russian, 1 German and 1 English.

ASSOCIATION: Central Scientific Research Institute for Ferrous Metallurgy (tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii)

SUBMITTED: November 21, 1956.

AVAILABLE: Library of Congress.

PAGE 3/3 1. Pulse counters 2. Radioactive emission-Intensity-Recording devices

AFANASYEV, U.V.

18(0) PHASE I BOOK EXPLOITATION SOV/2125
 Tsentral'nyy nauchno-issledovatel'skiy institut Chernoy metallurgii.
 Institut Metallovedeniya i fiziki metallov
 Problemy metallovedeniya i fiziki metallov (Problems in Physical Metallurgy and Metallophysics) Moscow, Metallurgizdat 1959.
 540 p. (Series: It's: Sbornik trudov, 6) Errata slip inserted.
 3,600 copies printed.
 Additional Sponsoring Agency: USSR. Gosudarstvennaya planovaya komissiya.
 Ed. of Publishing House: Ye. M. Berlin; Tech. Ed.: P. O. Isalent'eva;
 Editorial Board: D. S. Kamenetskiy, B. Ia. Kruboy (Resp. Ed.),
 Ye. Z. Spaktor, L. N. Utevaldy, L. A. Shvartsman, and V. I. Malkin.
 PURPOSE: This book is intended for metallurgists, metallurgical engineers, and specialists in the physics of metals.
 COVERAGE: The papers in this collection present the results of investigations conducted between 1954 and 1956. Subjects covered include crystallization of metals, physical methods of studying the processes of crystallization, problems in the chemistry of metallurgical processes, development of new methods and equipment for investigating metals, and production control. References follow each article.
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The Relationship between Plasticity and High-alloy Steels E1533 and E1530. Mechanical Properties of these steels investigated in order to determine the possibility of improving their strength by means of alloy treatment or by diffusion annealing.	
It was found that a substantial increase in plasticity results from the addition of 0.1-0.2 percent Al and 0.2-0.3 percent Ba-Al alloy. Addition of Titanium greatly reduces the plasticity.	

Tobolov, V. S. Experience Gained in the Use of Gamma-ray Flaw Detection Method in Metallurgy
 Experience gained in the use of radioactive isotopes for the purpose of flaw detection has shown that it is possible to use this method in checking castings and welded structures.
 537

AVAILABLE: Library of Congress

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00/jmr
9-4-59

Afanas'yev, V.N.

TABLE I BOOK EXPLANATION 807/3178

Verzamenie Gosudarstvennaya planovaya bazislyu
Automatizatsiya i priborostroyeniye: sbornik nauchnykh treudov, vyp. 1.
(Automation and Instrument Making: Collected Scientific Works, No. 1)
Klyer, Gostkhizdat MWSR, 1959. 107 p. 3,000 copies printed.

Ed.: V. Demskiy, Tech. Ed.: K. Onasov; Editorial Board: P.M. Mel'nik
(Chief Ed.), E.Z. Pavlov, G.S. Krut'ko, I.A. Orlov, (Resp. Ed.),
I.A. Buzhbat, and E.V. Ischi.

REMARKS: this collection of articles is intended for scientific and technical
workers and for students of schools of higher education specializing in
automation, telemechanics, and computing.

CONTENTS: The collection contains papers on the automation of metallurgical,
chemical and power engineering and on the development of new methods,
telemechanical units, and a program control system for power tubes.
A bibliography on automatic analysis of solid-state devices containing 66 items.
12 Soviet, 34 English, 5 German, 4 French and 1 Polish, is included. No person-
alities are mentioned.

Automation of Industrial Processes

Korobko, M.I., A.G. Strel'tchenko, V.S. Korobnich, Y.I. Kozlyuk, A.V. Trubko, V.M. Astumukly. Automation System for Open-Search Thermal Processes	9
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LEONT'YEV, O.K.; AFANAS'YEV, V.N.

Use of radioisotopes in studying littoral sand drifts. Biul.
Okean kom. no.3:73-79 '59. (MIRA 13:4)

1. Geograficheskiy fakul'tet Moskovskogo gosudarstvennogo
universiteta.
(Radioactive tracers) (Beach erosion)

207/12-59-3-3/32

AUTHORS: Polovchenko, I.G. and Vasil'yev, G.A., Candidates of Technical Sciences, Afanas'yev, V.N., Uzlyuk, V.N. and Berin, A.L., Engineers

TITLE: Radiometric Control of the Stock Line Level in a Blast Furnace (Radiometricheskiy kontrol' urovnya materialov v domennoy pechi)

PERIODICAL: Stal', 1959, Nr 3, pp 204 - 205 (USSR)

ABSTRACT: A description of an experimental radiometric stock level indicator is given. Its operation is based on the irradiation of the working volume of the furnace throat by two radioactive sources (Co^{60} of 500 millicurie each) and measuring of the degree of absorption of the radiation by the burden with counters (enclosed in water-cooled tubes) distributed in vertical rows from the four sides of the throat (Figures 1 and 2). This indicator was installed on a blast furnace at the Dzerzhinskiy Works and its operation was compared with the mechanical stock level indicators. It was found that in general stock level measuring rods indicate a stock level lower than the actual level of the stock in the furnace. The new stock level indicator showed clearly non-uniformity of the burden descent along the periphery of the furnace and the

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Radiometric Control of the Stock Line Level in a Blast Furnace ^{SOV/133-59-3-3/32}

variability of the position of the maximum rate of the descent along the periphery. The most stable rate of burden descent was found to be at the side of the tapping hole (tuyeres over the tapping holes were of a smaller diameter) and the highest rates of descent were observed from the sides of the slag notches. The radiometric indicator was developed by the Ukrainskiy institut metallov (Ukrainian Institute of Metals) in co-operation with TsNIICHM. It is planned to produce an industrial type of the apparatus with improved recording instruments. There are 2 figures and 2 Soviet references.

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SOV/133-59-3-6/32

AUTHORS: Polovchenko, I.G., Candidate of Technical Sciences,
Afanas'yev, V.N., Uzlyuk, V.N. and Berin, A.L., Engineers

TITLE: Radiometric Control of the Size Distribution of Skip Coke
(Radiometricheskiy kontrol' kuskovatosti skipovogo koka)

PERIODICAL: Stal', 1959, Nr 3, p 211 (USSR)

ABSTRACT: During an investigation of the absorption of γ radiations by the individual components of burden materials carried out at the Dzerzhinskiy Works, it was found that the degree of absorption depends more on the bulk density of a material than on its chemical and mineralogical composition. As the bulk density of coke is related to its size distribution, TsNIChM developed an experimental apparatus for the control of the size distribution of coke as charged into skips. One of the coke-weighing funnels is irradiated from one side with Co^{60} (activity 300 millicurie) and the counter situated on the opposite wall recorded the degree of absorption by coke of the γ radiation (Figure 1). A sample of such record is shown in Figure 2. The degree of absorption for each skip of coke is recorded. A comparison of the recorded absorption with the furnace operating indices has shown that the absorption of γ radiation by coke varied from 5 to 12.7% of the mean

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Radiometric Control of the Size Distribution of Skip Coke ^{SOV/133-59-3-6/32}

value, whereupon at a minimum absorption burden load per ton of coke was 2 540 kg and at a maximum absorption it decreased to 2 210 kg/t, i.e. by 13%.
There are 2 figures and 2 Soviet references.

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SOV/133-59-4-2/32

Investigation and Control of the Blast Furnace Process Using
Radioactive Isotopes and Radiations

to an indirect indication of the size distribution of sinter and coke based on the absorption of γ radiation of the layer of the above materials in the weighing hopper). It is concluded that a further effort should be made in applying radiometric methods for research and control purposes with special attention to utilising isotopes with a short radioactive life. There are 6 figures and 27 references of which 22 are Soviet, 4 English and 1 German.

ASSOCIATION: TsNIICHM

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S/137/62/000/004/130/201
A060/A101

24.1800

AUTHOR: Afanas'yev, V. N.

TITLE: On a possibility of constructing a multichannel amplitude analyzer

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 87, abstract 4I522
("Sb. tr. In-t metalloved. i fiz. metallov Tsent. n.-i. in-ta
chernoy metallurgii", 1959, 6, 397-400)

TEXT: It is noted that in order to extend the investigation possibilities of the energy spectrum of radioactive radiation, it is necessary to elaborate a new type of multichannel amplitude analyzer, simpler and better than the existing ones. A considerably simplified analyzer circuit is proposed, consisting of classifier blocks, whose input and output potentials are related in a definite manner, shaping blocks, mechanical adder amplifiers, a block with a memory capacitor, and a univibrator with a differentiating circuit at the input. Possible circuits for the classifying blocks are given. The principle of operation of the proposed analyzer scheme is described. In comparison to other designs, the proposed analyzer contains a lower number of vacuum tubes and has more stable operating characteristics. The circuit excludes the possibility

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AFANAS 'YEV, V.N.

Remote radiometric control of certain blast furnace processes.
Probl. metalloved. i fiz. met. no. 6:492-498 '59. (MIRA 12:8)
(Blast furnaces) (Remote control)

POLOVCHENKO, I.G., kand.tekhn.nauk; AFANAS'YEV, V.N., inzh.; UZLYUK, V.N.,
inzh.; KRIVOSHEYEV, A.A., inzh.; YAROSHEVSKIY, N.D., inzh.

Investigation and control of the erosion of blast furnace linings.
Stal' 20 no.9:769-774 S '60. (MIRA 13:9)

1. Zavod im. Dzerzhinskogo i Tsentral'nyy nauchno-issledovatel'skiy
institut chernoy metallurgii.

(Blast furnaces--Maintenance and repair)
(Refractory materials)

S/194/61/000/012/050/097
D256/D303

AUTHOR: Afanas'yev, V. N.

TITLE: Time of count radiation monitors

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1961, 31, abstract 12V272 (Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR. Vol. 3. M., Gostoptekhizdat, 1961, 203-204)

TEXT: The advantages of the method are considered: The measurement is performed by pulse-counting so that very low intensities can be recorded and the zero-point drift is absent; the signal can be conveniently transmitted over a long distance without distortion; each measurement consists of counting a given number of pulses, thus ensuring equal statistical errors of all measurements determined by the selection of the number of pulses to be counted. It is borne out by practical experience that the time of count radiation monitors are suitable for control and regulation of a wide range of technological parameters. /-Abstractor's note: Complete translation. /

Card 1/1

AFANAS'YEV, V.N., kand.tekhn.nauk; Balyuk, F.B., inzh.; BERIN, A.L., inzh.;
VASIL'YEV, A.G., kand.khimicheskikh nauk; GRUZIN, P.L., doktor
tekhn.nauk; KOROBAYNIK, V.F., inzh.; POLOVCHENKO, I.G., kand.tekhn.
nauk; SMIRNOV, V.G., inzh.; UZLYUK, V.N.

Control of the level of the blast furnace charge by means of gamma
rays. Trudy Ukr. nauch.-issl. inst. met. no.7:51-80 '61.
(MIRA 14:11)

(Blast furnaces--Equipment and supplies)
(Gamma rays--Industrial applications)

20686

9.6150

S/120/61/000/001/022/062
E032/E114

AUTHOR: Afanas'yev, V.N.

TITLE: Stabilization of the Efficiency of a Scintillation Counter

PERIODICAL: Pribory i tekhnika eksperimenta, 1961⁶ No.1, pp.74-75

TEXT: The design and operational characteristics of the efficiency stabilizer for a scintillation counter described by A.M. Ivanchenko and G.A. Kibal'chich (Ref.1) are said to be capable of considerable improvement if the control signal is produced by a controlling flux of α -radiation instead of the neon lamp flashes used by the above workers. The α -radiation should preferably be of high energy so that with a suitable choice of the phosphor, controlled pulses of large amplitude can be obtained. In this method the signal from the output of the amplifier is fed both into the input of the recording device and into the input of an amplitude discriminator which separates out the control pulses from the total signal. These pulses are then passed through a variable capacitor to an integrating circuit, and the output signal from this circuit is used to stabilize the Card 1/2

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S/120/61/000/001/022/062
E032/E114

Stabilization of the Efficiency of a Scintillation Counter
parameters of the scintillation counter by means of a negative feedback loop. In actual practice CsI crystals 37 mm in diameter and 19 mm long were employed. The crystals were removed from their envelope and a layer of thorium oxide 70 mg/cm^2 thick ($E = 4\text{-}10 \text{ MeV}$) was deposited on one of its sides. The crystal was then re-encapsulated and was ready for use. The control signal counting rate was 30 000 pps and the time constant of the integrating circuit 100 sec. There are 1 figure and 1 Soviet reference.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut
chernoy metallurgii
(Central Scientific Research Institute of
Ferrous Metallurgy)

SUBMITTED: February 20, 1960

Card 2/2

FILIN, N.A.; ZYKOV, A.M.; AFANAS'YEV, V.N.; MAMONICOV, V.V.

Kinetics of sulfurizing nickel and cobalt by sodium sulfate
in presence of carbon. Trudy LPI no.223:161-173 '63.
(MIRA 17:11)

GRUZIN, P.L.; AFANAS'YEV, V.N.; ZEMSKIY, S.V.; SMIRNOV, V.G.;
ANDREYENKO, Z.D., red.

[Use of radioisotopes for the control of the open-hearth
process] Primeneniye radioaktivnykh izotopov dlia kontrolya
domennogo protsesssa. Moskva, Atomizdat, 1964. 169 p.
(MIRA 17:5)

GEORGIYEVSKIY, Yu.I., inzh.; AFANAS'YEV, V.N., inzh.

Registering device for determining the technological indices of
an aluminum electrolyzer. Khim. mashinostr. no.1:97-106 '65.
(MIRA 18:9)

GEORGIYEVSKIY, Yu.I.; AFANAS'YEV, V.N.

Device for automatic determination of the productivity of an
aluminum electrolyzer. Avtom. i prib. no.2:3-7 Ap-Je '63.
(MIRA 18:8)

1. Institut avtomatiki Gosplana UkrSSR.

AFANAS'YEV, V.N.; LOZINSKIY, L.S.; POGREBINSKIY, S.B.

One class of standard operators for computer systems oriented
on the solution of economic problems. Part 1. Kibernetika
no. 4:76-82 JI-Ag '65. (MIRA 18:12)

1. Submitted April 24, 1965.

L 23169-66 EWT(m)/EBA(h) GS
ACC NR: AT5028942 (A)

SOURCE CODE: UR/0000/63/000/000/0175/0182

AUTHOR: Afanas'yev, V. N.

ORG: none

37
B+1

TITLE: A time counting method for recording radiation intensity

SOURCE: Vsesoyuznyy seminar po primeneniyu radioaktivnykh izotopov v izmeritel'noy tekhnike i priborostroyenii. Frunze, 1961. Radioizotopnyye metody avtomaticheskogo kontrolya (Radioisotope methods of automatic control); trudy rasshirennogo soveshchaniya, v. 1. Frunze, Izd-vo AN KirgSSR, 1963, 175-182

TOPIC TAGS: radioactivity measurement, radiometer, pulse counter

ABSTRACT: The use of an automatic ^{19.4}radiometer for recording radiation intensity is discussed and a block diagram of the radiometer is presented. The so-called time counting or time measuring method is based on recording the magnitude of the time interval T during which a predetermined number N of pulses is detected. Intensity I of radiation in pulses per second is transformed into time intervals $T(I)$ by means of a pulse counter with a capacity of N counts. The counter recycles every time the

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ACC NR: AT5028942

capacity N is exceeded and the time between recycling instants becomes the measured parameter $T(I)$. This type of apparatus was installed in the first Soviet space rockets and has found application in wall thickness gauges, monitors for the production of vanes in jet engine turbines, and in scintillation gamma ray spectrometers. The scale of the radiometer can be adjusted to read in a hyperbolic, logarithmic, or linear fashion and the choice of scale depends upon I_{\max} . The probability of counting error in which the length of any time interval $T(I)$ has a Poisson distribution is derived. If one considers the fractional error defined as $a = \frac{I - \bar{I}}{\bar{I}}$

where I is the measured value, and \bar{I} is the true value, then the probability that $|a|$ is less than some value $|a_0|$ is shown to be

$$P_r(|a| < |a_0|) = \frac{\Gamma(N, \frac{N}{1-a}) - \Gamma(N, \frac{N}{1+a})}{\Gamma(N)}$$

Orig. art. has: 2 figures, 7 formulas.

SUB CODE: 18/

SUBM DATE: 21Mar63/

ORIG REF: 009/

OTH REF: 004

Card 2/2 *UR*

L 03011-67 FWT(d)/FWT(m)/FWT(v)/...
ACC NR: AP6023435 JD/RM SOURCE CODE: UR/0135/66/000/007/0001/0003

AUTHOR: Baranov, M. S. (Candidate of technical sciences); Afanas'yev, V. N. (Engineer); Voshchinskiy, M. L. (Engineer); Vaynshteyn, R. M. (Engineer); Nedel'chik, E. V. (Engineer); Taganov, Yu. I. (Engineer); Geynrikhs, I. N. (Engineer)

ORG: All-Union Extramural Machine Building Institute (Vsesoyuznyy zaochnyy mashinostroitel'nyy institut)

TITLE: Laser welding of some metals 4

SOURCE: Svarochnoye proizvodstvo, no. 7, 1966, 1-3

TOPIC TAGS: laser application, laser welding / SU-1 laser welder, 1Kh18N9T steel, KO steel

ABSTRACT: The results of laser welding of fillet joints of copper and L-62 silver coated brass with 1Kh18N9T steel, KO steel and copper are presented. The SU-1 laser welder (shown in photograph) was used to weld thin wires [$d < 0.1$ mm] attached to semiconductive and microelectronic devices. The unit power input is regulated by adjusting various object lenses with focal distances of 10, 20, 40, and 50 mm. Unit power input is calculated by the formula $g = W^2/tF$ where W^2 is the energy of radiation considering the losses in the optic system in joules; t is the pulse time in sec and F is the focal area in cm^2 . The weld penetration and width are proportional to the maximum volt-

UDC: 621.791.72:535.14:669.15-194

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72
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ACC NR: AM6025821

Monograph

UR/

Afanas'yev, Vadim Nikolayevich; Latyshev, Vladislav Konstantinovich;
Lyndin, Vasil'y Vasil'yevich; Felinger, Aleksandr Konstantinovich

Radioisotope instruments in metallurgy (Radioizotopnyye pribory v metallurgii) [Moscow] Izd-vo "Metallurgiya," 1966. 224 p. illus., biblio. 2700 copies printed.

TOPIC TAGS: nuclear radiation, radioisotope instrument, radioisotope measuring instrument, metallurgy, ~~instrument~~ radioisotope, ~~instrument~~ radiation detecting device, radioactive tracer, industrial nuclear application, metallurgic testing machine

PURPOSE AND COVERAGE: This book is intended for engineering personnel specializing in controlling various parameters of technological processes by using nuclear radiation and radioisotope measuring instruments, especially those instruments which are used in the field of metallurgy. The authors summarize data useful for development of new instruments which may facilitate dealing with problems of metallurgical industry. References accompany every chapter. Chapter 1 is written by V. K. Latyshev; Chapter 2—jointly by all the authors; Chapter 3 by V. N. Afanas'yev; Chapters 4 and 6 by A. K. Felinger; Chapter 5 by V. V. Lyndin and V. K. Latyshev; and Chapters 7 and 8 by V. V. Lyndin.

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UDC: 539.16.07:669