

S/024/59/000/06/020/028
E081/E241

AUTHORS: Baranov, G. G., Kochenov, M. I., and Fil'kin, V. P.
(moscow)

TITLE: Investigation of the Accuracy of the Automatic Grinding Process

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye
tekhnicheskikh nauk. Energetika i avtomatika, 1959,
Nr 6, pp 162-171 (USSR)

ABSTRACT: Presented at the III All-Union Joint Conference on
Automation of Production Processes in Engineering and the
Automation of Electric Drive in Industry.

A historical review is given of work on automatic grinding in the Soviet Union. An experimental investigation is then described into the automatic centreless grinding of the external ring of a bearing of diameter 135 mm using the machine O1S22. Eq (1) is a relation established between the deviations in the sizes before and after grinding; Δd_k is the limiting deviation of the ring after grinding from the mean of the group, Δd is the limiting deviation before grinding, and the mean value of the product k_c was established experimentally as 2.

Card 1/4 With $\Delta d = \pm 30$ microns, Eq (1) gives $\Delta d_k = \pm 10$ microns.

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Investigation of the Accuracy of the Automatic Grinding Process

In the experiments eleven groups of 500 rings were produced and in each group 40 rings at the beginning and 40 groups at the end were rejected. Each group consisted initially either of rings of a single diameter ($\pm 5\mu$) or of rings of two slightly different diameters (each $\pm 5\mu$). After grinding, the maximum and minimum diameters of each ring were measured. For all groups the distribution of the deviations Δd_c (maximum and minimum combined) and Δd_g (difference between maximum and minimum) were found. If Δd_c is the deviation of the mean diameter, Δd_c includes Δd_c and the "form" error Δd_g . The results are summarised in the Table (p 166); σ is the mean square deviation of the quantity defined by the suffix, Δ the range of scatter (see Fig 2), and Δ_k the systematic change of size of the rings during the time of working of each group. Fig 1 shows part of the results for maximum and minimum diameter of the processed rings of Group III. and Fig 2 shows the distribution curves (a) of size and (b) of errors of shape. Curve 1 is empirical, curve 2(a) is a Gaussian distribution and curve 2(b) a

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Investigation of the Accuracy of the Automatic Grinding Process

Maxwell distribution. Fig 4 shows the dependence of Δ_k , σ_0 , σ_c and σ_\varnothing on the number of rings in the step.

[This figure refers to groups I, II and III in which the initial diameter of the rings had two values differing by 50μ . In group I the large diameters ($d = 135, 100 \text{ mm}$) and small diameters ($d = 135, 050$) alternated in ones. In group II the large and small rings were distributed in lots of 7 rings, and in group III the lots contained 21 rings.] Fig 5 shows the dependence of Δ_k , σ_0 , σ_c and σ_\varnothing on the step height. Δ_k is about 9 to 10 μ for step heights 25, 50, 75 μ , and for $h = 0$ it is 23 μ . This cannot be explained in terms of the increase in the mean surplus (pripusk) [p_c from 88 to 100 μ (groups V and IV, table p 166)]. Fig 6 shows that the size of the removed surplus has only a small effect on σ_0 and σ_c , but appreciably influences the value of σ_\varnothing . The change in Δ_k in Fig 6 also suggests that the size of the removed surplus also influences the wear and blunting of the grinding circle. Fig 6 refers to stepped lots of rings; Fig 7 is similar, but refers to rings of uniform size.

Card 5/4 The rings in Group XI were selected at random from the

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Investigation of the Accuracy of the Automatic Grinding Process

other groups and had diameters of $135.100 \text{ mm} \pm 0.03$. Fig 8 shows the measured mean diameter after preliminary grinding (top) and after final grinding. The calculated parameters for this group are in the last line of the table and are in all instances smaller than the grand mean values in the line above. On the basis of the results, a provisional discussion is given of the possibility of applying automation to the grinding process, for example by basing the control on the change in diameter between alternate rings, or on the arithmetic mean of a group of rings. Other possibilities include the use of two machines working successively, or the automatic sorting of rings into different size groups. There are 8 figures and 1 table.

SUBMITTED: April 7, 1959

Card 4/4

ARTOBOLEVSKIY, I.I., akademik, otv.red.; BYSTRITSKAYA, V.V., inzh., red.;
ARTOBOLEVSKIY, S.I., prof., doktor tekhn.nauk, red.; BARANOV,
G.G., prof., doktor tekhn.nauk, red.; BESSONOV, A.P., kand.tekhn.
nauk, red.; GAVRILENKO, V.A., prof., doktor tekhn.nauk, red.;
KOBINSKIY, A.Ye., doktor tekhn.nauk, red.; LEVITSKIY, N.I., prof.,
doktor tekhn.nauk, red.; RESHETOV, L.N., prof., doktor tekhn.nauk,
red.; MODEL', B.I., tekhn.red.

[Theory of transmissions in machinery] Teoriia peredach v mashinakh;
sbornik statei. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.
lit-ry, 1960. 172 p. (MIRA 13:12)

1. Vsesoyuznoye soveshchaniye po osnovnym problemam teorii mashin
i mekhanizmov. 2d.
(Machinery) (Power transmission)

ARTOBOLEVSKIY, I.I., akademik, otv.red.; ARTOBOLEVSKIY, S.I., prof., doktor tekhn.nauk, red.; BARANOV, G.G., prof., doktor tekhn.nauk, red.; BESSONOV, A.P., kand.tekhn.nauk, red.; GAVRILENKO, V.A., prof., doktor tekhn.nauk, red.; KOBRINSKIY, A.Ye., doktor tekhn.nauk, red.; LEVITSKIY, N.I., prof., doktor tekhn.nauk, red.; RESHEPOV, L.N., prof., doktor tekhn.nauk, red.; BYSTRITSKAYA, V.V., inzh., red.; MODEL', B.I., tekhn.red.

[The theory of automatic machines and the theory of precision in the manufacture of machinery and instruments] Teoriia mashin avtomaticheskogo deistviia i teoriia tochnosti v mashinostroenii i priborostroenii; sbornik statei. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 218 p. (MIRA 13:7)

1. Vsesoyuznoye soveshchaniye po osnovnym problemam teorii mashin i mekhanizmov. 2d, Moscow, 1958.
(Machinery, Automatic) (Machinery industry)
(Instrument manufacture)

ARTOBOLEVSKIY, I.I., akademik, otv.red.; ARTOBOLEVSKIY, S.I., prof.,
doktor tekhn.nauk, red.; BARANOV, G.G., prof., doktor tekhn.
nauk, red.; BESSONOV, A.P., kand.tekhn.nauk, red.; GAVRIILENKO,
V.A., prof., doktor tekhn.nauk, red.; KOBRINSKIY, A.Ye., doktor
tekhn.nauk, red.; LEVITSKIY, N.I., prof., doktor tekhn.nauk,
red.; RESHETOV, L.N., prof., doktor tekhn.nauk, red.; BEZMENOVA,
L.V., kand.tekhn.nauk, red.; MODEL', B.I., tekhn.red.

[Dynamics of machinery] Dinamika mashin; sbornik statei. Moskva,
Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 238 p.
(MIRA 13:8)

1. Vsesoyuznoye soveshchaniye po osnovnym problemam teorii mashin
i mekhanizmov. 2n, Moscow, 1958.
(Machinery) (Mechanical movements)

LAYKO, N.V.; TARTAKOVSKIY, R.N.; kand.tekhn.nauk (g.Gomel'); SLAVIKOVSKIY,
N.A.; BARANOV, G.G.

From practices of the maintenance of a continuous track. Put' i
put.khoz. 5 no.12:12-15 D '61. (MIRA 15:1)

1. Zamestitel' nachal'nika distantzii puti, st. Molodechno,
Belorusskoy dorogi (for Layko). 2. Zamestitel' nachal'nika
Moskovsko-Kurskoy distantzii (for Slavikovskiy). 3. Starshiy
dorozhnyy master Moskovsko-Kurskoy distantzii (for Baranov).
(Railroads--Track)

VOROB'YEV, Nikolay Vasil'yevich, doktor tekhn. nauk, prof.; BARANOV,
G.G., doktor tekhn. nauk, prof., retsenzent; BYSTRITSKAYA,
V.V., red. izd-va; CHERNOVA, Z.I., tekhn. red.

[Chain transmissions] Tsepnye peredachi. Izd.3., ispr. i
dop. Moskva, Mashin, 1962. 238 p. (MIRA 15:4)
(Link-belting)

SLAVIKOVSKIY, N.A.; BARANOV, G.G.; MAMONTOV, V.G., inzh.

Improving the relieving of temperature stresses. Put' i put.khoz.
7 no.4:17-18 '63. (MIRA 16;3)

1. Moskovsko-Kurskaya distantziya Moskovskoy dorogi.
(Railroads—Rails)

БАРАНОВ, Г. И.

Baranov, G. I.

"The Problem of Improving the Use of the Locomotive Pool." Min Railways USSR.
Moscow Order of Lenin and Order of Labor Red Banner Inst of Railroad Transport
Engineers imeni I. V. Stalin. Moscow, 1955. (Dissertations for the Degree
of Candidate in Technical Sciences).

SO: Knizhnaya Letopis', No 27, 2 July 1955

BARANOV, G.I.; SHEVROV, I.I.

New data on the structure of the main range of the central
Caucasus. Izv. AN SSSR. Ser. geol. 30 no.6:64-71. 1965.
(MIRA 18:6)

1. Severo-Kavkazskoye geologicheskoye upravleniye, Glavnoye
upravleniye geologii i okhrany neodn. RSPSR, Tematicheskaya
ekspeditsiya, g. Buz'dukhi.

IPATOV, D.S.; BARANOV, G.I.

Rare phenomenon in Tiksi Bay. Priroda 50 no.4:114 Ap '61.
(MIRA 14:4)

1. Arkticheskaya nauchno-issledovatel'skaya observatoriya, bukhta
Tiksi.

(Tiksi Bay--Hydrology)

BABARYKIN, V.K.; BARANOV, G.I., mladshiy nauchnyy sotrudnik; BARDIN, G.I.,
mladshiy nauchnyy sotrudnik; SAKUNOV, G.G., mladshiy nauchnyy sotrudnik

Albedo of the Antarctic ice surface. Inform.biul.Sov.antark.eksp.
no.48:22-24 '64. (MIRA 18:2)

1. Tsentral'naya aerologicheskaya observatoriya, Arkticheskiy i
antarkticheskiy nauchno-issledovatel'skiy institut i Glavnaya
geofizicheskaya observatoriya.

BARANOV, G.I.

Possibility of determining the components of marine heat content.
Probl. Arkt. i Antarkt. no. 9:17-22 '61. (MIRA 15:1)
(Ocean temperature)

BARANOV, G.I.

Method of isolating the components of heat content of the sea,
not vertically limited. Probl. Arkt. i Antarkt. no.19:39-44 '65.
(MIRA 18:5)

MARANOV, G.I.

Dispersion analysis of the strength of Antarctic sea ice. Probl.
Arkt. i Antark. no.20:55-60 '65. (MIRA 18:10)

BRIEFING DOCUMENT

... of Antarctic fast ice. Inform. biul. Sov. antark.
no. 44:40-42 1985. (MIRA 18:10)

3. ... Institut.

BARANOV, G.I., mladshiy nauchnyy sotrudnik; BOTNIKOV, V.N., mladshiy
nauchnyy sotrudnik

The layer of no motion and the water masses of the Weddell Sea.
Inform. biul. Sov. antark. eksp. no. 53:18-23 '65.

(MIRA 18:12)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy
institut. Submitted Sept. 7, 1964.

06025297 (L) GW (N)

SOURCE CODE: UR/3174/65/000/054/0043/0046

AUTHOR: Murmoy, G. I. (Junior research associate)

ORG: Arctic and Antarctic Scientific Research Institute (Arkticheskiy i antarkti-
cheskiy nauchno-issledovatel'skiy institut)

TITLE: Physical and mechanical properties of Antarctic Sea ice

SOURCE: Sovetskaya antarkticheskaya ekspeditsiya, 1955-. Informationnyy byulleten',
no. 24, 1955, 43-46

TOPIC CLASS: sea ice, Antarctic climate

ABSTRACT: In 1953, samples of Antarctic Sea ice were taken monthly in the vicinity
of Mirnyy to determine changes in the various properties of the ice. Samples were
taken from the 66° 33' 00" S and 93° 00' 30" E area. Investigations carried out dur-
ing the fall-winter period revealed three main stages in the development of ice struc-
ture: 1) initial freezing, 2) natural accretion, and 3) formation of submarine ice.
The first stage is characterized by the freezing of snow-water mixtures. This ice
possesses fine granular texture and a high content of occluded salts. Its thickness
generally varied between 15 and 20 cm. A peculiarity of this layer was the intercal-
ation of a transparent layer about 5 cm thick, which was dense and carried the least
amount of occluded salts. The presence of such layers considerably increased the

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SUB CODE:

KACHANOVA, N.A., kand. tekhn. nauk; BARANOV, G.L., inzh.;
OSTROVSKAYA, A.V., inzh.

Use of the "Ural-2" digital computer in calculation of the
steady operation of a complex electric power system without
the reduction of network elements to one voltage stage.
Energ. i elektrotekh. prom. no.4:4-6 O-D '65.

(MIRA 19:1)

BARANOV, G. M.

"The Main Trends in the designing of Large Gaseous Oxygen Plants."

Report submitted for the 10th Intl. Refrigeration Congress, Copenhagen, 19-August -
2 September 1959.

ACC NR: AP6035680

(A,U)

SOURCE CODE: UR/0413/66/000/019/0030/0030

AUTHOR: Mastryukova, T. A.; Baranov, G. M.; Perekalin, V. V.; Kabachnik, M. I.

ORG: none

TITLE: Preparation of O, O-dialkyl 1-methyl-1-hydroxy-2-nitroalkyl-phosphonates Class 12, No. 186462

SOURCE: Izobreteniya, promyshlennyye obratzyy, tovarnyye znaki, no. 19, 1966, 30

TOPIC TAGS: ^{organic} phosphorus compound, ~~organic phosphorus compound~~
phosphonate, *catalytic organic synthesis*

ABSTRACT: In the proposed method, O,O-dialkyl 1-methyl-1-hydroxy-2-nitroalkylphosphonates are obtained by the reaction of O,O-dialkyl acylphosphonates with nitroalkanes in the presence of basic catalysts, e.g., diethylamine. [PS]

[WA-50; CBE No. 14]

SUB CODE: 07/ SUBM DATE: 09Sep65

Card 1/1

UDC: 547.26'118.07

BARANOV, G.M.; SMYSLOV, A.A.; KHARLAMOV, M.G.

Content of radioelements in the intrusive rocks of the Selety-Korzunkol' region in central Kazakhstan. Trudy VSEGEI 95:61-69 '63.
(MIRA 17:11)

L 16586-65 EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(b) ASD(m)-3 MJW/JD/MLK
ACCESSION NR: AT4045995 S/0000/64/000/000/0199/0201

AUTHOR: Prokoshkin, D. A.; Gavze, M. N.; Baranov, G. N. B+1

TITLE: Effect of alloying additions on certain mechanical properties of austentic chromium-nickel-manganese steel of the 14-6-9 type at room and subzero temperatures 15

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya metallov v zhidkom i tverdom sostoyaniyakh (Research of metals in liquid and solid states). Moscow, Izd-vo Nauka, 1964, 199-201

TOPIC TAGS: chromium nickel manganese steel, EI100 steel, EI100 steel property, EI100 steel additional alloying

ABSTRACT: The effect of additional alloying of the chromium-nickel-manganese austentic steel of the 14-6-9 type (EI-100) has been studied in an attempt to increase the yield strength without affecting the austentic structure, and consequently the ductility, at temperatures from 500C to -196C. The alloying additions included 0.16-6.22% N, 0.03-0.16% C, 1.96 and 2.0% Cu, 2% Co, 1.66% V, 1.80 and 2.03% W, or

L.16586-65

ACCESSION NR: AP4045995

1.78% Mo. Steels were melted in an induction furnace, forged, annealed at 500C, water quenched, and tested at room temperature and at -196C. It was found that additional alloying with elements forming substitutional solid solutions has no effect on yield strength. Alloying with elements forming interstitial solid solutions, and as carbon and nitrogen, produces better results. The increase of carbon content especially when combined with addition of nitrogen raises the yield strength of steel. However, while C and N have no adverse effect on steel ductility at room temperature, they lower the notch toughness considerably at -196C when the content of carbon is increased to 0.07%. Although the notch toughness remains at a satisfactory level, it may drop below this level as a result of the precipitation of carbides occurring at the upper level of operational temperatures, 500C. It follows therefore that the steel under investigation, cannot serve as a lease for high-strength steels suitable for operation in the temperature range from 500C to -196C. Orig. art. has: 3 tables

ASSOCIATION: none

L 16586-65

ACCESSION NR: AP4045995

SUBMITTED: 18May64

NO REF SOV: 001

ENCL: 00

SUB CODE: MM

OTHER: 002

CHEMEZOV, V.A.; BARANOV, G.P.

Investigation of the filtering properties of filter aid materials.
Khim. prom. no. 2:127-129 F '61. (MIRA 14:4)

1. Nauchno-issledovatel'skiy i konstruktorskiy institut
khimicheskogo mashinostroyeniya.
(Filters and filtration)

BARANOV, G.P.; IVIN, Yu.F.; CHEMEZOV, V.A.

Study of the separation of an iron hydroxide suspension by
filtration with the use of an auxiliary substance. Khim.prom.
no.3:201-204 Mr '62. (MIRA 15:4)
(Iron hydroxide) (Filters and filtration)

RERUN OF
STAPLED ONE

100-100000 (1) III
REF ID: A6025297 (N)

SOURCE CODE: UR/3174/65/000/054/0043/0046

Author: Shumov, G. I. (Junior research associate)

Org: Arctic and Antarctic Scientific Research Institute (Arkticheskiy i antarkti-
cheskiy nauchno-issledovatel'skiy institut)

TI: Physical and mechanical properties of Antarctic Sea ice

CO: Sovetskaya antarkticheskaya ekspeditsiya, 1955-. Informationnyy byulleten',
No. 24, 1955, 43-46

TOPIC TAGS: sea ice, Antarctic climate

ABSTRACT: In 1953, samples of Antarctic Sea ice were taken monthly in the vicinity of Mirny to determine changes in the various properties of the ice. Samples were taken from the 66° 35' 00" S and 93° 00' 30" E area. Investigations carried out during the fall-winter period revealed three main stages in the development of ice structure: 1) initial freezing, 2) natural accretion, and 3) formation of submarine ice. The first stage is characterized by the freezing of snow-water mixtures. This ice possesses fine granular texture and a high content of occluded salts. Its thickness generally varied between 15 and 20 cm. A peculiarity of this layer was the intercalation of a transparent layer about 5 cm thick, which was dense and carried the least amount of occluded salts. The presence of such layers considerably increased the

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L 09453-67

ACC NR: AT6025297

tenacity of the ice. During the second stage, the number of layers varied with the temperature as the ice was thickening or melting. This zone was between 80 and 100 cm thick. During the third stage, the ice continued to thicken by additions of new layers on its undersurface. The salinity was determined by melting the samples and determining the density of the melt waters. Two density minima were usually found in each ice profile: between 0.83 and 0.89 g/cm³ which lay at the upper and the lower surfaces of the ice. The topmost and the lowermost 5 cm of ice generally displayed a strength of 2 to 8 kg/cm². At 5 to 20 cm depth, the first maximum of 23 kg/cm² occurred. Its unusual strength is attributed to the intercalation of a transparent ice stringer 4 to 5 cm thick. The second maximum is reached in young ices at 30 to 40 cm depth. As the ice grows thicker, this second maximum migrates downward. It also includes a stringer of transparent ice. Between the two maxima peaks, the ice displays a strength of 10 to 15 kg/cm². The texture here is columnar to fibrous. With changes in the temperature regime, the strength of the ice first increases and then, after September, begins to diminish. Orig. art. has: 2 figures.

SUB CODE: 04,03/

SUBM DATE: 01Feb64/

ORIG REF: 003

Card 2/2

RERUN OF
STAPLED ONE

S/078/62/007/006/017/024
B119/B138

AUTHORS: Zhukov, A. I., Baranov, G. P., Plyasunov, P. V.

TITLE: Sorption of hydrolyzed ions of elements of groups I and II
by cation exchange resins

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 6, 1962, 1452-1457

TEXT: The authors studied the sorption of Be, Mg, Ca, Sr, Ba, and Zn (as chlorides dissolved in water), and Cs, Ag, Cd, Hg(II) and Cu (as nitrates dissolved in water) to the cation exchangers KU-1 (exchange capacity 2.20 mg-eq/g) and KU-2 (exchange capacity 4.92 mg-eq/g), as well as the possibility of washing these ions out of the resins with 1N NH_4Cl solution (pH 5.0), or 1N NH_4NO_3 solution. The ions of all the elements mentioned can be quantitatively removed from the resin, with the exception of Hg(II) which is partly reduced to the metal. The maximum amount of washing solution is required for beryllium (4.8 mg-eq of Be to 6.50 g of KU-1 or KU-2 need 180 and 540 ml of 1N NH_4Cl , respectively, for removal from the resin). This is due to its presence as $\text{Be}[(\text{OH})_2\text{Be}]_n^{2+}$, n

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Sorption of hydrolyzed ions of...

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B119/B138

being dependent on pH. 4.8 mg-eq of Ag require 240 ml of 1N NH_4NO_3 for removal from KU-1, and 180 ml for removal from KU-2. It is assumed that Ag and Hg(II) form inner complexes with the resins. The minimum quantity of washing solution is required for Na and Cd (50 and 70 ml for 4.8 mg-eq from KU-1). The authors succeeded in separating thorium from zinc and strontium by the KU-1 resin with 1N ammonium chloride solution. There are 4 figures and 1 table. The most important English-language reference is: G. Mattock. J. Amer. Chem. Soc., 76, 4835 (1954).

ASSOCIATION: Ural'skiy politekhnicheskii institut im. S. M. Kirova (Ural Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: July 6, 1960

Card 2/2

BARANOV, G. [S]

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5

Effect of composition of a standard developing solution on its properties. G. Baranov, I. Kilmskil and I. Shal'nov. *Kinokhimiya*, *Primi*, 1938, No. 4, 44-5. The effects of substitution of *p*-aminophenol sulfate for *p*-aminophenol chloride, and of the use of products of unknown (percentage) composition of impure chemicals in the developing solution on the sensitometric characteristics have been studied on 3 types of film. The conditions of the test were those employed in standard sensitometry. Three pairs of developing solutions were prepared, the 1st as proposed in the Seventh International Congress (C. A. 24, 4472) and the others differing slightly in the percentage of the developer, and the 3 types of film were developed in each of the developing solutions. The results of sensitometric tests show that the 2 developers mentioned may be interchanged without affecting the sensitometric characteristics. Also impurities in the developers do not noticeably affect these characteristics. This was to be expected, as impurities in the developer tend to exhaust the developing solution rather than affect the developing process itself.

W. R. Eichler

ANALYTICAL LITERATURE CLASSIFICATION

BARANOV, G.S.

Errors in the measurement of photographic blackening with the Martens polarizing densitometer. G. S. Baranov and K. V. Chibrov. *Kinofotokhimiya* 4, No. 12, 38-48, 1958. *Chem. Abstr.* 1030, II, 782 d. The physical bases of the optical methods of measuring photographic blackening are presented; the diffuse, normal and effective optical ds are defined; and the method of Bonny (cf. *Congr. Int. Photo. Sci. Appl. Proc.-Verbaux, Rapports, Mem.* 9, 467-77, 1936) is further developed. Measurements were made with the Martens polarizing app., for which a basic formula for the measurement of optical d is given. Sources of error inherent in the densograph are discussed and means for their elimination pointed out. Errors arising by reason of the properties of the eye and the accuracy of the analyzer are discussed with reference to the work of Schamm and Stoess (cf. *J.* 19, 613). The results of exptl. studies on both types of sources of error are evaluated. M. G. Moore

ASB 514 METALLURGICAL LITERATURE CLASSIFICATION

BARANOV, G.S.

111

Sensitometric method for the assembling of motion-picture film for color photography. G. S. Baranov. *Akad. Nauk SSSR. Izv. Akad. Nauk SSSR. Ser. Khim. Nauk*, 1940, II, 855. Beginning with the energy distribution in the visible spectrum in front of and behind light-filters, the effective sensitivity in the region of various temps. of the light-source is discussed from the standpoint of its importance for color film. M. G. Moore

BARANOV, G.S.

The sensitometric measurement of photographic properties. Trudy
NIKFI no.7:85-91 '47. (MIRA 11:6)

1. Kontrol'no-ispytatel'naya laboratoriya Nauchno-issledovatel'skogo
kino-foto-instituta, Moskva.
(Photographic sensitometry)

BARANOV, G. S.

"Light Diffusion Effect in the Emulsion Layer and Its Influence on the Amount of Blackening," Usp. Nauch. Fot., No.1, 1951

NYUBERG, N.D.; BARANOV, G.S.; OVECHKIS, N.S.

Sensitometric system for color motion-picture films and processes.
Usp.nauch.fot. 2:72-84 '54. (MLRA 7:5)
(Photographic sensitometry) (Color cinematography--Films)

Walters, J. W., 1974, p. 10, 11.

"Walters, J. W., 1974, p. 10, 11." *Walters, J. W., 1974, p. 10, 11.*
Walters, J. W., 1974, p. 10, 11. *Walters, J. W., 1974, p. 10, 11.*
Walters, J. W., 1974, p. 10, 11. *Walters, J. W., 1974, p. 10, 11.*

AUTHORS: Baranov, G.S.; Katsenelenbogen, E.D. SOV-77-3-5-20/21

TITLE: Contemporary National Sensitometric Standards (Sovremennyye natsional'nyye sensitometricheskiye standarty)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 5, pp 394-398 (USSR)

ABSTRACT: The sensitometric standards and the basis for their calculation, used in the USSR, Germany, USA, England, France, Japan, Holland, Canada and Poland, are discussed and compared. There is 1 table.

1. Photography--Standards

Card 1/1

SCLOV'YEV, Sergey Mikhaylovich; BARANOV, G.S., spets.red.; TELESHEV,
A.N., red.; GORINA, V.A., tekhn.red.

[Infrared photography] Infракраснаиа фотографииа. Moskva, Gos.
izd-vo "Iskusstvo," 1960. 215 p. (MIRA 13:9)
(Photography, Infrared)

L 12291-63

EWT(1)/BDS/EED(b)-2 AFMTC/ASD/AFGC IJP(C)

S/081/63/000/005/048/075

AUTHOR: Kartenebogen, E. D. and Baranov, G. S. 55

TITLE: Experimental investigations to find economical methods for expressing general color-sensitivity of black and white and color negative materials

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 477-478 abstract 5N402 (Uspekhy nauch. fotofr., 1962, no. 8, 195-209)

TEXT: On the color films, DS-1, DS-2, DS-3, LN-3, Agfacolor T and black and white A, AM, A-2, B, V, MZ the criteria for sensitivity were studied, based on the optical density of 0.85, 0.2 and 0.1 over the fog and at the point of inertness. A sensitivity was found from these criteria comparable to the practical sensitivity, determined by visual evaluation of photographs. No connection exists between the evaluation of a negative and a balance of sensitivity by criteria in the area of underexposure. The presence of such a connection in the middle point of a characteristic curve is the advantage in technological aspect. The possibility of establishing uniform criteria for color and black and white negative motion films for average density ($D_{cr} - 0.85$ over the fog) was shown. V. Abritalin,

[Abstractor's note: Complete translation]

1/1

S/058/63/000/003/052/104
A062/A101

AUTHORS: Krupenin, L. K., Baranov, G. S.

TITLE: Calibration methods of color densitometers

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 88, abstract 3D593
("Uspekhi nauchn. fotogr.", 1962, v. 8; 263 - 272)

TEXT: Methods are considered for calibrating color densitometers and for measuring the photographic effect on multilayer materials; they constitute one of the sections of the general NIKFI sensitometric testing for color photographic materials on a transparent backing. It is proposed to measure the photographic effect in units FESP (VESP). Definitions are given of the fundamental quantities of color photographic sensitometry, and methods for their experimental measurements are indicated.

D. Balabukha

[Abstracter's note: Complete translation]

Card 1/1

BARANOV, G.S.; KATSENELENOGEN, E.D.; KRUPENIN, L.K.

Standardization of the method of a comprehensive sensitometric testing of multiple-layer color materials. Zhur.nauch.i prikl. fot.i kin. 8 no.1:71-74 Ja-F '63. (MIRA 16:2)

(Color photography--Equipment and supplies)
(Photographic sensitometry--Standards)

KATSENELENOGEN, E.D.; BARANOV, G.S.

Experimental research studies on the efficient methods for
formulating common sensitivity properties of negative black-
and-white and color materials. Usp. nauch. fot. 8:195-209 '62.
(MIRA 17:7)

BARANOV, G.S.; KATSENELENOGEN, E.D.; KLYUYENKOVA, Ye.I.;
KRUPENIN, L.K.

Sensitometry of reversal color films. Usp. nauch. fot. 8:210-215
1962. (MIRA 17:7)

KRUPENIN, I.K.; BAZENOV, G.S.

Methods for the specification of color densitometers. Ugg. naucl.
fol. 8:263-272 1967. (MIRA 17:7)

ACCESSION NR: AP4041033

S/0120/64/000/003/0126/0128

AUTHOR: Nazarenko, O. K., Zozulya, S. I., Baranov, G. V.

TITLE: Cathodes for sharp-focused electron guns for electron-beam welding

SOURCE: Pribery* i tekhnika eksperimenta, no. 3, 1964, 126-128

TOPIC TAGS: electron beam welding, electron gun cathode, cathode emitter, lanthanum hexaboride emitter, tungsten emitter

ABSTRACT: The Electric Welding Institute, AN USSR, has developed two types of electron-gun cathodes for electron-beam welders. Both cathodes have indirectly heated emitters. The emitter of the first cathode is a lanthanum hexaboride pellet held in a molybdenum cup positioned with a molybdenum rod. In tests, the pellet operated at a temperature higher than 1700C, ensuring a thermionic current density of about 20 amp/cm². The contamination of the emitter surface can be prevented by decreasing the solid angle at which the vapors of welded metal can reach the emitter. or by shifting the beam focal spot relative to the anode aperture axis. The second cathode has a tungsten

Card 1/2

ACCESSION NR: AP4041033

rod emitter, 2 mm in diameter. With this cathode at an accelerating voltage of 20 kv, a specific energy of 1 kw/mm² is developed at the focus spot, which is 120 mm distant from the anode. In general, cathodes of both types perform equally well, producing electron beams with a specific energy of 10 kw/mm² with a beam current of several hundred milliamperes at an accelerating voltage of about 30 kv. Orig. art. has: 3 figures.

ASSOCIATION: Institut elektrosvarki AN UkrSSR (Electric Welding Institute, AN UkrSSR)

SUBMITTED: 02Jul62

ATD PRESS: 3048

ENCL: 00

SUB CODE: EC, MM

NO REF SOV: 002

OTHER: 001

Cord: 2/2

BARANOV, I.

Lenin's home town. Grazhd.av. 17 no.4:5-6 Ap '60.

(MIRA 13:9)

1. Direktor Ul'yanovskogo filiala Tsentral'nogo muzeya V.I.
Lenina.

(Lenin, Vladimir Il'ich, 1870-1924---Homes and haunts)
(Ul'yanovsk---Description)

BARANOV, I., inzh.

Fantastic well. Znan.ta pratsia no.6:32 Je '60.

(MIRA 13:8)

(Gravity)

BARANOV, I.

36035 Khozyaystvennyy dogovor-orudiye vypolneniya gosudarstvennykh planov. Plan khoz-vo, 1949, No. 5, S. 63-72

SO: Letopiz' Zhurnal'nykh statey, Vol 45, Moskva, 1949

BARANOV, I.

Trees - Bodolin

Conservation of the service trees in the forests of Polotsk. *Les. Khoz.* no. 12, 1951.

Monthly List of Russian Accessions. Library of Congress, April 1952. UNCLASSIFIED.

1. BARANOV, I.
2. USSR (600)
4. Horses
7. How we use animal power. Kolkh. proizv. 13 no. 1 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

BARANOV, I., inzhener

Protecting automobile parts during partial chrome plating. Avt.
transp.33 no.9:34 S'55. (MIRA 8:12)
(Chromium plating)

BARANOV, I. (Kiyev)

After 2 a.m. Pozh.delo 3 no.8:12-13 Ag '57.
(Kiev--Fires and fire prevention)

(MLRA 10:8)

BARANOV, I.

S.I.Rozhkov. Mashinostroitel' no.2:41 F '60.
(MIRA 13:5)

1. Predsedatel' soveta Vsesoyuznogo obshchestva izobretateley i
ratsionalizatorov zavoda "Roysel'mash."
(Sheet-metal work--Technological innovations)

ARTEM'YEV, Yu.M.; BARANOV, I.A.; BLINOV, M.V.; KUZNETSOV, M.I.; PROTOPOPOV,
A.N.; SELITSKIY, Yu.A.; SOLOV'YEV, S.M.; SHIRYAYEV, B.M.; EYSMONT, V.P.

Low voltage neutron generator. Trudy Radiev.inst.AN SSSR 9:134-
140 '59. (MIRA 14:6)

(Neutrons)

21(7)

AUTHORS:

SOV/56-36-3-42/71
Protopopov, A. N., Baranov, I. A., Eysmont, V. P.

TITLE:

On the Angular Anisotropy of the Flying Apart of Fragments in the Fission of Am^{241} by 14.7 Mev Neutrons (Ob uglovoy anizotropii razleta oskolkov pri delenii Am^{241} neytronami s energiyey 14.7 MeV)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 920-921 (USSR)

ABSTRACT:

In order to determine the influence exercised by nuclear structure on the angular anisotropy in a fission process it is necessary to investigate the angular distribution of the fission fragments of the greatest possible number of nuclei. In an earlier paper (Ref 2) the method was already described by means of which the authors determined the relative number of fragments parallel and vertical to the direction of the incident neutrons in Am^{241} fission. In consideration of the effect of center of mass motion, the finite angular resolution, and the background of scattered neutrons, the degree of angular anisotropy was determined as amounting to 1.08 ± 0.06 , which is not in contradiction to Bohr's re-

Card 1/2

SOV/56-36-3-42/71
On the Angular Anisotropy of the Flying Apart of Fragments in the Fission
of Am²⁴¹ by 14.7 Mev Neutrons

presentation (Ref 4). Anisotropy has a certain tendency to
diminish with Z^2/A of the fissioning nucleus, but, as a
comparison of

Np²³⁷ : 1.16 ± 0.02 (Ref 1)

Pu²³⁹ : 1.15 ± 0.05 (Ref 2)

Am²⁴¹ : 1.08 ± 0.06

shows, asymmetry in the case of transuranium changes only
very slowly. The general effect can be explained within the
framework of the statistical theory by V. M. Strutinskiy.
The authors finally thank G. I. Khlebnikov for the deposition
of Americium on the platinum foils.
There are 5 references, 4 of which are Soviet.

SUBMITTED: December 6, 1958

Card 2/2

21(7)

AUTEORS: Protopopov, A. N., Baranov, I. A., Eysmont, V. P. SOV/56-36-5-71/76

TITLE: The Angular Anisotropy and the Energy Characteristics of the Fission Process (Uglovaya anizotropiya i energeticheskiye kharakteristiki protsessa deleniya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1508-1609 (USSR)

ABSTRACT: The fact that in the case of experimental and theoretical investigations of angular anisotropy the problems of energy distribution over the fragments have hitherto not been directly touched, gave rise to experimental investigations carried out by the authors in this direction which are briefly described by the present "Letter to the Editor". In the introduction the problem is discussed and several known dependences are given, as, e. g., that anisotropy is all the greater, the greater neutron evaporation before a critical deformation occurs. The authors investigated the fission of U^{238} by 14.9 Mev neutrons. By means of a double ionization chamber the energy of the fragments in the

Card 1/2

The Angular Anisotropy and the Energy Characteristics of the Fission Process SOV/56-36-5-71/76

direction of the neutron beam (0°) and perpendicular hereto (90°) was measured. Angular distribution was the same whenever the direction of the departure of the fragments deviated by not more than 26° from the directions 0 and 90° respectively. The basic conditions and methods of the investigation were the same as described in reference 3; a total of 5000 fissions was investigated at 0° , and 4000 at 90° . It was found that in the case of a mass ratio of fragments of 1.40 - 1.44, the average kinetic energy of the fragments amounts to 170.7 ± 0.6 Mev (0°) and 169.4 ± 0.8 Mev (90°) respectively. If, therefore, a difference in fragment energy exists, it cannot amount to more than 1.5 %. There are 3 Soviet references.

SUBMITTED: February 27, 1959

Card 2/2

24(5)

AUTHORS:

Protopopov, A. N., Baranov, I. A.,
Selitskiy, Yu. A., Eysmont, V. P.

SOV/56-36-6-47/66

TITLE:

The Influence of Nuclear Shells on the Distribution of the Kinetic Energy of Fragments in Fission by Fast Neutrons
(Vliyaniye yadernykh obolochek na raspredeleniye kineticheskoy energii oskolkov pri delenii na bystrykh neytronakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 6, pp 1932-1933 (USSR)

ABSTRACT:

The authors of the present "Letter to the Editor" report on experimental investigations of the distribution of the entire kinetic energy of the fragments in a fission of U^{238} by 14.9 Mev neutrons. The results obtained are compared with those obtained for a U^{235} -fission by 11.1 Mev neutrons and those obtained from the spontaneous disintegration of Cf^{252} . Measurements were carried out by means of a double ionization chamber. From the experimental half width of kinetic energy the charge distribution, the neutron recoil effect, the fluctuations of the number of evaporated neutrons, the instrumental resolving power, and the mass ratio were determined.

Card 1/2

The Influence of Nuclear Shells on the Distribution of SOV/56-36-8-47/68
the Kinetic Energy of Fragments in Fission by Fast Neutrons

The thus found dependence of the average kinetic energy E and the half width of its distribution ΔE on the mass ratio A_1/A_2 of the fragments are shown by figure 1 (compared with the curves obtained for U^{235} -fission). The curves take an analogous course, and in all cases the curve $E(A_1/A_2)$ and the curve $\Delta E(A_1/A_2)$ have a maximum at a mass ratio of $1.25 + 1.5$. Figure 2 shows the distribution of the kinetic energy of the fragments in U^{235} -fission by thermal neutrons and of the spontaneous disintegration of Bi^{252} obtained by measuring the time of flight. It was found that the kinetic energy attains its highest value when the heavy fragment has a mass number near 132. This nucleus probably consists of closed shells of 50 protons and 82 neutrons. It may thus be assumed that the degree of closure of the nuclear shells influences the size of the fragments. There are 2 figures and 6 references.

SUBMITTED:
Card 2/2

February 21, 1959

BARANOV, I.A.; PROTOPOPOV, A.N.; EYSMONT, V.P.

Anisotropy of U^{238} fission by 3 Mev. neutrons. Zhur. eksp. i teor.
fiz. 41 no. 4: 1003-1006 0 '61. (MIRA 14:10)

1. Radiyevyy institut AN SSSR.
(Uranium—Isotopes) (Nuclear fission) (Neutrons)

33236

S/089/62/012/002/008/013

B102/B138

24.6600

AUTHORS: Baranov, I. A., Protopopov, A. N., Eysmont, V. P.

TITLE: Comparison of the kinetic energies of the fragments from 3- and 15 Mev neutron-induced U^{238} fission

PERIODICAL: Atomnaya energiya, v. 12, no. 2, 1962, 150 - 151

TEXT: The total kinetic energies and their dispersion were determined in dependence on fragment mass ratios between 1 and 2 for 3-Mev and 15 Mev neutron-induced U^{238} fission, the neutrons coming from $D(d, n)He^3$ and $T(d, n)He^4$ reactions, respectively. A $450 \mu g/cm^2$ thick U^{238} target was used, the fragment energies were measured with a double ionization chamber via pulse height coincidences. For 3-Mev neutron induced fissions 8000 events were observed, for 15 Mev, 20,000. Total kinetic energy of a fragment pair was plotted against the energy ratio for both 3 and 15-Mev neutron-induced fissions. Two almost parallel curves were obtained, the former being about 2 Mev higher than the latter. They had a maximum at about 1.25 mass ratio, at higher ratios total kinetic energy fell almost
Card 1/2

33236

S/089/62/012/002/008/013
B102/B138

Comparison of the kinetic ...

linearly. This result does not agree with calorimetric measurements which indicate an increase in kinetic energy with increasing nuclear excitation. For dispersion a similar curve was obtained with a maximum at a ratio of 1.1. Nuclear excitation was thus found to have no effect on the shape of the fragment energy distribution. Yu. I. Belyanin is thanked for seeing to the accelerator. There are 2 figures and 9 references: 3 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: S. Friedland, Phys. Rev. 84, 75, 1951; J. Wahl Phys. Rev., 95, 126, 1954; S. Gunn, H. Hichs, Phys. Rev., 107, 1642, 1957; P. Stevenson et al. Phys. Rev. 117, 186, 1960. ✓

SUBMITTED: July 28, 1961

Card 2/2

BARANOV, I. A.; IVANOV, R. B.; KRIVOKHATSKIY, A. S.; NEDOVESOV, V. G.; SILANT'YEV, A. N.

"Gamma Radiations of Cm²⁴² and Cm²⁴³."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

Radiyevyy Institut (Radium Inst)

BARANOV, I. A.; SILANT'YEV, A. N.

"Gamma Radiations of U^{233} ."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

Radiyevyy Institut (Radium Inst)

... M.; BARANOV, I. A.; PROTOPOPOV, A. N.; PETROV, G. A.

"Some Special Features of the Recording of Alpha Particles and Fission
Fragments by Surface-Barrier Silicon Counters."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

Radiyevyy Institut (Radium Inst)

BARANOV, I.A.

Radiation damages in surface-barrier silicon counters
irradiated by 5.5. Mev. alpha-particles. Prib. i tekhn.
eksp. 9 no.2:113-116 Mr-Ap'64. (MIRA 17:5).

L 27896-65 EWT(m)/EWP(t)/T/EWP(b) IJP(c) JD

ACCESSION NR: AP4012268

S/0089/64/016/001/0060/0064

29
26
8

AUTHORS: Baranov, I. A.; Kazarinov, N. M.

TITLE: Surface-barrier silicon counters in a neutron flux and fission fragments
21 19

SOURCE: Atomnaya energiya, v. 16, no. 1, 1964, 60-64

TOPIC TAGS: silicon counter, counter irradiation damage, surface-barrier counter, flux effect counter, neutron flux, fission fragment flux, semiconductor detector, sensor, pickoff, semiconductor pickoff

ABSTRACT: The authors investigated the changes in some characteristics of the surface-barrier gold-silicon detectors subjected to a flux of fast and thermal neutrons, as well as of fission fragments. It is known that when detectors are irradiated by these particles, the crystal lattice of the silicon is disarranged due to scattering or nuclear reaction which creates various defects. These defects include the "vacancy-displaced atom" pair which leads to the formation of new donor and acceptor levels as well as to the formation of traps and recombination centers for the non-basic charge carriers.

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L 27896-65

ACCESSION NR: AP4012268

3

These disturbances change the resistance of silicon, and the condition of recording the charged particles in the (n-p) transition. The investigated detectors were prepared from n-type silicon of 150-200 ohm-cm resistance, 1 mm thick, with an area of 2-4 and 16-20 mm². The amplitude pulse spectra from α particles Am²⁴¹ and from the fragments of fission of U²³⁵ with thermal neutrons were measured before and after the irradiation. Other characteristics also were measured, such as current in both directions, and time resolution of detectors; the change of the characteristics is shown in diagrams. "The authors are grateful to A. N. Protopopov, O. A. Matveyev, and N. B. Strokan for valuable advice and discussions." Orig. art. has: 7 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 23May63

ENCL: 00

SUB CODE: NP

NR REF SOV: 005

OTHER: 004

Card

2/2

ACCESSION NR: AP4033125

S/0120/64/000/002/0113/0116

AUTHOR: Baranov, I. A.

TITLE: Radiation damage in surface-barrier silicon counters irradiated by alpha particles with an energy of 5.5 Mev

SOURCE: Pribery* i tekhnika eksperimenta, no. 2, 1964, 113-116

TOPIC TAGS: radiation damage, Alpha radiation damage, silicon counter, surface barrier counter

ABSTRACT: Two 16-mm² and two 1.5-2-mm² surface-barrier counters were prepared from n-type silicon of 150-200 ohm.cm resistivity. They were irradiated by 5.5-Mev alpha particles up to $(1-5) \times 10^{12}$ α/cm^2 . Before and after each exposure a spectrum of alpha pulses from a thin Am²⁴¹ target, a spectrum of U²³⁵ thermal-neutron fission, and a current-voltage characteristic of each counter were measured. It was found that the forward current began to fall off at $(0.5-1) \times 10^{10}$ α/cm^2 , and that the reverse current began to increase at $(1-5) \times 10^{10}$ α/cm^2 . The

Card 1/2

BR

ACCESSION NR: AP4024043

S/0048/64/028/002/0237/0238

AUTHOR: Baranov, I.A.; Silant'yev, A.N.

TITLE: Gamma radiation from U^{233} [Report, Fourteenth Annual Conference on Nuclear Spectroscopy held in Tbilisi 14 to 22 Feb. 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.2, 1964, 237-238

TOPIC TAGS: γ -ray spectrum, γ - α coincidence spectrum, conversion coefficient, U^{233}

ABSTRACT: The γ -radiation from U^{233} was investigated in 1952 by West, Dawson and Mandelberg (Philos.Mag.43,875,1952) by means of a proportional counter. In 1960 Ye. F.Tret'yakov and others (Zhur.eksp.i teor.fiz.37,19,917,1960) investigated the conversion electron spectrum by means of a magnetic spectrometer. In the present work the γ -radiation from U^{233} was investigated by the method of α - γ coincidences. The γ -rays were detected by a scintillation spectrometer with an NaI crystal. The α -particles were detected by means of an α -spectrometer with an AuSi surface barrier detector. The activity of the U^{233} source, which was deposited on an aluminum backing, was about 0.03 microcurie. It was located at a distance of 1.0 cm from the NaI crystal and 0.5 cm from the silicon counter. The γ -ray pulses in coincidence with

ACCESSION NR: AP4024043

the α -particles were analyzed by means of an AI-100 100-channel pulse height analyzer. The γ -ray spectrum obtained in this manner is shown in the figure (Enclosure). There is evident an integral peak due to 43 and 55 keV γ -rays and a peak corresponding to 97 keV γ -rays; in addition, there is evident a hump in the 120 keV region. Using the data of West, Dawson and Mandelborg and the present results there were evaluated the absolute intensities of the 43 and 55 keV γ -rays: 0.07 and 0.1%, respectively. On the basis of the present data and the conversion electron spectrum of Ye.F.Tret'yakov et al there were calculated the L, M and N shell conversion coefficients. These are listed in a table. The data obtained in the present study are in good agreement with the results of B.S.Dzheleпов, R.B.Ivanov, V.G.Nedovesov and B.NShishin (Izv.AN SSSR, Ser.fiz.23,788,1959) on α -decay of U^{233} . Orig.art.has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 03Oct63

DATE ACQ: 08Apr64

ENCL: 01

SUB CODE: ES

NR REF SOV: 003

OTHER: .001

Card 2/3

ACCESSION NR: AP4042972

S/0048/64/028/007/1255/1256

AUTHOR: Baranov, I.A.; Krivokhatskiy, A.S.; Silant'yev, A.N.

TITLE: Gamma-radiation from curium 242 and 243 [Report, 14th Annual Conference on Nuclear Spectroscopy held in Tibilisi 14-21 Feb 1964]

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v.28, no.7, 1964, 1255-1256

TOPIC TAGS: gamma-ray spectrum, alpha spectrum, alpha spectroscopy, curium

ABSTRACT: The photon yields per alpha decay of the 100, 220 and 277 keV Cm²⁴³ γ -rays and the 44 and 100 keV Cm²⁴² γ -rays were measured by the α - γ coincidence method. The γ -spectrometer employed a NaI scintillator and had a resolution of 10% for 662 keV γ -rays. The alpha spectrometer employed an energy sensitive gold-silicon surface barrier detector made from n-type silicon. This detector was investigated in detail before being employed in the present measurements, and its behavior is described elsewhere (I.A.Baranov, Pribory* i tekhnika eksperimenta, No.2,113,19-64; I.A.Baranov, M.V.Elinov and N.M.Kazarinov, Izv.AN SSSR, Ser.fiz.28,1257,1964). The energy resolution of the alpha detector was 60 keV, and the pulse rise time of each detector was less than 2×10^{-8} sec. Corrections were made for accidental co-

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ACCESSION NR: AP4042972

incidences and for Compton scattering of the more energetic γ -rays. The apparatus was tested by measuring the photon yield per alpha decay of the 59.6 keV Am^{241} γ -ray. A yield of 0.31 per decay was found, in good agreement with the value ascribed to J.H.Hummel by E.K.Hyde (UCRL-9148, 1961). The photon yields per alpha decay of the 100, 220 and 277 keV Cm^{243} γ -rays were found to be 0.42, 0.113 and 0.112, respectively; those of the 44 and 100 keV Cm^{242} γ -rays were 2.7×10^{-4} and 0.9×10^{-4} , respectively. The yield obtained for the 100 keV Cm^{242} γ -ray must be regarded as a preliminary result, for the accuracy was much reduced in this case by a large accidental coincidence background. "In conclusion, the authors express their gratitude to L.M.Belov, P.B.Ivanov and V.G.Nedovesov for assistance in the work." Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NR REF SOV: 004

OTHER: 005

2/2

L 12954-65 EWI(d)/EWI(m)/EEC(k)-2/EEC-A/T Po-A/Po-A/Po-A/Pk-A/Pl-A IJP(c)
ACCESSION NR: AP4042973 S/0048/64/028/007/1257/1258

AUTHOR: Baranov, I. A.; Blinov, M. V.; Kazarinov, N. M. 8

TITLE: Resolving time of semiconductor detectors of charged particles

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v. 28, no. 7, 1964, 1257-1258

TOPIC TAGS: semiconductor detector, charged particle detector, resolving time measurement, fast slow coincidence circuit, amplitude discriminator, time converter

ABSTRACT: A fast-slow coincidence-circuit method (see Fig. 1 of the Enclosure) for measuring resolving time in semiconductor detectors of charged particles has been developed. A uranium target (97% U^{235}) was placed inside a vacuum chamber 1 cm from a silicon detector which registered the α -particles radiated by the target. The γ -quanta accompanying the α -particle radiation were registered by a stilbene crystal placed 5 cm from the target. The pulsed voltages, which appeared across the load of the silicon detector, were supplied to one of the time converter channels through the 30 Mc-band amplifier. The

L 12954-65

ACCESSION NR: AP4042973

pulses corresponding to the γ -quanta were supplied from an FEU-33 photomultiplier to the time converter through another channel. The pulses corresponding to α -particles were directed to the D_1 -discriminator, and the pulses corresponding to γ -quanta (above 20 kev), to the D_2 -discriminator. The coincidence circuit resolved the registration of incoming pulses from the time converter to the AI-100-1 amplitude analyzer, which gave a picture of time distribution of α - γ coincidences. To obtain the $f\gamma$ coincidences (fragment- γ -quantum), a uranium target was placed in the beam of thermal neutrons, which caused the fission of U^{235} . These fragments were registered by the silicon detector while the γ -quanta and neutrons radiated during the fission process were registered by a scintillation counter. The resolving values of 16 silicon detectors, their characteristics, and the data on integral fluxes of definite radiations are given. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 21Nov63

SUB CODE: EC, NP

ATD PRESS: 3112

NO REF SOV: 001

ENCL: 01

OTHER: 002

L 12954-65
ACCESSION NR: AP4042973

ENCLOSURE: 03
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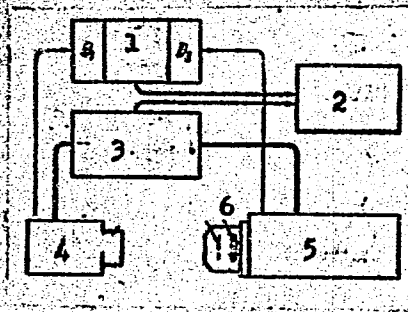


Fig. 1. Block diagram of the fast-slow coincidence-circuit system

D_1 and D_2 - Amplitude discriminators;
1 - coincidence circuit; 2 - AI-100-1
type amplitude analyzer; 3 - time con-
verter; 4 - FEU-33 type photomultiplier;
5 - 30-Mc amplifier; 6 - silicon detector.

Card 3/3

L 32833-65 DWT(m) DTAP

ACCESSION NR: AP3004541

S/0048/65/029/001/0163/0163

AUTHOR: Baranov, I.A.; Berdikov, V.V.; Krivokhatskiy, A.B.; Silant'yev, A.N. 148

TITLE: Gamma radiation from Pu²⁴¹ Report, 14th Annual Conference on Nuclear Physics held in Tbilisi 14-22 Feb 1964

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no.1, 1965, 163

TOPIC TAGS: gamma ray, internal conversion, multipolarity, plutonium

ABSTRACT: The γ -ray spectrum of Pu²⁴¹ was observed by the α - γ coincidence method, employing an α spectrometer with a silicon surface barrier detector adjusted to the Pu²⁴¹ α -particle peak and a scintillation γ spectrometer in coincidence. Two

Card 1/2

L 32831-65

ACCESSION NR: AP5004541

ASSOCIATION: none

SUBMITTED: 00/--Jan68

ENCL: 00

SUB CODE: NP

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TRIFONOV, Boris Alekseyevich, inzh.; BARANOV, I.A., inzh., red.; SHILLING,
V.A., red. izd-va; GVIRTS, V.L., tekhn. red.

[Making large forgings of 1Kh18N9T steel] Isgotovlenie krupnykh po-
kovok iz stali 1X18N9T. Leningrad, 1961. 14 p. (Leningradskii Dom
nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriya:
Goriachaia i kholodnaia obrabotka metallov davlenim, no.3)

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PHASE I BOOK EXPLOITATION SOV/5458

Girshovich, Naum Grigor'yevich, Doctor of Technical Sciences, Professor, ed.

Spravochnik po chugunnomu lit'yu (Handbook on Iron Castings) 2d ed., rev. and enl. Moscow, Mashgiz, 1961. 800 p. Errata slip inserted. 16,000 copies printed.

Reviewer: P. P. Berg, Doctor of Technical Sciences, Professor; Ed.: I. A. Baranov, Engineer; Ed. of Publishing House: T. L. Leykina; Tech. Eds.: O. V. Speranskaya and P. S. Frumkin; Managing Ed. for Literature on Machine-Building Technology (Leningrad Department, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This handbook is intended for technical personnel at cast-iron foundries. It may also be of use to skilled workmen in foundries and students specializing in founding.

COVERAGE: The handbook contains information on basic problems in the modern manufacture of iron castings. The following are discussed: the composition and properties of the metal; the making of molds; special casting methods; the charge preparation; melting
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and modifying the cast iron; pouring, shaking out, and cleaning of castings; heat-treatment methods; and the inspection and rejection of castings. Information on foundry equipment and on the mechanization of castings production is also presented. The authors thank Professor P. P. Berg, Doctor of Technical Sciences, and staff members of the Mosstankolit Plant, headed by the chief metallurgist G. I. Kletskin, Candidate of Technical Sciences, for their assistance. References follow each chapter. There are 287 references, mostly Soviet.

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Appendix 4. Data for Calculations (I. A. Baranov)

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AUTHORS: Baranov, I.A., Oyks, G.N., and Ansheles, I.I.

TITLE: Improvement in the technology of production of ball bearing steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, No.5, pp. 50-57

TEXT: The influence of changes in the technology of smelting ball bearing steel (in electric furnaces) as well as of some parameters of vacuo treatment on the quality of steel was investigated by statistical methods. Data collected during metallographic control of the quality of production were used for the investigation. Changes in the technology of smelting consisted of a decrease in the reducing period of smelting and the transfer of the deoxidizing treatment to the ladle under vacuum (G.A. Sokolov, G.N. Oyks, present journal 1959 No.1, Ref.1; G.N. Oyks, P.P. Matevosyan et al., Stal', 1960 No.4, Ref.2). The influence of the height of metal column in the ladle during vacuum treatment was studied by comparing the degree of contamination of the metal by inclusions for charges of 12 and 16 t
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Improvement in the technology of production of ball bearing steel (equivalent to an increase in the height of metal of 250-300 mm). The increase in the height of the metal resulted in a significant increase of oxides and globular inclusions but there was no significant change in the degree of contamination by sulphide inclusions (Table 1). It is assumed that the adverse influence of an increased height of metal in the ladle is due to an increase in the loss of deoxidants (due to oxidation), particularly of silicon, added under vacuum. The influence of the residual pressure, mm Hg, was studied by comparing the degree of contamination of the steel by oxides and globular inclusions, Fig.1 (degree of contamination, relative units vs. residual pressure, mm Hg; o - oxide inclusions; * - globular inclusions; numbers at points designate the number of specimens; the degree of oxidation of silicon, Fig.2 (residual Si in the steel vs. residual pressure, mm Hg; numbers designate the number of heats). With increasing residual pressure the degree of contamination somewhat decreases. The summary influence of the duration of pure boiling during the addition of deoxidants under vacuum (τ) and the depth of vacuum

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Improvement in the technology of production of ball bearing steel (Pres. - residual pressure) on the degree of contamination was expressed by the factor $(100 \%/Pres.)$. A statistical correlation of this factor with the degree of contamination by oxide or globular inclusions indicates that with increasing depth of vacuum and increasing duration of the degassing period, the degree of contamination decreases. Fig.3 (numbers at points designate the number of specimens. - - - oxide, ----- globular inclusions). This relationship was statistically significant. A comparison of mean values and standard deviations of the degree of contamination of steel produced by the old and modified smelting technology (Table 2) indicates that the latter gave steel less contaminated by oxide and globular inclusions but more contaminated by sulphide inclusions. Therefore, further modification of smelting technology was directed towards improving the degree of desulphurisation of the metal, durability of the ladle lining and a more uniform distribution of silicon throughout the volume of the metal. Experimental heats in a 16 ton electric furnace in which deoxidizing mixtures of powdered lime and spar were blown in during the
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Improvement in the technology of production of ball bearing steel oxidizing period were not satisfactory (Table 3). A noticeable desulphurisation was obtained only in the case when nitrogen was used as a carrier. The installation used for the injection is shown in Fig. 4 (1 and 2 - valve for compressed air or nitrogen; 3 - nozzle for blast supply; 4 - nozzle for the supply of powdered desulphuriser in air or nitrogen; 5 - fixing of top cover; 6 - fixing of bottom cover; 7 - pressure gauge). A change in the slag practice was more successful. Usually the refining slag in a proportion of 2.5 - 3% of the weight of metal was made from a mixture containing 70-72% lime, 10-12% spar, 8-10% chamotte and 8-10% crushed Dinas refractory. In the new practice Dinas refractory was replaced by spar and the weight of slag was increased to 3.5% of the weight of metal. A comparison of the sulphur content in the finished metal from 200 heats made with the usual and 186 heats made with modified slag showed that the average sulphur content of steel produced by the latter practice was 0.002% lower than in that produced by the former. Moreover, rejects of metal due to high sulphur practically ceased. The influence of

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Improvement in the technology of production of ball bearing steel ladle refractories on the behaviour of sulphur during vacuo treatment was also studied. It was observed that during vacuo treatment the content of alumina and silica in slag increases, decreasing its basicity by an average of 30%. As a result, the coefficient of sulphur distribution decreases and the occurrences of the reversion of sulphur in the vacuo treated steel were more frequent than in the usual steel (28% as against 7%). To preserve the desulphurising ability of slag and to increase the durability of the ladle lining a series of experimental heats was made in which the vacuo treatment of the steel was done in ladles fitted with a ring 460 mm high (at the level of slag-metal boundary), made from basic (magnesite and chromemagnesite) and neutral (high alumina) refractories. Under these conditions (50 heats) the basicity of the slag during the treatment decreased by only 9.5% against the previous 30% and the sulphur content of metal decreased by an average of 0.002-0.003% while in heats treated in ladles with the ordinary lining (85 heats) it remained practically unchanged. The durability of the ladles fitted with such a ring
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Improvement in the technology of production of ball bearing steel also increased (from 7-10 heats to 11-19 heats) despite some spoiling of basic bricks on cooling. Ball bearing steel deoxidized by carbon in the furnace is usually very pure as regards inclusions (0.0009-0.0011%). On tapping of such steel the amount of stable endogenic inclusions remains practically unchanged which confirms the assumption that the influence of secondary oxidation of steel not containing strong deoxidizers is insignificant. An increase in the amount of inclusions (0.0020-0.0040%) takes place during vacuo treatment and addition of deoxidants in the ladle. In vacuo treatment of steel secondary oxidation during teeming is much more dangerous than during tapping from the furnace of non-deoxidized steel, since during teeming it already contains some amounts of silicon and aluminium. For the protection of the stream of metal during teeming from secondary oxidation, tube rings with holes were used, through which a neutral gas (nitrogen or argon) was supplied. In these experiments no satisfactory results were obtained. By blowing a neutral gas (physical protection) the concentration of oxygen in the immediate neighbourhood of the metal stream could not be

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Improvement in the technology of production of ball bearing steel reduced below 10%. In the second series of experiments natural gas was used which reduced the concentration of oxygen below 1% (physical and chemical protection). The increase in the hydrogen content in the metal was insignificant (about 0.5 cm³/100 g) and a most careful control of the microstructure of the metal indicated that the presence of a small amount of hydrogen inside the protecting ring has no negative effects on the metal quality. As a result of the protection of the metal stream by natural gas, the degree of contamination of the metal decreased by 0.2-0.4 units. An increased viscosity of slag during tapping of the heat and subsequent vacuum treatment caused difficulties in the deoxidation of the metal with 75% ferrosilicon. In individual cases, the metal was rejected due to incorrect analysis for silicon. The use of a 45% ferrosilicon proved to be more reliable. A comparison of data on the distribution of silicon along the height of the metal in the ladle deoxidized with a 45% ferrosilicon indicated that this was more uniform than that deoxidized with a 75% ferrosilicon. The coefficient of variation was 23.3%
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