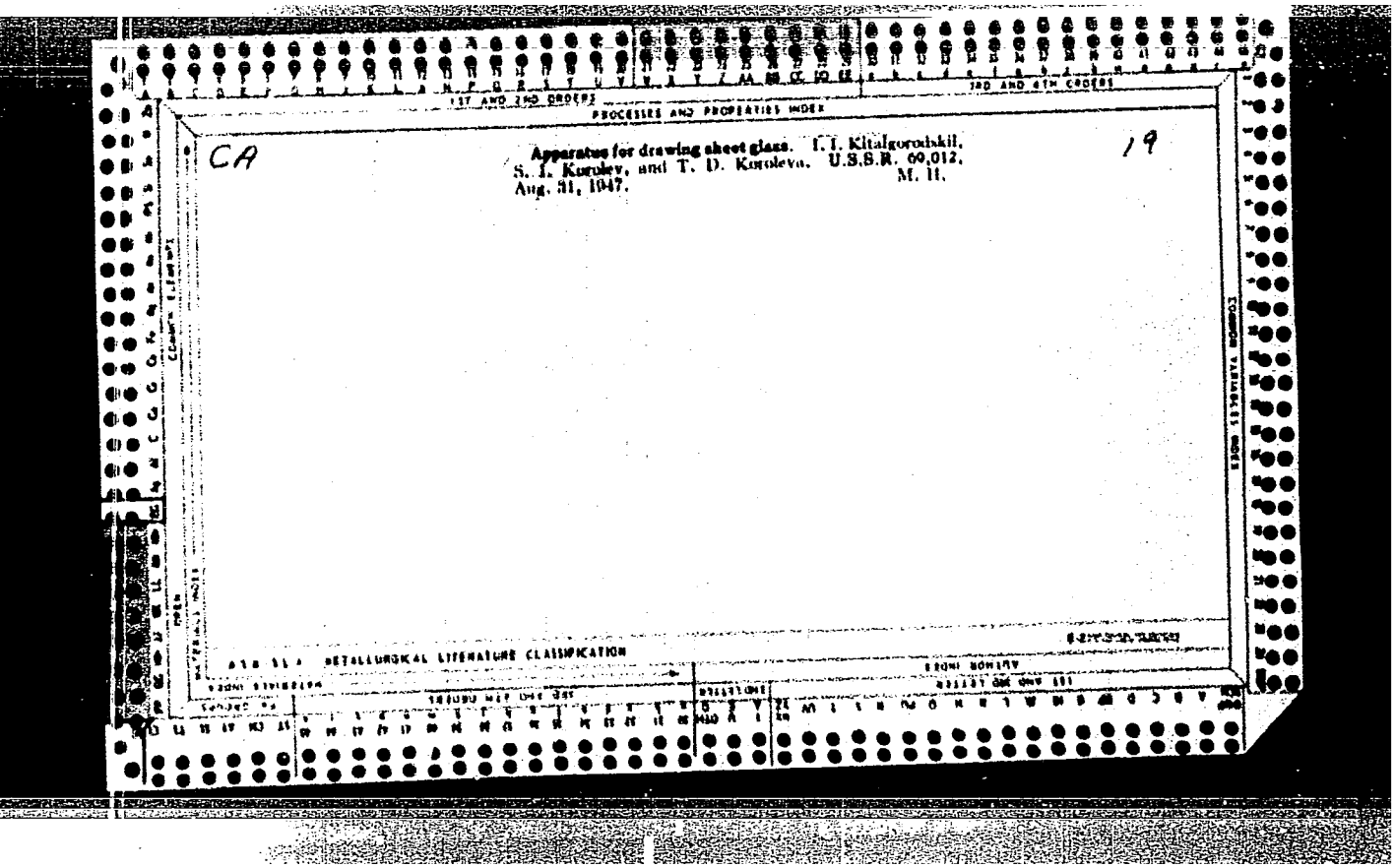

AUTHOR: Korolev, S.I., Lupandin, V.I. SOV-113-58-9-13/19

TITLE: A New Non-Hardening Mastic for Gaskets (Novaya netverdeyushchaya mastika dlya prokladok)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 9, pp 35-36 (USSR)

ABSTRACT: A mastic for gaskets of impregnated cardboard, paronite and pressed cork to be used in motor car engines was developed in 1947 by engineer L.M. Koposov. This LK mastic consisted of 45% of autonitroenamel 624[a], 40% of castor oil for technical use and 15% of solvent 646. The castor oil being too expensive a substance, laboratory experiments were made to find a suitable substitute. A product with similar properties was eventually found in the emulsifying agent from chemical wood pulp, tallol oil. A composition of 30% of this oil together with 70% nitroglyphtalic foundation proved satisfactory. Laboratory tests with 225 engines were successful. In June 1957, the Yaroslav Engine Plant switched over to the new mastic, which resulted in over 31,000 rubles in annual savings.

Card 1/2

A New Non-Hardening Mastic for Gaskets SOV-113-58-9-13/19

ASSOCIATION: Yaroslavskiy motornyy zavod (The Yaroslav Engine Plant)

1. Gaskets 2. Adhesives--Preparation 3. Adhesives--Applications

Card 2/2

(3)

KISELEV, A. A., MYSHKIN, V. A., [illegible], A. V., KOROLEV, S. I. AND [illegible], E. O.

"Hydrogen Absorption and Changes in the Mechanical Properties of Zirconium and its Binary Alloys when Corroded in Water and Steam at High Temperatures and Pressures."

report presented at the Intl. Conference on the Corrosion of Reactor Materials (IAEA) Salzburg, Austria, 4-9 June 1962.

AL'TOVSKIY, R.M.; FEDOTOVA, A.G.; KOROLEV, S.I.

Studying the corrosion properties of yttrium. Part 1: Effect of pH on the corrosion and electrochemical behavior of yttrium. Zashch. met. 2 no.1:52-56 Ja-F '66. (MIRA 19:1)

1. Submitted April 19, 1965.

L 01300-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG/WB

ACC NR: AP6003320 (N) SOURCE CODE: UR/0365/66/002/001/0052/0056

48
46
B

AUTHOR: Al'tovskiy, R. M.; Fedotova, A. G.; Korolev, S. I.

ORG: none

TITLE: Investigation of the corrosion properties of yttrium. I. Effect of the pH on the corrosion and electrochemical behavior of yttrium

SOURCE: Zashchita metallov, v. 2, no. 1, 1966, 52-56

TOPIC TAGS: yttrium, corrosion resistance, electrochemistry, corrosion resistant metal

ABSTRACT: The effect of the pH on the corrosion resistance and stationary electrode potential of yttrium containing 0.1% O, 0.3% Si, and 0.3% Cu was studied in solutions of NaX + HX and NaX + NaOH types (X was the anion of Cl^- or NO_3^-). The corrosion of yttrium in nitrate and at a pH >3 in chloride solutions occurred with a decrease in corrosion rate with time. This indicated the formation of a protective film (probably hydroxide) on the surface of the yttrium. The dissolving of yttrium practically ceased to exist after 50-75 hours of the experiment. The rate of corrosion of yttrium decreased with increased pH, especially in the acid region (pH 2 - 4). The corrosion rate was somewhat lower in nitrate than in chloride solution. The metal was in the passive state at a lower pH (10.5) in the nitrate solution than in the presence of Cl^- (pH 13). Yttrium practically did not dissolve in bidistilled H_2O with and without addition of

Card 1/3 UDC: 669.794 : 620.193

L 01300-67
ACC NR: AP6003320 2

alkalies. Therefore, the presence in solution of NO_3^- and especially of Cl^- has no effect on the resistance of yttrium to corrosion. Thermodynamically, yttrium should be a very active metal electrochemically. The standard potential of reaction $Y = Y^{3+} + 3e$ is - 2.37 v. But even the most negative potentials of yttrium in the solutions studied were 1 v more positive. This suggested the presence of a protective film on the yttrium surface even in the active state of yttrium. The curve of stationary potential - pH for yttrium in chloride solution consisted of three parts. The stationary potentials at a potential below 3 and above 10 decreased with decrease or increase of the pH, respectively. The potential slightly increased with a decreased pH in the interval of pH 10-3. According to G. V. Akimov and I. L. Rozenfeld (Issledovaniya v oblasti elektrokhimicheskogo i korrozionnogo povedeniya metalov i splavov, Oborongiz, M., 1950), this can be explained most satisfactorily by the presence of potentials of the film-pore type on the metal surface. A complete passivation of yttrium in chloride solution occurred at pH 13. The inflection on the curve at pH 3 indicated a change in surface conditions. Probably, at pH <3 the hydroxide film was converted into yttrium chloride and the film lost its protective properties. The stationary potential-pH curve of yttrium in the nitrate solution was similar to that in the chloride solution except for the absence of a decrease in potential in the acid region (pH <3) and for the fact that the stationary potential in nitrate solutions at a pH of 3-10 was 0.25 v more positive than in chloride solutions. This was caused by the presence of NO_3^- which increased the potentials of the cathode sections. At a pH of 2-10 the corrosion of yttrium occurred with both hydrogen and oxygen depolarizations and at a pH >10 only

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L 04774-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG/WB

ACC NR: AP6025718 SOURCE CODE: UR/0365/66/002/004/0436/0438

AUTHOR: Al'tovskiy, R. M. ; Fedotova, A. G.; Korolev, S. I.

62
B

ORG: none

TITLE: Investigation of the corrosion properties of yttrium. II. Corrosion of yttrium in hydrofluoric acid

27

18

SOURCE: Zashchita metallov, v. 2, no. 4, 1966, 436-438

TOPIC TAGS: corrosion, corrosion rate, electrochemistry, yttrium, chemical kinetics, hydrofluoric acid

ABSTRACT: The corrosion kinetics and the electrochemical properties of yttrium in 2% and 18% HF were studied at 25° and 90°. Reduction in corrosion rate with time was proved to be due to the formation of a protective film of YF_3. Under the test conditions -- 250 hours at 25° and 24-50 hours at 90° -- the film remained intact, but on prolonged contact in HF the film breaks down and chips off. Deep pits and film crumbling were noted in 25 hours in vapor phase tests. Removal of oxygen from the system had no effect on the corrosion rate. The stationary potential of yttrium in HF solutions shifts to the positive side with time, indicating passivation. Anodic polarization is the

Card 1/2 UDC: 620.193.41:669.794

L 04774-67

ACC NR: AP6025718

same in 2% and 18% HF; the rate of corrosion is low--0.02-0.05 mm/year. The cathodic process is more rapid in the more concentrated HF solution. Orig. art. has: 4 figures.

SUB CODE: 07, 11, 13/ SUBM DATE: 22Jul65/ ORIG REF: 004/ OTH REF: 004

Card 2/2

SAGOVSKAYA, Yekaterina Nikolayevna; KOROLEV, S.N., redaktor; MAKRUSHIN, V.A., tekhnicheskiy redaktor

[Methodological development of arithmetic lessons for class 5]
Metodicheskie razrabotki urokov po arifmetike V klassa. Leningrad, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR, Leningradksoe otd-nie, 1956. 260 p. (MIRA 10:1)
(Arithmetic--Study and teaching)

KOROLEV, S.N.

SAGOVSKAYA, Yekaterina Nikolayevna; KOROLEV, S.N., redaktor; LEONT'YEVA, L.A., tekhnicheskiy redaktor

[Arithmetic lesson plans for the sixth grade; based on practice] Plany urokov po arifmetike dlia VI klassov; iz opyta raboty. Leningrad, Gos.uchebno-pedagog. izd-vo M-va prosv. RSFSR, Leningr. otd-nie, 1957. 103 p. (MIRA 10:10)

(Arithmetic--Study and teaching)

L 43056-66 EWT(d)/FSS-2/EWT(m)/EWP(f)/EWP(v)/T/EWT(k)/EWP(h)/EWP(l) IJP(c)

ACC NR: AP6015000 SOURCE CODE: UR/0209/66/000/005/0038/0040

JKT/TT/WW/JW/JWD/WE/JT

AUTHOR: Korolev, S. P.

1966 77 B

ORG: none

TITLE: Rocket-propelled flight in the stratosphere

SOURCE: Aviatsiya i kosmonavtika, no. 5, 1966, 38-40 .

TOPIC TAGS: rocket engine, rocket flight, solid propellant ~~rocket~~ engine, liquid propellant ~~rocket~~ engine

ABSTRACT: The author reviews the history of the development of rocket engines and describes the mode of operation of certain existing systems of rocket engines. The existing rocket engines are divided into the following three basic groups: solid-propellant rocket engines carrying fuel and oxygen required for combustion, liquid-propellant rocket engines with a liquid oxidizer, and rocket engines operating on a solid propellant, liquid propellant, or gaseous propellant deriving oxygen from the ambient air. A brief classification of existing rocket systems and general characteristics of rocket engines are given.

SUB CODE: 19/ SUBM DATE: none/

Card 1/1

ACC NR: AP6036172 SOURCE CODE: UR/0209/66/000/011/0048/0054

AUTHOR: Korolev, S. P.; Tsiolkovskom. K. E.

ORG: none

TITLE: Ahead of his century [S. P. Korolev discusses K. E. Tsiolkovskiy]

SOURCE: Aviatsiya i kosmonavtika, no. 11, 1966, 48-54

TOPIC TAGS: space program, space research, astronautic personnel ~~station, space flight, K. E. Tsiolkovskiy~~

ABSTRACT: This is a discussion by the late Chief Spacecraft Designer S. P. Korolev on the 100th anniversary of the birth of rocket pioneer K. E. Tsiolkovskiy at a meeting of the Academy of Sciences, USSR, held on this occasion. Korolev recounts and evaluates Tsiolkovskiy's numerous contributions to space research and development, emphasizing the fact that not only basic research but numerous practical solutions offered by this scientist have found application in modern astronautics.

SUB CODE: 22, 05/ SUBM DATE: none

Card 1/1

KOROLEV, S.S., kapitan med.sluzhby

Results of conservative and surgical methods in treating hip fractures.
Voen.-med. zhur. no.8:80-81 Ag '61. (MIRA 15:2)
(HIP JOINT—FRACTURE)

GAVRICHENKOV, A.I., kand. veter. nauk; KOROLEV, S.V.

Veterinary hygienic measures as a basis for the elimination of infectious atrophic rhinitis in swine. Veterinariia 42 no.7:14-15 Jl '65. (MIRA 18:9)

1. Belorusskiy nauchno-issledovatel'skiy veterinarnyy institut (for Gavrichenkov). 2. Glavnyy veterinarnyy vrach sovkhoza "Kurgany" Minskoy oblasti (for Korolev).

KOROLEV, S.S. (Captain of the Medical Service)

"Results of conservtive and surgical methods of treating fractures of the femur."

Voyenno-Meditsinskiy Zhurnal, no. 8, Aug 1961

KOROLEV, S.V.

Grandiose program for the large-scale building of Communist society. Kolyma 21 no.1:1-3 Ja '59. (MIRA 12:6)

1.Predsedatel' Magadanskogo sovnarkhoza.
(Russia--Economic policy)

KOROLEV, V.

Technology

(In Moscow's newly erected buildings). (Moskva), Profizdat, 1952.

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

1. KOROLEV, V.

2. USSR (600)

4. Building Materials

7. My experience in economizing building materials., Za ekon. mat., No.4, 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

KOROLEV, V.

Modern technology doesn't tolerate primitive work. Sev.profsoiuzy 4 no.3:38-40 Mr '56. (MLRA 9:7)

1.Instruktor peredovykh metodov truda Glavmosstroya.
(Building)

KOROLEV, V.,

DAVIDENKOV, S.; VAYS, A.; KALASHNIKOV, I.; KOROLEV, V.; NIKOLENKO, V.

Second servicing of ZIS automobile trucks on an assembly line. Avt.transp. 32 no.9:16-20 S '54. (MLRA 7:11)
(Motor trucks--Maintenance)

KOROLEV, V., zootekhnik

Zootechnician Valentina Ozols. Nauka i pered.op.v sel'khoz.
9 no.8:47-48 Ag '59. (MIRA 12:12)
(Ozols, Valentina Ivanova) (Stock and stockbreeding)

KOROLEV, V.

Skip hoister for cupola furnace charging; Gunboat Repair Yard. Inform.sbor.TSNIIMF no.26:99-101 '58. (MIRA 13:4)

1. Kanonerskiy sudoremontnyy zavod.
(Shipyards--Equipment and supplies)
(Foundries--Equipment and supplies)

KOROLEV, V., inzh.

One of the oldest leading workers in the field of water transportation. Mor. flot 21 no.4:40 Ap '61. (MIRA 14:4)
(Zvonkov, Vasilii Vasil'evich, 1890-)

KOROLEV, V.

Mandrel for fastening cutting tools without ramrods. Mashinostroitel' no.8:35 Ag '61. (MIRA 14:7)

(Milling machines)

KOROLEV, V., starshiy prepodavatel'; ASTAKHOV, S.

"OKM-A" sprayer mounted on a tractor. Zashch. rast. ot vred. i bol. 10 no.12:33-34 '65. (MIRA 19:1)

1. Kafedra mekhanizatsii lesnogo khozyaystva Bryanskogo tekhnologicheskogo instituta (for Korolev). 2. Zaveduyushchiy laboratoriyey Bryanskogo tekhnologicheskogo instituta (for Astakhov).

KOROLEV, V., dotsent; KUZNETSOV, V.

Dried biogenetic stimulators made with embryos. Mias.ind. S.S.S.R. 33 no.6:22-23 '62. (MIRA 16:1)

1. Semipalatinskiy zooveterinarnyy institut (for Korolev).
2. Semipalatinskiy myasokonservnyy kombinat imi Kalinina (for Kuznetsov).
(Beef cattle—Feeding and feeds) (Tissue extracts)

KOROLEV, V., inzh.

All-Union [illegible]. Mor. flot 15 no.8:39 Ag '55.
(MLRA 10:8)

KOROLEV, V.

Volga-Baltic Sea Waterway. Rech. transp. 22 no.9:38-39 S '63.
(MIRA 16:10)

1. Direktor direktsii stroitel'stva Volgo-Baltiyskogo vodnogo puti.

KOROLEV, V., inzh.

Possibilities for improving technical and operating characteristics of single-axle trailers. Avt. transp. 43 no.1:36-39 Ja '65.
(MIRA 18:3)

KOROLEV, V. A.

Korolev, V. A. - "Water treatment, in the Fol'gard manner, in acute diffusion diseases of the liver", Trudy Medinstituta (Izhev. gos. med. in-t), Vol. VI, 1948, p. 137-40.

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949).

KOROLEV., V. A.

36906. KOROLEV, V. A. i KUTYAVINA, A. L. Izmeneniya Podzheludochnoy Zhelezy Pri Bolezni Botkina. - V Ogl. 2-y Avt: Kutyavina, A. A. Trudy Med. In-ta (Izhev. Gos. Med. In-t), T. IX, 1949, s. 103-11.

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

KOROLEV, V.A.

High productivity utilization of diesel locomotives. Elek.i tepl.tiaga no.5:20-22 My '57. (MLRA 10:9)

1. Nachal'nik lokomotivnogo otdela Kaganskogo otdeleniya Ashkhabadskoy zheleznoy dorogi.

(Diesel locomotives)

KOROLEV, V.A., inzh.

Automatic chip removal in workshops of the Minsk Tractor Plant.
Mashinostroitel' no.9:16-18 S '59. (MIRA 13:2)
(Minsk--Metal cutting)

BEKHTLE, G.A., kand. tekhn. nauk; SILISHCHENSKAYA, N.M., kand. tekhn. nauk; GLEMBOTSKIY, V.A., prof; PLAKSIN, I.N.; YEFIMOV, V.P., inzh; KUMYANTSEVA, N.M., inzh; KOROLEV, V.A., laborant

Flotation of iron from magnetic separation tailings at the Kursk Magnetic Anomaly ore dressing plant. Gor.zhur.no.11:28-31 N '58. (MIRA 11:11)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Kursk Magnetic Anomaly) (Magnetic separation of ores) (Flotation)

NIKIFOROV, N.A.; KOROLEV, V.A.

Method for compiling a detailed geological prognostic map. Zap. Uz.otd.Vses.min.ob-va no.6:131-142 '54. (MLRA 9:12)

1. Kafedra razvedochnogo dela Srednaziatskogo politekhnicheskogo instituta.

(Prospecting) (Geological surveys)

KOROLEV, V.A.

Diagram of contour lines for geological plane tabling. Razved. i okh.nedr 21 no.1:56-59 Ja-F '55. (MLRA 9:12)

(Plane table) (Surveying)

BAYMUKHAMEDOV, Kh.N.; VOL'FSON, F.I.; ZAKIROV, T.Z.; KOROLEV, V.A.; KREYTER, V.M.; KUSHNAREV, I.P.; LUKIN, L.I.; NEVSKIY, V.A.; NIKIFOROV, N.A.; PEK, A.K.; RUSANOVA, O.D.; SONYUSHKIN, Ye.P.; CHERNYSHEV, V.F.; SHEKHTMAN, P.A.

Aleksei Vasil'evich Korolev; obituary. Geol. rud. mestorozh. no.4:134-135 Jl-Ag '60. (MIRA 13:8)
(Korolev, Aleksei Vasil'evich, 1897-1960)

GVOZDEVICH, Aleksandr Makarovich; ZAYGEROV, Iosif Borisovich; KOROLEV, Vitaliy Arkad'yevich; SHMORGUN, Yakov Shayevich; KASHTANOV, F., red.; DOMOVSKAYA, G., tekhn. red.

[Mechanization of conveying operations in machinery plants; experience of the Minsk Tractor Factory] Mekhanizatsiia transportnykh operatsii v mashinostroenii; iz opyta raboty Minskogo traktornogo zavoda. Minsk, Gos.izd-vo BSSR. Red. proizvodstvennoi lit-ry, 1961. 70 p. (MIRA 15:2)
(Minsk—Conveying machinery)

KOROLEV, Vitaliy Arkad'yevich; DMITROVICH, A.M., kand. tekhn. nauk, red.; KASHTANOV, F., red.

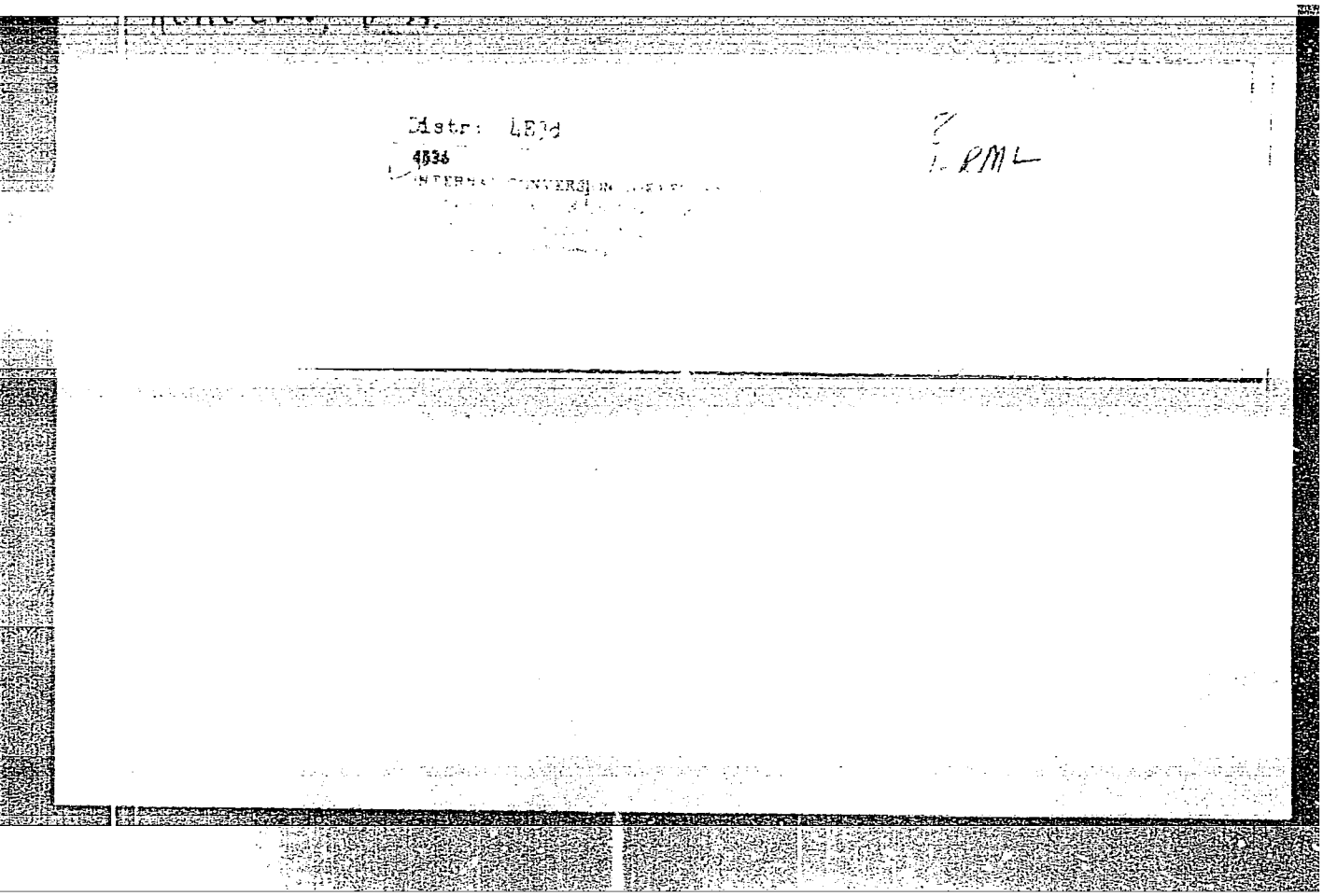
[Mechanization of benchwork] Mekhanizatsiia slesarnykh rabot. Minsk, Izd-vo "Belarus'," 1964. 176 p. (Biblioteckka slesaria, no.6) (MIRA 18:1)

KOROLEV, V. A.

6118 19 19

α-γ ANGULAR CORRELATION OF ThC"(Tl^{208}), V. A. Korolev, L. A. Kul'chitskii and A. I. Zhernovoi. (Leningrad Inst. of Physics in Technology, Acad. of Sciences U.S.S.R.). Izvest. Akad. Nauk S.S.R. Ser. Fiz. 20, 1451-4(1956) Dec. (In Russian)

Studies were made of α-γ angular correlation of ThC" in transitions to second and fourth excitation levels. Transition intensities at these levels were 1.8 and 1.1%. The small transition intensities and the great number of γ lines in the spectrum of the active thorium precipitation source from ThB, ThC', and ThD complicated the measurements of the angular correlation and required methods of measurements with a good separation of α particles and γ-quanta lines. Results of measurements showed that for the ThC" normal state moment the value 1^+ should be selected. The value 3^+ is the more probable value for ThC"(Tl^{208}_{81}) second level of excitation moment and for γ radiation the E(2) with a small addition of M(1). The fourth excitation level has the value 3, however it is not yet possible to give a single sign for its parity, and it may be M(1) or E(1). (R.V.J.)



KOROLEV, V. A.

AUTHOR BOROB'YEN, A.A., KOROLEV, V.A., KOMAR, A.P., PA - 2994
SELIVERSTOV, D.M.,

TITLE The Coefficient of the Interior Conversion of γ-Radiation with the Energy 53 KeV on the L-Shell of the Th^{230}.
(Koeffitsyent vnutrenney konversii γ-izlucheniya energii 53 keV na L-obolochke Th^{230} - Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 3, pp 623-623, (U.S.S.R.)
Received 6/1957 Reviewed 7/1957

ABSTRACT According to the data obtained from publications this coefficient is probably large. The authors determined this conversion coefficient by means of the method of α-γ coincidences. An enriched U^{234} source was used. The α-particles were recorded by means of a momentum ionization chamber and the γ-quanta by means of a scintillation counter with an NaJ(Tl)-crystal. The γ-spectrum was recorded in coincidence with the α-particles which lead to the basic level and to the first excited level of the Th^{230}. This radiation originates entirely from the inner conversion on the L-shells of the Th^{230}. The coefficient of conversion was determined from the ratio of the number N_R of the radio X-ray quanta (without absorber) to the number N_γ of 53 keV - quanta (which were reduced to the same number N_α of the recorded α-particles.) The result $N_R/N_\gamma = 13\%$ was obtained. The error committed in measuring remains below 50%. The extrapolation of the theoretical value furnishes the following values for the sum of the coefficients of conversion on the L_I-, L_{II}- and L_{III} shells, according to the type of radiation,

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SOV/120-59-1-21/50

AUTHORS: Vorob'yev, A. A., Korolev, V. A., Solyakin, G. Ye.

TITLE: Measurement of the Grid Current in the Tubes Employed in Low-Noise Amplifiers (Izmereniye setochnogo toka v lampakh, ispol'zuyemykh v usilitelyakh s nizkim shumom)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, pp 85-89 (USSR)

ABSTRACT: It is known from the Nyquist theory that the noise produced by the grid current can be expressed by:

$$\overline{U^2_{sh.s.}} = \frac{eI_c}{\pi} \int_0^\infty \frac{R^2 F(\omega) d\omega}{1 + \omega^2 \tau^2} \quad , \qquad (3)$$

where $\tau = RC$, I_c is the grid current; R is the grid leak of the tube and C is its input capacitance; function $F(\omega)$ in Eq (3) is formed by the product of the transfer functions of an integrating and a differentiating network; the time constants of the networks are $T_1 = T_2 = T$. Consequently,

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the grid current noise can be expressed by Eq (4), where $q = \tau/T$. If the tube contains a resistor R at its input, the noise due to this can be expressed by Eq (6). Provided the same function $F(\omega)$ is used, the integration of Eq (6) results in Eq (7). The maximum value of the thermal noise, expressed by Eq (7), occurs when the resistance is given by Eq (8); this value is given by Eq (9). On the other hand, the maximum value of the noise produced by the grid current is given by Eq (5). Consequently, the grid current can be expressed in terms of a ratio of the maximum grid current noise to the thermal noise and this is expressed by Eq (10). This equation can be used for determining the value of I_C. By comparing Eqs (3) and (6), it is found that the relationship between the grid current noise and the thermal noise is expressed by Eq (15). This can also be used for determining I_C; for example, if a value of R is determined such that the current noise is equal to the thermal noise, the grid current is given by Eq (16); here, R_0 is the value of R necessary to secure the equality of the two noises. The above methods were employed to measure the grid current in the tube

Measurement of the Grid Current in the Tubes Employed in Low-Noise Amplifiers

Type 6Zh1P which were operated as triodes with an anode voltage of 60 V and a heater voltage of 6 V. The dependence of the total noise on the input resistance is illustrated in Fig 2. From this it is found that the grid current was $1.0 \cdot 10^{-10}$A, when determined from Eq (11) (or from Eq 14), and it was 1.15×10^{-10}A when evaluated from Eq (16). The authors express their gratitude to F. M. Sobolevskaya for her help in the measurements, to S. N. Nikolayev for discussing the results, and to A. P. Komar for his interest in this work. The paper contains 3 figures and 2 references, of which 1 is English and 1 is Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Physics Engineering Institute of the Soviet Academy of Sciences)

SUBMITTED: February 5, 1958.

SOV/120-59-2-27/50

AUTHORS: Vorob'yev, A.A., Korolev, V.A. and Solyakin, G.Ye.

TITLE: The Choice of Optimum Pass-band in an Amplifier Working with an Ionization Chamber (Vybor optimal'noy polosy propuskaniya v usilitele, rabotayushchem s ionizatsionnoy kameroy)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 95-102 (USSR)

ABSTRACT: A calculation is made of the optimum bandwidth of an amplifier with two differentiating circuits. It is shown that the introduction of the second differentiating circuit completely avoids the influence of microphonic effects and low frequency noise without deteriorating the signal-to-noise ratio, The resolving power of an ionization alpha-spectrometer is determined basically by the noise in the first valve. When the leakage resistance of the first valve is high enough thermal noise may be neglected and only the contributions of anode and grid current taken into account. Usually the maximum signal-to-noise ratio is guaranteed by correct choice of amplifier bandwidth and this usually means inserting a differentiating and an integrating circuit. This case has already been considered by Elmore in Ref 1.

Card 1/4

The Choice of Optimum Pass-band in an Amplifier Working with an Ionization Chamber

This scheme has a number of drawbacks; in particular the location of the differentiating circuit is difficult, since it is preferable to place it before the amplifier in order to avoid overloading on microphony, but also convenient to place the circuit within the middle of the amplifier when A.C. heaters are used. In the analysis for brevity an arrangement of one differentiator followed by one integrator is described as {1,1}; the cases {1,2} {2,2} are also considered. The spectral densities of the grid and anode currents are given by Eqs (1) and (2). For the three circuit combinations described above, expressions for the minimum value of noise are given by Eqs (8), (12) and (17). In the many curves which are presented two parameters are used; p which is the ratio of the time constants of the integrator and the differentiator circuits, and a which is defined in Eq (5). In calculating signal-to-noise ratio it is assumed that a rectangular voltage pulse is delivered from the ionization chamber. Signal-to-noise ratio is denoted by Q . In Fig 1 the signal-to-noise ratio is

The Choice of Optimum Pass-band in an Amplifier Working with an Ionization Chamber

given by a solid line and the signal amplitude by the dotted lines. Figs 3, 4 and 5 show for the three circuit arrangements respectively the variation of signal-to-noise ratio with p for various pulse durations. Figs 6, 7 and 8 are the corresponding figures with p and a as parameters. Ionization chambers suffer from microphony at frequencies up to 100 c/s. By using two differentiating circuits the contribution to the microphony may be reduced with respect to that due to valve noise by a factor of approximately 100 at a frequency of 100 c/s; at lower frequencies this reduction is even more significant. It has so far been assumed that the voltage pulses are truly rectangular; in practice they have sloping fronts and if these slopes are linear it is possible to calculate easily the loss in amplitude as a function of the differentiating and integrating circuits. This loss is shown plotted in Figs 9 and 10 respectively for single and double circuits. Table 1 summarizes the amplitude loss for various rise times for the three types

The Choice of Optimum Pass-band in an Amplifier Working with an Ionization Chamber

of circuit; this is experimental data. For all three circuits the relationship between amplitude loss and rise time is quadratic. In Table 2 experimental and calculated results are compared for various values of differentiator and integrator time constant; this table applies to the case of {1,2} . The authors thank M.F. Sobolevskaya and A.P. Komar.

Card 4/4

There are 10 figures, 2 tables and 2 English references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical Institute of the Academy of Sciences, USSR)

SUBMITTED: February 13, 1958

9.3000

75333
SOV/57-29-10-10/18

AUTHORS: Vorob'yev, A. A., Ivanov, B. A., Komar, A. P., Korolev, V. A.

TITLE: Influence of Ramsauer-Townsend Effect on the Mobility of Electrons in Spectroscopically Pure Argon

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1959, Vol 29, Nr 10, pp 1252-1258 (USSR)

ABSTRACT: The purpose of the paper is to verify the influence of Ramsauer-Townsend effect on the mobility of electrons in spectroscopically pure argon. The study is experimental in nature. The drift of electrons is measured as a function of E/p, where E is intensity of the electric field and p is barometric pressure of argon in the experimental chamber. The experiments were carried out for values of E/p between 0.001 and 1.5. At small values of E/p a maximum was observed similar to that obtained by other investigators. This maximum could be explained as the result of the Ramsauer-Townsend effect, or it might have been caused by the excitation of molecular levels owing to the presence of impurities in argon. For this reason industrial argon of 99.6% was also used. The ionization chamber was filled with argon at

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pressures of up to 1,000 mm Hg. For a source of α-particles U^{234} was used. The impurities in the spectroscopically pure argon amounted to less than 10^{-4}%. The total sum of errors did not exceed 20%. The mean free path λ of the electrons at a pressure of 1 mm Hg and the average fraction of energy f lost in one collision were measured, and the values obtained fully corroborated the influence of the Ramsauer-Townsend effect on the election mobility in the spectroscopically pure argon. When industrial argon was used it was found that the value of f is affected by argon impurities influencing the maximum value of E/p. This, however, is not to be taken as the result of Ramsauer-Townsend effect. There are 6 figures, and 8 references, 6 U.S., 1 Canadian, and 1 French. The U.S. and Canadian references are: Nielsen, R. A., Phys. Rev., 50, 950, 1936; Klema, E. D., Allen, J. S., Phys. Rev., 77, 661, 1950; Kirshner, J. M., Toffolo, D. S., J. Appl. Phys., 23, 594, 1952; Bortner, T. E., Hurst, G. S., Stone, W. G., RSI, 28, 103, 1957; Bell, P.R., Jordan, W. H., Davis, R. C., Phys. Rev., 83, 490, 1951; Colli, L., Facchini, U., RSI, 23, 39, 1952; English, W. N., Hanna, G. C., Can. J. Phys., 31, 768, 1953.

Card 2/3

24(7)

AUTHORS: Vorob'yev, A. A., Komar, A. P., Korolev, V. A., Solyakin, G. Ye.

SOV/56-37-2-32/56

TITLE: The α-Spectrum of the Natural Mixture of Isotopic Samarium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 2(8), pp 546 - 548 (USSR)

ABSTRACT: In the present "Letter to the Editor" the authors report on investigations of the α-spectrum of Sm^{147} and the isotopic mixture by means of a pulse ionization chamber; the chamber was filled with chemically pure argon (99.9% Ar, $+O_2$, N_2, CO_2). The measured α-spectrum of Sm^{147} is shown by figure 1; it has a half width of 43 kev (when intensive α-emitters, as e.g. U^{234}, were used, the half width amounted to 30 kev). The energy of the α-particles of Sm^{147} was determined as amounting to (2.19 $\pm$ 0.01) Mev, which agrees well with the value mentioned in reference 6. Figure 2 shows the spectrum of the α-particles of the natural isotopic mixture (without collimation) within

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the energy interval of 2.0 - 2.8 Mev. The energy of the α-particles of Sm^{146} is (according to reference 7) equal to ~ 2.55 Mev; knowledge of this fact and of the entire background (within the range of 1.5 - 2.5 Mev - 1 pulse/hour) makes it possible to evaluate the upper limit of the Sm^{146}-content in the natural isotopic mixture and thus to determine the half lives: $T(Sm^{147}) = 10^{12}$a and $T(Sm^{146}) = 5.10^{7}$a. The Sm^{146}-concentration in the natural isotopic mixture is not greater than $2.5.10^{-6}$ % (the number of α-particles originating from Sm^{146}-decay does not exceed the background). According to a mass-spectrometric analysis the content would amount to 8.10^{-5} % (Ref 8). There are 2 figures and 8 references, 1 of which is Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physico-technical Institute of the Academy of Sciences, USSR)

SUBMITTED: March 26, 1959

S/089/60/009/006/004/011
B102/B212

21,3000

AUTHORS: Surkov, Yu. A., Vorob'yev, A. A., Korolev, V. A., Vilenskiy, V. D.

TITLE: Investigation of the composition of uranium isotopes in rare-earth minerals

PERIODICAL: Atomnaya energiya, v. 9, no. 6, 1960, 477-482

TEXT: The authors have tried to find out whether the isotope Cm^{247} exists (or existed) in nature (it is produced during plutonium irradiation in a reactor). This isotope changes over into Pu^{243} with a half-life of the order of 10^8 years and finally into U^{235}. One may assume the following reaction chain $Cm^{247} \xrightarrow{\alpha} Pu^{243} \xrightarrow[5h]{\beta^-} Am^{243} \xrightarrow[8600\ a]{\alpha} Np^{239} \xrightarrow[2.3\ d]{\beta^-} Pu^{239} \longrightarrow \xrightarrow[24400\ a]{\alpha} U^{235} \longrightarrow \ldots$, from the ratio U^{235}/U^{238} one could conclude that there still exists Cm^{247} in very old rare-earth minerals. The authors investigated the composition of uranium isotopes in xenotime, orthite and

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Investigation of the...

gadolinite with an age of $2 \cdot 10^9$ years. The samples had been furnished from the Mineralogicheskiy muzey AN SSSR (Mineralogy Museum of the AS USSR). The uranium was separated radiochemically from the minerals for an α-spectrometric analysis. The relative content of U^{235} and U^{238} was determined from the α-activity of these isotopes. An ionization chamber with screen (see Fig.2) had to be utilized since the uranium content was minute (0.25 - 1 mg). The chamber was filled with Ar + 0.5% CH_4; the α-radiating preparation was located on the high-voltage electrode. The α-particles will hit the collector electrode with a time delay of $t_{delay}=(d-R\cos\varphi)/w$ according to their direction of flight; R denotes the range of the α-particles, w the electron drift rate, d the distance between high-voltage electrode and screen, φ the angle between the direction of flight of the α-particle and the normal. The method of time collimation applied for the purpose consists in that only those pulses are recorded, for which $t_{delay} < t'$; thus, the pulses from α-particles emitted at small angles were eliminated. The degree of collimation was characterized by f ($f/w = t_{max}-t'$). The share ϱ of the recorded pulses from α-particles is given by $\varrho = 1-f/R = N/N_o$, where N_o

Investigation of the...

and N denote the intensities of a line before and after the collimation, respectively. The following has been measured: $Q = N_1/N_2$ (at two lines having the intensities N_1^0 and N_2^0) and

$$Q^0 = \frac{N_1^0}{N_2^0} = \frac{N_1}{N_2}\frac{1-\frac{f}{R_2}}{1-\frac{f}{R_1}} = Q\frac{1-\frac{f}{R_2}}{1-\frac{f}{R_1}} = QA, \quad (4).$$

Practically, there were three lines for the uranium isotopes.

$$Q^0_{234} = \frac{N^0_{238}}{N^0_{234}}, \quad Q_{234} = \frac{N_{238}}{N_{234}}, \quad Q^0_{238} = \frac{N_{238}}{N^0_{235}}.$$

$$Q_{238} = \frac{N_{238}}{N_{235}}.$$

The following holds

$$Q^0_{235} = Q_{235}A_{235} = Q_{235}\frac{Q_{235}}{Q_{238}} =$$

$$= Q_{235}\left(1 + \frac{Q_{235}-Q_{238}}{Q_{238}}\right) = Q_{235}(1+P_{235}), \quad (5)$$

$$P_{235} = \frac{Q_{235}-Q_{238}}{Q_{238}} = \frac{f}{1-\frac{f}{R_{235}}}\left(\frac{1}{R_{238}} - \frac{1}{R_{235}}\right). \quad (5a)$$

and analogously

$$Q^0_{234} = Q_{234}A_{234} = Q_{234}(1+P_{234}), \quad (6)$$

$$P_{234} = \frac{f}{1-\frac{f}{R_{238}}}\left(\frac{1}{R_{238}} - \frac{1}{R_{234}}\right). \quad (6a)$$

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Investigation of the...

P_{235} and P_{234} are interrelated by

$$P_{235} = \frac{\frac{1}{R_{238}} - \frac{1}{R_{235}}}{\frac{1}{R_{238}} - \frac{1}{R_{234}}} P_{234} = \frac{R_{235} - R_{238}}{R_{234} - R_{238}} \frac{R_{234}}{R_{235}} P_{234} = bP_{234}. \quad (7)$$

$$b = \frac{R_{235} - R_{238}}{R_{234} - R_{238}} \frac{R_{234}}{R_{235}} \quad (8)$$

The ratio R_{234}/R_{235} had been determined from the range-energy curve as 1.135, b = 0.39. Finally using

$$A_{235} = (1 + bP_{234}) = [1 + b(A_{234} - 1)] = [1 + 0{,}39(A_{234} - 1)]. \quad (9)$$

the following expression is obtained for the correction coefficient A_{235}: $Q^{o}_{235} = Q_{235}[1 + 0.39(A_{234}-1)]$. For a real degree of collimation $A_{235} \approx 1.20$ the error will be $\delta A_{235} \approx 0.1\ \delta b + 0.5\ \delta A_{234}$. b may be determined accurately to 5%. The measurements referred to a standard sample and $q = Q^{o}_{stand}/Q^{o}_{235\ sample}$ was determined. The background was negligibly

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Investigation of the...

small. It was possible to determine U_{235}/U_{238} with an error of ~2%. The test data are compiled in Table 1 (without collimation) and Table 2 (with collimation). It is apparent that the ratio of the isotopes was a little higher in gadolinite ($q \approx 1.046 \pm 0.02$). Here, it may be assumed that this raise is due to the existence of Cm^{247}. If its half-life is taken as $\gtrsim 4 \cdot 10^7$a then it is possible to calculate the initial content of Cm^{247} in gadolinite (at a mean uranium content of 0.06%) which could have been $\gtrsim 10^{-3}$%. The authors thank A. P. Komar and V. I. Baranov for their interest in these investigations. There are 4 figures, 2 tables, and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc.

SUBMITTED: February 24, 1960

Card 5/8

83672

S/048/60/024/009/005/015
B013/B063

21,5300

AUTHORS: Vorob'yev, A. A., Korolev, V. A.

TITLE: The Operation of the Ionization Alpha Spectrometer Under High Loads

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 9, pp. 1086 - 1091

TEXT: In the present paper, the authors suggest a method of raising the permissible loading of ionization chambers up to 10^4 pulses/sec. The duration of the pulses occurring in the ionization chamber depends on the duration of electron accumulation in it. By adding 10 ÷ 15% of methane to the argon and by shortening the distance q down to ~0.5 cm it is possible to shorten the duration of the build-up of pulses down to 0.5 - 0.4 μsec. It is apparently convenient to shape pulses by means of two short-circuited circuits. This method is particularly advantageous because pulse tails can be prevented and the constant component of the pulse spectrum is almost zero. The authors thoroughly studied the effect of the rise time on the

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83672

The Operation of the Ionization Alpha Spectrometer Under High Loads

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B013/B063

pulse height (Fig. 1) and the signal-to-noise ratio (Figs. 2 and 3). The operation of the spectrometer under high load was checked by measuring the α-spectrum of a Pu^{238} source with an intensity of $8 \cdot 10^3$ pulses/sec. Besides, the spectrum of generator pulses was measured, which were supplied to the input of the amplifier together with the pulses of α-particles (Figs. 4 and 5). The α-spectrum of Pu^{238} is shown in Fig. 6. Its half-width was 60 kev. When analyzing the results obtained, the authors note that radio noise makes the largest contribution to the half-width line (45 kev). This noise can be largely reduced by switching on additional tubes. There is reason to believe that the half-width of the α-line can be reduced to at least 40 ÷ 50 kev. Some applications of a strongly loaded spectrometer are finally mentioned. The authors thank I. A. Fadeyev and M. F. Sobolevskaya for help in the work. There are 6 figures and 3 references: 2 Soviet and 1 British.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Institute of Physics and Technology of the Academy of Sciences USSR)

Card 2/2

83673

S/048/60/024/009/006/015
B013/B063

24.6810

AUTHORS: Vorob'yev, A. A., Komar, A. P., Korolev, V. A.

TITLE: Investigation of the Alpha Decay of U^{235} by Means of an Ionization Alpha Spectrometer

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 9, pp. 1092-1098

TEXT: The present paper contains the results of an investigation of the α-decay of U^{235}, which was carried out by means of an ionization α-spectrometer. The spectrometer was tuned to a γ-spectrometer. The authors studied a spectrum without coincidence with γ-quanta (Figs. 1 and 2) and a series of γ-spectra coinciding with different groups of alpha particles (Figs. 3 and 4). A source enriched in U^{235} was used for the measurement. The spectral line of U^{234}(98%) showed, however, the highest intensity. It was used to stabilize the amplification factor of the amplifying part of the α-spectrometer. Besides, this line served as a standard for the

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APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000824820002-5

measurement of the energies of U^{235} alphas. The energies, intensities, and forbiddances of the alpha groups are given in Table 1. The results of the analysis of the U^{235} α-spectrum agree with the results of Ghiorso although the latter are only of a qualitative character. The α-spectrum of U^{235} has been recently studied by S. A. Baranov and A. G. Zelenkov by means of a spectrometer of high luminous power. The energies of the lines they found are fairly consistent with the data obtained by the present authors. Table 2 gives the results of the determination of multipole or γ-transitions. On the basis of measurements of α- and γ-spectra, the authors suggest a possible α-decay scheme of U^{235} (Fig. 5). The levels were identified with the help of Nilsson's scheme. Though this identification cannot make a claim to finality, it does not contradict the experimental data available at present. The authors thank S. A. Baranov and A. G. Zelenkov for discussions and information, as well as M. F. Sobolevskaya for her assistance in the measurements. There are 5 figures, 2 tables, and 9 references: 3 Soviet, 3 US, and 1 Danish.

Card 2/2

Korolev, V. A

82602

S/056/60/039/01/11/029
B006/B070

24.6520

AUTHORS: Vorob'yev, A. A., Komar, A. P., Korolev, V. A.

TITLE: Measurement of the Energy of the α-Particles of an Emitter

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 1 (7), pp. 70-72

TEXT: The authors measured the α particle energies with the help of an α-spectrometer. The ionization was determined by comparing the pulse heights of the α particles with those of the generated pulses whose amplitude could be measured to an accuracy of ~ 0.01%. The chamber used was filled with 97% Ar and 3% CH_4. The width of the α line was 35 kev. Table 1 collects a number of relevant data. Th^{228} was chosen as a standard. In the first column of this table the energy values deduced by a magnetic analysis are given, the second column gives ionization I, and the third the energy calculated according to the formula (1) $(E_{st} - 84)/(E_\alpha - 84) = I_{st}/I_\alpha$, where E_{st} and E_α denote the α energies of the standard and the emitter under investigation. There is good

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Measurement of the Energy of the α-Particles of an Emitter

S/056/60/039/01/11/029
B006/B070

agreement between the first and the third columns, from which the conclusion is drawn that the method of energy determination from the ionization in the α spectrometer is suitable. The following results are obtained:

At^{217}: 7.064 ± 0.005 Fr^{221}: 6.336 ± 0.005

Po^{213}: 8.368 ± 0.010 U_{I}^{235} : 4.396 ± 0.003

U_{II}^{235} : 4.211 ± 0.003 U^{238} : 4.190 ± 0.005

These values are compared with the results obtained by other authors. Agreement is good in some cases and not so good in others. Some particular cases in this connection are discussed. Thus, for example, the values obtained for the two intensive U^{235} lines (I and II) diverge considerably from those obtained by magnetic spectrometer (Ref. 6). In connection with this, it is pointed out that the measurements lately made by S. A. Baranov, A. G. Zelenkov et al. (Ref. 8) of the α spectrum of U^{235} with a new magnetic spectrometer led to the following values:

Measurement of the Energy of the α-Particles of an Emitter

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B006/B070

E_I = 4.394 ± 0.002 and E_{II} = (4.213 ± 0.002) Mev, and these agree very well with those obtained in the present work. There are 2 tables and 9 references: 1 Soviet, 1 South African, 2 Canadian, and 5 American.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physicotechnical Institute of the Academy of Sciences, USSR)

SUBMITTED: March 22, 1960

S/120/61/000/002/010/042
E032/E114

AUTHORS: Vorob'yev, A.A., and Korolev, V.A.

TITLE: A method for measuring the transparency coefficient of a grid in a pulse ionization chamber

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.2, pp. 78-80

TEXT: Green's reciprocity theorem can be used to determine the potential V^+ induced on the collecting electrode by positive ions. The latter is due to the fact that the grid introduced to screen the collector is not 100% efficient. The present authors point out that the theoretical treatment of the problem given by O. Buneman, T.E. Cranshaw and J.A. Harvey (Ref.1: Canad. J.Res.A, 1949, 27, 191) is very complicated and, moreover, is based on various simplifying assumptions. They therefore suggest a method for the experimental determination of the grid transparency coefficient. Their argument runs as follows. The potential V^+_i induced by the i-th positive ion located at a distance x from the electrode 1 (Fig.1) can be shown to be given by:

$$V^+_i = e\,\varphi\,(x)/CU \qquad (2)$$

A method for measuring the transparency coefficient of a grid in a pulse ionization chamber

where $\varphi(x)$ is the potential at the point x, which appears under the following conditions. The high-voltage electrode and the grid are earthed, the collecting electrode is at a potential U, and there is no space charge. The potential distribution in this case is shown in Fig.1. We are interested in the region between the high-voltage electrode and the grid. At a sufficient distance from the grid the field E_d is a constant, in which case

$$\varphi(x) = E_d x \qquad (3)$$

The potential V^+ is then given by

$$V^+ = \sum_{i=1}^{N} V_i^+ = Ne\,\bar{R}\cos\theta\,E_d/CU \qquad (4)$$

where $\bar{R}$ is the average distance of the ions from the beginning of the track and θ is the angle between the direction of the track and the normal to the surface of the electrodes. In order to determine E_d the chamber is filled with pure argon and a high

voltage is applied to the collecting electrode (U = 2 kV) while the grid and the high-voltage electrode are earthed. The pressure in the chamber is adjusted so that alpha particles emitted from a source mounted on the high-voltage electrode stop within the region in which the field is still constant. The field E_d which penetrates beyond the grid extracts a fraction of electrons produced by ionization and pulses appear on the collecting electrode. Next, a compensating positive voltage ΔU is applied to the high-voltage electrode and is adjusted until there are no pulses at the collecting electrode. The pulses disappear when the compensating field E'_d and E_d are equal, i.e.

$$E'_d = E_d = \Delta U/d \qquad (5)$$

where d is the distance between the high-voltage electrode and the grid. Hence

$$V^+ = Ne\ \Delta U\ \tilde{R}\ \cos\theta/CU\ d \qquad (6)$$

Thus, in order to determine V^+ it is sufficient to carry out a simple experiment involving the determination of the compensating voltage ΔU. The authors recommend pure argon as the working

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gas. Best results are obtained by determining the compensation point using pulses from the high-voltage electrode, since in this case the sign of the pulses will change at the balance point. In this way an accuracy of 3-5% in $\Delta U/U$ can be achieved. The experimental results are found to be in agreement with those computed by Buneman and Cranshaw and Harvey (Ref.1) (see Table), the discrepancy between the experimental data and the theory being negligible in the case of grids with low transparency. Acknowledgements are expressed to A.P. Komar for interest in this work and to G.Ye. Solyakin for taking part in the discussions. There are 2 figures, 1 table and 2 references: 1 Soviet and 1 English.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut
(Leningrad Physico-technical Institute)

SUBMITTED: March 24 1960

grid	r, mm	r, mm	r, mm	$\sigma_{calc.}$	$\sigma_{exp.}$
1	0.05	1.5	58	0.0065	0.0061
2	0.05	3.0	58	0.0185	0.0143

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13594

S/120/61/000/004/003/034
E032/E514

24.6800

AUTHORS: Vorob'yev, A.A. and Korolev, V.A.

TITLE: A study of the properties of an argon-methane mixture as the working gas of an ionization chamber

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.4, pp.42-46

TEXT: W. N. English and G. C. Hanna (Ref.1: Canad.J.Phys., 1953, 31, 768) have recommended argon-methane mixtures as a suitable working gas for ionization chambers. The present authors report some measurements of the properties of such chambers. All the measurements were carried out with a plane ionization chamber containing a grid. The gas mixture was made up of commercial argon (Ar - 99.9%, O_2 - 0.02%, N_2 - 0.08%, CO_2 - 0.005%) and commercial methane. The following quantities were measured: 1) Electron drift velocity, 2) the recombination rate, 3) the magnitude of the saturating field, 4) the electron attachment effect and the maximum permissible field, 5) the average energy of the electrons in the gas and 6) the dependence of the ionization on the energy of α-particles traversing the chamber. It was found that with this gas mixture it is possible to choose the electrode potentials so that:

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29594

A study of the properties of ... S/120/61/000/004/003/034
E032/E514

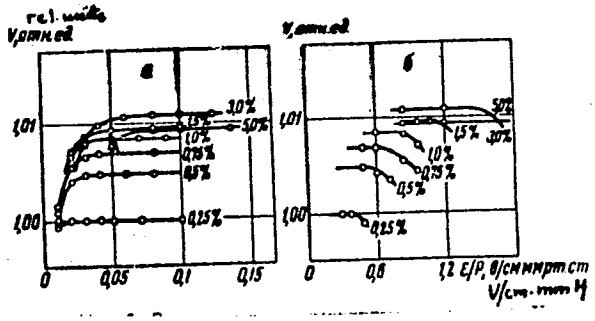
1) the recombination effects (between electrons produced during the ionization and the corresponding positive ions) are reduced to a minimum; 2) there is no appreciable attachment of electrons to neutral molecules and 3) the electrons can pass freely through the intermediate grid. The electron collection time can easily be reduced to 1-0.5 μsec and a plateau of several hundred volts is obtained, e.g. with a methane concentration of 5% the collection time is approximately 0.7 μsec. The ionization was found to be a linear function of α-particle energy in the range 5.4-8.8 MeV. An important advantage of the argon-methane mixture is that it does not require any additional purification. Acknowledgments are expressed to A. P. Komar for his interest in this work and to M. F. Sobolevskaya for assistance with the measurements.
There are 5 figures, 1 table and 8 references: 3 Soviet (1 a translation from English) and 5 non-Soviet. The following English-language references are given: Ref.1 (quoted in text), Ref.5: C. E. Melton, G. S. Hurst, T. E. Bortner, Phys.Rev.,1954, 96, 643; Ref.6: G. Bertolini, M. Bettoni, A. Bisi, Phys. Rev., 1953, 92, 1586; Ref.7: D. Strominger, T.M. Hollander, G. T. Seaborg, Rev. Mod. Phys., 1958, 30, 2.
Card 2/

A study of the properties of ... 29594
S/120/61/000/004/003/034
E032/E514

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Physico-technical institute AS USSR)

SUBMITTED: March 24, 1960

Fig.3: Amplitude V of pulses at the collecting electrode on:
a - p.d. between high-voltage electrode and the grid and
б - p.d. between the grid and the collector, (methane concentrations are marked on the curves.



Card 3/4

KOROLEV, V.A.

Some morphologic types of ore bodies in the Kara-Mazar Mountains.
Geol.rud.mestorozh. no.4:98-100 Jl-Ag '61. (MIRA 14:10)

1. Karamazarskaya poiskovo-s"yemochnaya ekspeditsiya.
(Kara-Mazar Mountains--Ore deposits)

88402

S/020/61/136/004/008/026
B019/B056

26.2312

AUTHORS: Komar, A. P., Academician of the AS UkrSSR, Vorob'yev, A. A., and Korolev, V. A.

TITLE: Measurement of the Fluctuation of Ionization Produced by α-Particles in Argon

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 4, pp. 795 - 797

TEXT: In the introduction, the authors refer to the frequently used measurement of ionization caused by nuclear particles for the purpose of determining the energy of nuclear particles. A relation given by V.Fano (Ref.1) for the mean square fluctuation of the number of ion pairs with constant energy of the ionizing particles is written, and it is found that this formula is suited for determining the upper limit of the mean fluctuation, but not for more exact computations. Besides, Fano assumed that the ratio between the probabilities of the various inelastic processes is independent of the nature and energy of the ionizing particles. The measurements carried out by the authors were made by means

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Measurement of the Fluctuation of Ionization Produced by α-Particles in Argon

S/020/61/136/004/008/026
B019/B056

of α-particles emitted by Ra^{224} (E_α = 5.681 Mev) and of α-particles emitted by Fr^{221} (E_α = 6.336 Mev). The ionization chamber was filled with chemically pure argon + 1.5% CH_4, whereby recombination could be prevented under certain conditions. Electronic collimation was used, whereby the resolution and, thus, the quality of the spectrum could be improved. The electronic means for improving the signal-to-noise ratio are briefly described. The measurements are graphically represented in Figs.1 and 2. The half-width of the Ra^{224} α-line is 17 kev and has a mean fluctuation of 7.2 kev. This mean fluctuation δ is composed of $\delta = \sqrt{\delta_N^2 + \delta_p^2 + \delta_o^2}$, where δ_N, δ_p, δ_o are the mean fluctuations which are due to the fluctuations of the ionization, to radio noise, and to other causes. In the case of Ra^{224}, δ_o is negligibly small, and because δ_p = 4.7 kev, it follows that: δ_N = 5.5 kev. For Pr^{221}, δ_N = 6.0 kev was obtained. From a discussion of the results, the authors conclude that δ_N may be described by

Card 2/4

Measurement of the Fluctuation of Ionization Produced by α-Particles in Argon

S/020/61/136/004/008/026
B019/B056

$$\delta_N(E_\alpha) = 5.8\sqrt{E_\alpha/6.0} \qquad (4)$$

for different E_α. E_α must be given in Mev. In the relation $\delta_N^2 = FN_o$ (1) given by Fano, where N_o is the mean number of ion pairs, F is found equal to 0.22, and its upper limit is given as $F_{lim} = 0.33$. The authors thank M. F. Sobolevskaya for her help in carrying out the measurements. There are 2 figures and 8 non-Soviet references: 5 US, 1 Canadian, 1 German, and 1 French.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Institute of Physics and Technology, Academy of Sciences USSR)

SUBMITTED: November 1, 1960

Card 3/4

88402

S/020/61/136/004/008/026
B019/B056

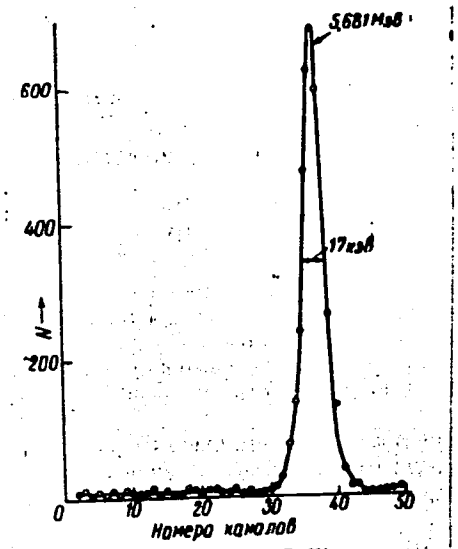
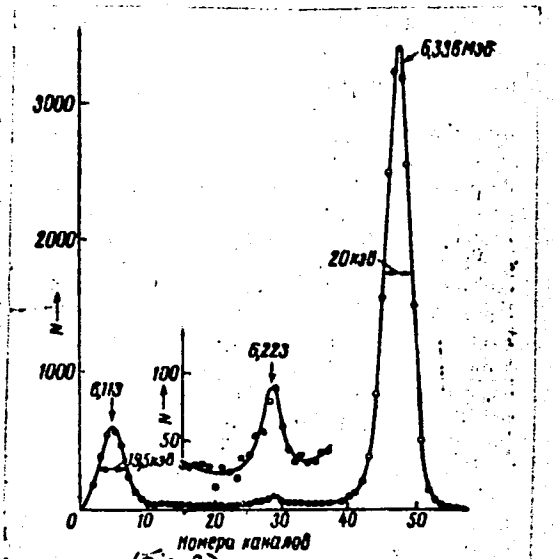


Рис. 1. α-Спектр Ra^{224}

(Fig. 1)



(Fig. 2)

Рис. 2. α-Спектр Fr^{221}

Card 4/4

20318

S/020/61/137/001/009/021
B104/B209

9,9100 (3nd 1041.)
26.2312

AUTHORS: Vorob'yev, A. A., Komar, A. P., Academician AS UkrSSR, and Korolev, V. A.

TITLE: The possibilities of reducing the effect of ionization fluctuations in gases

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 1, 1961, 54-57

TEXT: The authors based their work on a paper by Fano (Ref. 1: U. Fano, Phys. Rev., 72, 26 (1947)), in which an expression was obtained for the mean square fluctuations of the number of ion pairs at a constant energy of the ionizing particles. Fano's calculations show that these fluctuations are determined chiefly by the redistribution of ionized and excited atoms. Evidently, their total amount fluctuates less. The authors have now determined the amount of fluctuations of the total ionization, taking Fano's method as a basis. In this manner, they obtained the mean square fluctuation δ_J^2 of the total ionization $\overline{J}$:

Card 1/4

The possibilities of reducing ...

$\delta_J = \frac{A^2}{N_0 P}\overline{\left(n_k - \frac{E_k}{W}\right)^2} = \frac{F}{N_0}$. N_0 denotes the mean number of ion pairs, $W = W_0/(1 + \sigma(1-P)/P) = W_0 A$, $P = \sum P_k^i$ the total probability of ionization in inelastic collision, W_0 the mean energy of ion pair production without additional ionization, and n_k the number of ions produced in the k-th collision. The relations

$$F = \Phi(\sigma) + \frac{1}{PW_0^2}\left[\sum_{\text{ион}} P_k^i (W_i - E_k^i)^2 + \sum_{\text{возб}} P_k^e (W_e - E_k^e)^2\right]; \quad (8a) \qquad (8a)$$

$$\Phi(\sigma) = \frac{1}{W_0^2}\left[(W - W_i)^2 + \sigma\frac{1-P}{P}(W - W_e)^2 + \frac{1-P}{P}(1-\sigma)W_e^2\right]. \quad (8б) \qquad (8b)$$

are obtained for F. The last two terms in (8a) are due to fluctuations of the energy losses during ionization and excitation, and do not depend

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on the additional ionization. $\Phi(\sigma)$ is determined by the redistribution of the number of ionized and excited atoms, as well as by the fluctuations arising in the additional ionization. In the limiting case where additional ionization is missing ($\sigma = 0$), Eq. (8a) goes over into the formula of Fano. Fig. 1 shows the ratio Φ/Φ_0 as depending on the probability σ of additional ionization for He and Ar. It is seen that $\Phi(\sigma)$ for argon drops to nearly one-thirtieth with rising probability, and for helium it drops to nearly one-hundredth. The first of the terms appearing in (8a) was found to be always about 0.03, and the second is negligible. From this it follows that the accuracy of measurement of the energy of ionizing particles is considerably improved by recording all ionized and excited atoms. There are 1 figure and 3 non-Soviet-bloc references.

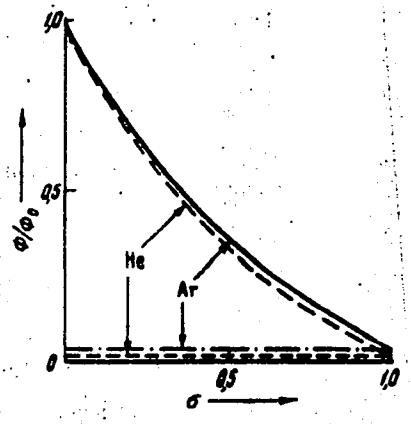
ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk SSSR
(Institute of Physics and Technology of the Academy of Sciences USSR)

20318

S/020/61/137/001/009/021
B104/B209

The possibilities of reducing ...

SUBMITTED: December 9, 1960



Card 4/4

S/056/62/043/002/033/033
B102/B104

26.2311

AUTHORS: Vorob'yev, A. A., Komar, A. P., Korolev, V. A.

TITLE: Decrease of ionization fluctuations of α-particles in argon

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 2(8), 1962, 426-428

TEXT: The authors had shown earlier (DAN SSSR, 137, 94, 1961) that the ionization fluctuations associated with redistributions of the numbers of excited and ionized molecules can be reduced by adding a gaseous impurity with an ionization potential lower than the energy of the lowest excited level of the principal component. Here, the authors tried to check this possibility by experiment. They used a pulsed ionization chamber filled with argon containing 0.17 % N_2, 0.02 % O_2, and an acetylene impurity. As its ionization potential of 11.35 ev is lower than the lowest argon level (11.5 ev), the acetylene addition increases the ionization. The ionization fluctuations were calculated from the half-width of the α-line (E_α = 5.681 Mev) of Ra^{224}; for comparison, the measurements were repeated

Card 1/2

KOROLEV, V.A.; STRIZHEVSKIY, F.A., prepodavatel'

Operation of diesel locomotives by the Tashkent Railroad on lengthened closed cycles. Elekt.i tepl. tiaga 5 no.10:18-19 O '61. (MIRA 14:10)

1. Zamestitel' nachal'nika sluzhby lokomotivnogo khozyaystva Tashkentskoy dorogi (for Korolev). 2. Samarkandskiy zheleznodorozhnyy tekhnikum (for Strizhevskiy).
(Railroads--Management)

KOROLEV, Vitaliy Arkad'yevich, insh.; KASHTANOV, F., red.;
KARPINOVICH, Ya., tekhn. red.

[Automation in machine and assembly shops] Avtomatizatsiia v mekhanosborochnykh tsekhakh; iz opyta raboty Minskogo traktornogo zavoda. Minsk, Gos.izd-vo BSSR, Redaktsiia proizvodstvennoi lit-ry, 1963. 62 p. (MIRA 16:5)

1. Minskiy traktornyy zavod (for Korolev).
(Minsk--Tractor industry) (Automation)

VOROB'YEV, A.A.; KOMAR, A.P.; KOROLEV, V.A.

Decrease of the fluctuations of ionization produced by α-particles in argon. Zhur. eksp. i teor. fiz. 43 no.2:426-428 Ag '62. (MIRA 16:6)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR.
(Ionization) (Alpha rays) (Argon)

VEDENSKIY, O.N.; DMITRIYEV, N.I.; KOROLEV, V.A.; TURGUNOV, D.T.; MEL'NIKOV, V.Ye., red.; MEDVEDEV, G.G., inzh., retsenzent; MURAV'YEVA, N.D., tekhn. red.

[Maintenance and repair of TGM3 diesel locomotives in the depot] Remont teplovozov TGM3 v depo. Moskva, "Transport," 1964. 107 p. (MIRA 17:3)

KOROLEV, V.A., inzh. (Tashkent); NIKITIN, V.I., inzh. (Tashkent)

Current maintenance of diesel locomotives on lengthened haul distance sections. Zhel.dor.transp. 45 no.10:64-66 O '63. (MIRA 16:11)

1. Nachal'nik lokomotivnogo otdela Tashkentskogo otdeleniya Sredneaziatskoy dorogi (for Korolev).

ACCESSION NR: AP4033111 S/0120/64/000/002/0069/0071

AUTHOR: Alkhazov, G. D.; Vorob'yev, A. A.; Korolev, V. A.; Seliverstov, D. M.

TITLE: Simple counting unit for a slow multichannel analyzer

SOURCE: Pribory* i tekhnika eksperimenta, no. 2, 1964, 69-71

TOPIC TAGS: pulse height analyzer, multichannel pulse height analyzer, slow multichannel analyzer, pulse counter, pulse counting unit

ABSTRACT: A simple counting unit intended for low (up to 100 pulse/sec) counting rates is described. The unit is recommended for long-duration few-pulse applications where reliability is the main requirement. The 32-tube counting unit was used in a 20-channel time analyzer and tested for several months under actual operating conditions. The a-c line supply voltage is stabilized by a ferroresonance stabilizer only; variation of the plate voltage

Card 1/2

ACCESSION NR: AP4033111

within 200—250 v does not result in false operation. The power consumption is 200 w. A simplified connection diagram is shown and explained in the article. Orig. art. has: 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute, AN SSSR)

SUBMITTED: 20Apr63 ATD PRESS: 3060 ENCL: 00

SUB CODE: EC NO REF SOV: 000 OTHER: 000

Card 2/2

KOROLEV, V.A.; NIKIFOROV, N.A.; KUDRYAVTSEV, N.A.

Letters to the editors. Uzb. geol. zhur. 8 no.4:86-89 '64
(MIRA 18:5)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent, i Tashkentskiy politekhnicheskiy institut.

KOROLEV, V.A., inzh.; KIKLEVICH, K.A., inzh.

Mechanization of the removal and conveying of scrap metals.
Mekh. i avtom. proizv. 19 no.7:18-24 Jl '65. (MIRA 18:9)

KOROLEV, V.B.

The KS-13 automatic checking and sorting machine. Biul.tekh.-ekon.inform. no.9:47-49 '61. (MIRA 14:9)
(Sorting devices)

KOROLEV, V. D.

SOV/136-58-5-11/22

AUTHORS: Kolpashnikov, A.I., Candidate of Technical Sciences, and Chia-Ming-Kuang, Korolev, V.D., Engineers

TITLE: New Developments in the Production of Sheets From Aluminium and its Alloys (Novoye v proizvodstve listov iz alyuminiya i ego splavov)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 5, pp 62 - 70 (USSR)

ABSTRACT: The authors give a condensed account of the results of their work on the improvement of the technology of aluminium and aluminium alloy sheet production. This has already been published in "Aviatsionnyye materialy", 1957, Nr 2 (Pekin, Chinese People's Republic). Their conclusions are that their investigations have established the possibility of hot-rolling ingots without edge trimming and of raising the reductions in cold-rolling to 90% and over without having to resort to intermediate annealing and without impairing mechanical properties, surface quality or structure. The new technology has been adopted

Card 1/2

New Developments in the Production of Sheets from Aluminium and its Alloys

at Soviet and Chinese works.
There are 6 figures and 5 tables

1. Aluminum--Processing 2. Aluminum alloys--Processing
3. Sheets--Production

Card 2/2

L 00752-67 EWT(d)

ACC NR: AP6024198 SOURCE CODE: UR/0424/66/000/002/0191/0192

30
B

AUTHOR: Korolev, V. D. (Moscow)

ORG: none

TITLE: Investigation of the stability of a gyrocompass with the methods of nonlinear mechanics

9

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 2, 1966, 191-192

TOPIC TAGS: gyrocompass, nonlinear equation, nonlinear vibration

ABSTRACT: The conditions for instability of a gyrocompass in the case of uniform ship circulation

$$\Omega(t) \approx -\mu\omega \sin(\omega t - K_0)$$

are determined using the asymptotic method of Krylov-Bogolyubov and a variant of the small parameter method. The system of differential equations describing the small oscillations of the sensing element of the gyrocompass is written in the form:

$$\xi_1'' + {}^1/_2 [p^2 + \nu^2 - (p^2 - \nu^2)\cos 2\theta]\xi_1 - {}^1/_2 (p^2 - \nu^2)\sin 2\theta \xi_2 = 0$$
$$\xi_2'' + {}^1/_2 [p^2 + \nu^2 + (p^2 - \nu^2)\cos 2\theta]\xi_2 - {}^1/_2 (p^2 - \nu^2)\sin 2\theta \xi_1 = 0$$

where

$$\xi_1 = x_1 \cos\theta - x_2 \sin\theta, \qquad \theta = \int_0^t \Omega(\tau)\, d\tau.$$
$$\xi_2 = x_1 \sin\theta + x_2 \cos\theta,$$

Card 1/2

KOROLEV, V.D. (Moskva)

Stability of a two-rotor gyrocompass. Izv. AN SSSR. Mekh. no.5:141-143 S-O '65. (MIRA 18:10)

SOV/136-59-4-12/24

AUTHORS: Kolpashnikov, A.I., Candidate of Technical Sciences and Korolev, V.D., Engineer

TITLE: Homogenisation of Duralumin Ingots in Modern Air-Circulating Electric Furnaces (Gomogenizatsiya slitkov duralyumina v sovremennykh elektropechakh s vozdushnoy tsirkulyatsiyey)

PERIODICAL: Tsvetnyye metally, 1959, Nr 4, pp 64-69 (USSR)

ABSTRACT: In the production of strip, homogenisation is important as it achieves the following: 1) an improvement in the mechanical properties and in the structure; 2) a decrease in anisotropy of mechanical properties occurring during rolling; 3) removal of internal stresses and 4) an improvement in anticorrosion properties. The present work investigated the rate of heating, the time of heating and the rate of cooling. The homogenising temperature must be lower than the eutectic temperature. The temperatures most likely to be useful were found by heating and examining metallographically. The influence of the homogenising treatment at various temperatures on the structure and mechanical properties was investigated.

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Homogenisation of Duralumin Ingots in Modern Air-Circulating Electric Furnaces

The alloys used were D16 (4.5 Cu, 1.5 Mg, 0.6 Mn, 0.3 Fe, 0.25 Si) and D1 (4 Cu, 0.7 Mg, 0.6 Mn, 0.3 Fe, 0.5 Si) and the homogenising temperatures varied from 400 to 500°C (tables 2 and 3). The influence of soaking time at 490°C is given in Fig 1. Increase in time results in increased plasticity (e.g. D1 increases from 2.7 to 8% after 36 hours). Fig 2 shows the effect of different treatments. 2 Hours at 400 and 6 hours at 440-460°C have little effect on the mechanical properties. The metallographic structures show no solution of the second phase. Even with 36 hours at 440-460° there is no significant difference in the plasticity or the structure. An analysis of the mechanical properties and the structures showed that the most efficient homogenising treatment was 6-12 hours at 500°C. This gave the optimum plasticity and allowed successful hot or cold rolling. It enabled hot rolling without scrap on the edges and cold rolling without any intermediate temper. Thus output

Homogenisation of Duralumin Ingots in Modern Air-Circulating Electric Furnaces

could be increased by 7-8%. The influence of homogenising treatment on the mechanical properties of hot-rolled specimens is shown in Fig 3, 4 and 5 and cold-rolled specimens in Fig 6 (the broken line is after homogenising). It can be seen that good properties are obtained after hot or cold rolling. Hot rolling with a finishing temperature of 380-400° followed by a slow cool to 240-250° gave good plasticity. The change in properties of 1 mm strip with homogenising treatment is shown in Fig 7. An air-circulating furnace (type Gidroaviaprom) gave good results. There are 7 figures, 3 tables and 3 Soviet references.

L 23616-66 EWT(1)/FCC GW

ACC NR: AP6009539 (A,N) SOURCE CODE: UR/0413/66/000/005/0075/0075

29
B

AUTHOR: Samoylenko, V. P.; Korolev, V. D.

ORG: none

TITLE: A magnetosensitive system for a magnetometer. Class 42, No. 179484 [announced by the Special Design Bureau of the State Geological Committee, SSSR (Osoboye konstruktorskoye byuro Gosudarstvennogo geologicheskogo komiteta SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 75

TOPIC TAGS: magnetometer, magnetic field intensity

ABSTRACT: This Author's Certificate introduces a magnetosensitive system for a magnetometer. The unit contains a permanent indicator magnet mounted on tension wires. The frequency range of measurable variations is expanded by making the indicator magnet from a highly coercive barium ferrite in the form of a parallelepiped with the long axis parallel to the filament. The length of the edge parallel to the filament is at least twice as long as the axis of magnetization.

SUB CODE: 08/4/ SUBM DATE: 02Jan64/ ORIG REF: 000/ OTH REF: 000

UDC: 550.380.8

Card 1/1

KOLPASHNIKOV, A.I., kand.tekhn.nauk; KOROLEV, V.D., inzh.

Industrial processes in the production of aluminum alloy sheets. Trudy MATI no.44:39-46 '60. (MIRA 13:6)
(Aluminum alloys) (Rolling(Metalwork))

OSETROV, P.P.; SOKOLOV, N.V.; KOROLEV, V.D.; DEMENT'YEV, V.F.; KUZNETSOVA, R.M.

High durability drilling ropes. Metallurg 7 no.12:28 D '62.
(MIRA 15:12)

1. Beloretskiy staleprovolochno-kanatnyy zavod.
(Wire rope)

L 5226-66 EWT(d) BC
ACC NR: AP5026933 SOURCE CODE: UR/0373/65/000/005/0141/0143

AUTHOR: Korolev, V. D. (Moscow) 44

ORG: none

TITLE: Stability of a two-rotor gyrocompass

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 5, 1965, 141-143

TOPIC TAGS: stability criterion, gyrocompass, integral equation, approximation method

ABSTRACT: A new technique is outlined for integrating the free oscillation equation of sensitive elements in a gyrocompass. Starting with the set of differential equations for a two-rotor gyrocompass, the following integral equation is obtained

$$x_4 = -x_{10}\cos\nu t\sin\theta(t) - x_{20}\sin\nu t\sin\theta(t) + x_{30}\sin\nu t\cos\theta(t) + x_{40}\cos\nu t\cos\theta(t) - \\ -(t-\nu)\int_0^t x_4(\tau)\sin\nu(t-\tau)\cos[\theta(t)-\theta(\tau)]\,d\tau \quad \left(\theta(t)=\int_0^t\Omega(\xi)\,d\xi\right)$$

Card 1/2

L 5195-66
ACC NR: AP5025071

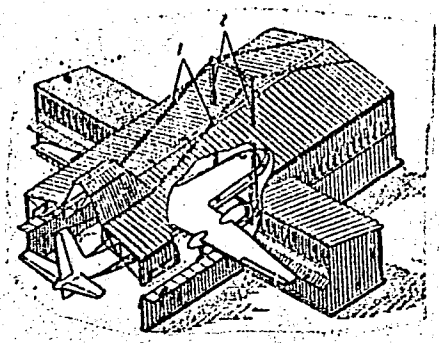

Fig. 1. 1- guy wires; 2- columns

Orig. art. has: 1 figure.

SUB CODE: AC/ SUBM DATE: 23Mar64

Card 2/2

29560
S/122/61/000/005/011/013
D221/D304

1.1950

AUTHORS: Kogan, M.G., Candidate of Technical Sciences, Korolev, V.F., Kleymenov, A.I., and Baranov, L.N., Engineers

TITLE: Baths for ultrasonic cleaning of components

PERIODICAL: Vestnik mashinostroyeniya, 41 no. 5, 1961, 68 - 69

TEXT: The Scientific Research Technological Institute developed a series of baths, Y3B-15-Y3B-18 (UZV-15-UZV-18) for ultrasonic cleaning of components. They are made of stainless steel, and sources of ultrasonic vibrations of 20 Kc, in the form of magnetostrictive transformers, type ПМС-6М (PMS-6M) are fixed into their bottom. The radiation diaphragm of each transformer is a square with a 300 mm side. The baths are enclosed into soundproof casings, which form a decorative facing at the same time. Seals are provided in the covers of sound insulating casings. An outlet is fixed under the cover, and the former is connected to the ventilation system of the shop. The coiled pipe in the bath is used for feeding

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29560
S/122/61/000/005/011/013
D221/D304

Baths for ultrasonic cleaning ...

cold or hot water to control the temperature of the cleaning fluid. The vibrators are cooled with normal feed water which is consumed at the rate of 3 l/min per vibrator. Gnerators Y3Г-10 (UZG-10) and UZG-2.5 supply the oscillatory power (10 and 2.5 kw respectively). Cleaning the components is achieved by organic dissolvents or in water solutions of alkalis and synthetic surface active substances. The use of acids is limited by cavitation and corrosion resistance of baths and of the radiation surface of vibrators. Gasolene ГАЛОША (Galosha) as per ГОСТ- (GOST)443-56, is the most widely used organic dissolvent for removing grease and mechanical ingress of dirt. Cleaning components of resins and nitroenamels takes place in acetone mixed with alcohol, at a temperature of 30°C. Use of chloride organic dissolvents is restricted by their toxicity. Normally, cleaning in organic dissolvents is accomplished in two or three consecutive baths, the last one for final cleaning. The duration of operation depends on the degree of dirt and the form of components, and varies from 2 to 5 minutes. Cleaning in water solutions of alkalis and synthetic surface active substances takes place in one bath. A description is given of materials employed and

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TURGUNOV, Dadakhan Turgunovich; DMITRIYEV, Nikolay Ivanovich; BELEN'KIY, Aleksandr Davidovich; KOROLEV, Vsevolod Aleksandrovich; CHERNYSHEV, V.I., red.

[Specialization of diesel locomotive depots; from the experience of the Central Asian Railroad] Spetsializatsiia teplovoznykh depo; iz opyta Sredneaziatskoi dorogi. Moskva, Izd-vo "Transport," 1964. 49 p. (MIRA 17:8)

KOROLEV, V. F.

20932 Korolev, V. F. Mekhanicheskoye doyeniye korv. Sbornik dokladov Pervoy Vsesoyuz. Konf-tsii po moloch delu. M., 1949, s. 236-42

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949