"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

AID P - 4956

Subject : USSR/Engineering

Card 1/1 Pub. 110-a - 5/21

Authors : Lobanov, V. P., Kand. Tech. Sci., M. N. Gribkov, Eng.

Title : Thermal tests of the first SVK-150-1 turbine

Periodical : Teploenergetika, 8, 18-25, Ag 1956

Abstract : The authors describe tests of the SVK-150-1 turbine (manufactured by the Leningrad Metal Works), performed by members of the All-Union Heat Engineering Institute's staff in the summer of 1955. The evaluation of test results and their analysis are discussed. The special features of the performance and operation of this turbine are explained. Recommendations are given to LMZ (Leningrad Metal Works) for the improvement of the aggregate. The article is illustrated by 3 tables and 8 diagrams. 4 references.

Institution : All-Union Heat Engineering Institute.

Submitted : No date

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

L 08078-67 EWT(1)/EWP(e)/EWT(m)/EWP(t)/ETI IJP(c) JD/WW/JG/JR/GW/JH

ACC NR: AT6034108 (A) SOURCE CODE: UR/0089/66/021/004/0319/0321

AUTHOR: Bulkin, Yu. M.; Zhirnov, A. D.; Konstantinov, L. V.; Nikolayev, V. A.; Stenbok, I. A.; Lobanov, V. S.; Benevolenskiy, A. M.

ORG: none

TITLE: RG-1 reactor for geological research

SOURCE: Atomnaya energiya, v. 21, no. 4, 1966, 319-321

TOPIC TAGS: thermal reactor, research reactor, geologic research facility, tracer study, radioactive source, RG-1 research reactor

ABSTRACT: The reactor described is of the swimming-pool type rated at 5 kw thermal. It is intended for the production of radioactive isotopes with different half-lives, for activation analysis of technological and geological samples, and for estimates of the absorbing abilities of solid and liquid materials and alloys, and also for use in conjunction with a group of laboratories (radiochemical laboratory, laboratory for exact radiometric measurements, and other specialized facilities) for the development of new engineering and technical research methods using radioactive isotopes. The fuel is UO_2 (10% enrichment) and the critical load is 2.6 kg of U^{235}. The reflector is made of graphite blocks clad in aluminum. The core and reflector are placed in a water-filled aluminum tank (1500 mm dia, 3500 mm high). Boron steel control rods are used. There are altogether seven different channels located in areas with different thermal and fast neutron flux densities (up to 10^{11} neut/cm^2·sec). The maximum pro-

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L 08078-67

ACC NR: AP6034108

ductivity reaches 2600 millicurie when 8 standard ampoules with $KMnO_4$ are used (maximum 400 mCu in one ampoule). The auxiliary equipment used to handle the radioactive material and to control the reactor are briefly described. Orig. art. has: 2 figures.

SUB CODE: 18, 08/ SUBM DATE: 00 / ATD PRESS: 5102

nuclear metallurgy 18

Card 2/2

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, Vladimir Sergeyevich; VOROTNIKOVA, R.V., red.; BERNGARDT, N.Ye., tekhn.red.

[The shift is striding toward communism] Smena shagaet v kommunizm. Voronezh, Voronezhskoe knizhnoe izd-vo, 1960. 36 p. (MIRA 14:4)

1. Master smeny kommunisticheskogo truda Voronezhskogo zavoda imeni Kalinina (for Lobanov).
(Voronezh--Forge shops) (Socialist competition)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

BORISOV, V.I.; LEVIT, Z.Yu., inzh.; KALININ, V.Z., inzh.; BROVKIN, M.G., inzh.; AGAL'TSOV, N.V., inzh.; ZHIGACHEVA, T.F., inzh.; LOBANOV, V.S., inzh.; ALIMOV, M.F., inzh.; VIKSMAN, I.M., inzh.; LAZAREV, V.Ya., inzh.; ZALEVSKAYA, L.V., tekhnik; SHCHETVINA, R.F., tekhnik; SOKOLOVSKIY, I.A., red.; SHALAGINOV, A.A., vedushchiy red.

[Special and basic equipment of mechanical assembly shops in instrument plants] Nestandartnoe oborudovanie i orgosnastka mekhanicheskikh sborochnykh tsekhov priborostroitel'nykh zavodov. Moskva, Otdel nauchno-tekhn. informatsii, 1959. 158 p. (MIRA 15:4)

(Instrument industry—Equipment and supplies)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ACC NR: AP7000783 (A,N) SOURCE CODE: UR/0089/66/021/005/0363/0368

AUTHOR: Bulkin, Yu. M.; Zhirnov, A. D.; Zhemchuzhnikov, G. N.; Konstantinov, L. V.; Nikolayev, V. A.; Stenbok, I. A.; Lobanov, V. S.; Filippov, A. G.; Khryashchov, N. A.

ORG: none

TITLE: Research and educational reactor IR-100

SOURCE: Atomnaya energiya, v. 21, no. 5, 1966, 363-368

TOPIC TAGS: research reactor, nuclear reactor characteristic/ IR-100 reactor

ABSTRACT: The authors describe the construction, the physical and technical characteristics, and the experimental capabilities of a research reactor with thermal rating of 100 kw, intended for scientific research work and also for training of specialists in the field of atomic energy. This is a water-cooled and water-moderated swimming-pool reactor with all the equipment situated in a central building. It uses enriched UO_2 (10%), with a minimum critical mass of 2.6 kg of U^{235}, and a graphite reflector. The maximum thermal and fast neutron fluxes are 2×10^{12} and 2.2×10^{12}, respectively. The various channels and the possible research that can be carried out with the reactor, as well as the general construction, are described in some detail. Orig. art. has: 2 figures and 2 tables.

SUB CODE: 18/ SUBM DATE: 28Jul66/ ORIG REF: 002/ OTH REF: 003

UDC: 621.039.520.21

Card 1/1

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ACC NR: AP6034109 (A) SOURCE CODE: UR/0089/66/021/004/0321/0322

AUTHOR: Bulkin, Yu. M.; Zhirnov, A. D.; Konstantinov, L. V.; Nikolayev, V. A.; Ganev, I. Kh.; Lobanov, V. S.; Poppel', B. S.

ORG: none

TITLE: The SO-1 neutron multiplier

SOURCE: Atomnaya energiya, v. 21, no. 4, 1966, 321-322

TOPIC TAGS: nuclear research reactor, thermal neutron, fast neutron, reactor neutron flux/ SO-1 neutron multiplier

ABSTRACT: The authors describe a neutron multiplier which they have developed to operate with thermal neutrons, having a rated power 0.5 watt, a neutron multiplication coefficient 0.997, maximum fluxes in the center of the active zone 2.5×10^7 and 7×10^7 neut/cm^2-sec for thermal and fast neutrons, respectively, and a flux of 10^7 neut/cm^2-sec at the locations where the experiments are performed. The fuel is uranium dioxide immersed in polyethylene, containing 900 g of U^{235} (36% enrichment) per load. The moderator is polyethylene, and the reflector is graphite combined with polyethylene. The individual units and the control of the multiplier are briefly described. Advantages claimed for the multiplier are ease of control, protection against nuclear accidents, transportability (can be transported with a 10-ton truck), and simple construction. Possible applications of the neutron multiplier are for geological prospecting, activation analysis of isotopes and other materials, and medical applications.

Card 1/2

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ACC NR: AP6034109

Similar work on the construction of neutron multipliers by a group headed by N. V. Zvonov and T. A. Lopovok is also reported. Orig. art. has: 1 figure.

SUB CODE: 18,20/ SUBM DATE: 00

Card 2/2

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, V.V.

Device for diamond less truing of grinding wheels on grindstones. (MLRA 9:1)
Stan.i inst. 26 no.9:29 S '55.
(Grinding wheels)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ALFEROV, A.A.; ARTEMKIN, A.A.; ASHKENAZI, Ye.A.; VINOGRADOV, G.P.; GALEYEV, A.U.; GRIGOR'YEV, A.N.; D'YACHENKO, P.Ye.; ZALIT, N.N.; ZAKHAROV, P.M.; KOBNIN, N.P.; IVANOV, I.I.; IL'IN, I.P.; KMETIK, P.I.; KUDRYASHOV, A.T.; LAPSHIN, F.A.; MOLYARCHUK, V.S.; PERTSOVSKIY, L.M.; POGODIN, A.M.; RUDOY, M.L.; SAVIN, K.D.; SIMONOV, K.S.; SITKOVSKIY, I.P.; SITNIK, M.D.; TETEREV, B.K.; TSETYRKIN, I.Ye.; TSUKANOV, P.P.; SHADIKYAN, V.S.; ADELUNG, N.N., retsenzent; AFANAS'YEV, Ye.V, retsenzent; VLASOV, V.I., retsenzent; VOROB'YEV, I.Ye., retsenzent; VORONOV, N.M., retsenzent; GRITCHENKO, V.A., retsenzent; ZHEREBIN, M.N., retsenzent; IVLIYEV, I.V., retsenzent; KAPORTSEV, N.V., retsenzent; KOCHUROV, P.M., retsenzent; KRIVORUCHKO, N.Z., retsenzent; KUCHKO, A.P., retsenzent; LOBANOV, V.V., retsenzent; MOROZOV, A.S., retsenzent; ORLOV, S.P., retsenzent; PAVLUSHKOV, E.D., retsenzent; POPOV, A.N., retsenzent; PROKOF'YEV, P.F., retsenzent; RAKOV, V.A., retsenzent; SINEGUBOV, N.I., retsenzent; TERENIN, D.F., retsenzent; TIKHOMIROV, I.G., retsenzent; URBAN, I.V., retsenzent; FIALKOVSKIY, I.A., retsenzent; CHEPYZHEV, B.F., retsenzent; SHEBYAKIN, O.S., retsenzent, SHCHERBAKOV, P.D., retsenzent; GARNYK, V.A., redaktor; LOMAGIN, N.A, redaktor; MORDVINKIN, N.A., redaktor; NAUMOV, A.N., redaktor; POBEDIN, V.F., redaktor; RYAZANTSEV, B.S., redaktor; TVERSKOY, K.N., redaktor; CHEREVATYY, N.S., redaktor; ARSHINOV, I.M., redaktor; BABELYAN, V.B., redaktor; BERNGARD, K.A., redaktor; VERSHINSKIY, S.V., redaktor; GAMBURG, Ye.Yu., redaktor; DERIBAS, A.T., redaktor; DOMBROVSKIY, K.I., redaktor; KORNEYEV, A.I., redaktor; MIKHEYEV, A.P., redaktor

(Continued on next card)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ALFEROV, A.A. ---- (continued) Card 2.
MOSKVIN, G.N., redaktor; RUBINSHTEYN, S.A., redaktor; TSYPIN, G.S., redaktor; CHERNYAVSKIY, V.Ya., redaktor; CHERNYSHEV, V.I., redaktor; CHERNYSHEV, M.A., redaktor; SHADUR, L.A., redaktor; SHISHKIN, K.A., redaktor

[Railroad handbook] Spravochnaia knizhka zheleznodorozhnika. Izd. 3-e, ispr. i dop. Pod obshchei red. V.A.Garnyka. Moskva, Gos. transp.zhel-dor. izd-vo, 1956. 1103 p. (MLRA 9:10)

1. Nauchno-tekhnicheskoye obshchestvo zheleznodorozhnogo transporta. (Railroads)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

GONCHAROV, V.M., inzh.; LOBANOV, V.V., inzh.; IZAKSON, G.M., otv. za vypusk

[Economic use of lubricants for locomotive axles] Ekonomiia osevykh masel na parovozakh. Moskva, TSentr.dom tekhn. zhel-dor.transp., 1959. 32 p. (Radiolektsiia, no.2 (74)). (MIRA 14:2)

(Locomotives--Lubrication)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

22313
S/133/61/000/004/002/015
A054/A127

18.3200

AUTHORS: Rutes, V. S., Candidate of Technical Sciences; Katomin, B. N., Engineer; Kan, Yu. Ye., Engineer; Petrov, V. K., Engineer, and Lobanov, V. V., Engineer

TITLE: Adopting the process of the continuous casting of carbon steel at the Novo-Lipetsk metallurgicheskiy zavod (Novo-Lipetsk Metallurgical Plant)

PERIODICAL: Stal', no. 4, 1961, 311 - 317

TEXT: Two units for continuous casting of carbon steel have been in operation in the Novo-Lipetsk Metallurgical Plant since 1959 and 1960, respectively. The units used for casting 150 x 620, 150 x 770 and 170 x 1020 mm slabs are arranged vertically (TsNIIChM-design), the pits are 16.5 m deep, while the 90-ton ladle is mounted 9 m above the workshop floor. Metal is poured into the crystallizer via a 5 - 7-ton intermittent ladle. The unit consists of two independent machines, each containing a crystallizer, secondary system, pulling stands, gas cutters, discharge devices (Fig. 1). The intermittent ladle is provided with spouts, (28 - 30 mm in diameter),

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A054/A127

Adopting the process of the continuous casting...

in accordance with the composition of the steel. The crystallizer consists of double-sheet walls, 1.5 m long, the inner sheet is made of chromium-bronze (BrKhr0.6 - BrKhr0.6), the outer of steel. Cooling water is supplied at a rate of 150 - 250 cu m/h to flow between the sheets. The crystallizer reciprocates vertically over 20 mm (downward) by means of a roller-system, synchronously with the slab, while its upward motion is 3-times faster than that of the slab. The inoculator (9 m long) has a special groove on its upper part (in the crystallizer), ensuring strong bond with the slab. The cooling device, 6.5 m long, is provided with frames, connected with 120-mm diameter rolls. The frames can be adjusted to the slab size. The cooling area is divided into 3 zones, the water flow can be independently controlled on each side and for each zone. Water consumption as a function of slab section-size and type of metal varies between 30 and 75 cu m/h. The slabs are removed from the crystallizer by pulling equipment consisting of four 300-mm diameter guiding beams, which are pressed to the slabs by means of a hydraulic system (40 - 60 atmospheres). Immediately after discharging the slabs are cut to pieces 6 - 8 m long, by 2 oxy-acetylene cutters with 3-m stroke. The equipment is completed with a roll-over machine and conveying

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A054/A127

Adopting the process of the continuous casting...

facilities. As this was the first continuous casting machine of such large size, literature gave no indications as to its operation. In the beginning 150 x 620 mm slabs were cast and in the first month not one out of 12 ladles could be poured completely, while in the second month out of 18 ladles 6 could be poured. Operation had to be interrupted mostly due to the troubles with the intermittent ladle, some other parts of the equipment and the deformation of slabs observed under the discharge device. This drawback could be eliminated by improving secondary cooling conditions. Also the faulty operation of the spouts, rupture of the plugs could be eliminated. A frequent cause of trouble was the tendency of the metal to break through under the crystallizer, mainly by the slag inclusions which are difficult to remove from the narrow side of slabs. The crystallizer operation was often affected by water-leakage through the sheets, due to their burning out. The greater the slabs, the simpler and easier the casting process. Since November 1959, 170 x 1020 mm slabs have been produced from killed carbon steel. The amount of faulty castings was reduced from 30.4% to 2.9% in 8 months. The temperature of the liquid metal in the 90-ton ladle was tested in the 1580° - 1640°C range. The optimum temperatures are 1600° - 1630°C. Below 1600°C there is the risk of the metal clogging the spouts of the inter-

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A054/A127

Adopting the process of the continuous casting...

mittent ladle, whereas above 1630°C rupture of the metal under the crystallizer and longitudinal fractures on the broad sides of the slab can be expected. The optimum pouring speed for 150 x 620 mm (A) slabs was 0.85 - 0.90 m/min, for 150 x 770 mm (B) slabs: 0.75 - 0.80 m/min and for 170 x 1020 mm (C) slabs: 0.50 - 0.60 m/min. The metal consumption - in the same sequence - was: A: 550 - 610 kg/min, B: 690 - 740 and C: 700 - 850 kg/min. When pouring under the lowest rate, the spouts of the intermittent ladle tend to get clogged and due to the longer pouring time, the operation of the ladle-stoppers was affected. An increase of the pouring rate above the maximum (0.90 m/min) may result in rupture of the metal under the crystallizer. For cooling water consumption (in the crystallizer) the following values were found (in cu m/h): slabs A: 150 - 200; slabs B: 195 - 210; slabs C: 225 - 250. Water consumption for secondary cooling, (in cu m/h): slabs A: 31 - 34, slabs B: 37.5 - 41, slabs C: 44 - 52. Heat dissipation, (10^6 cal/h): slabs A: 1.7; slabs B: 1.9; slabs C: 2.0. In the early operation of the equipment waste was considerable: in November 1959 26.4%. The main defects are longitudinal cracks, leaks, beads, slag inclusions, etc. Longitudinal surface cracks appeared frequently which could be prevented by pouring the

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S/133/61/000/004/002/015
A054/A127

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metal into the crystallizer excentrically, at 250 mm from the thin wall of the crystallizer and by applying the optimum sulfur and carbon content of the metal. At a carbon content of 0.14% and a sulfur content below 0.020% no cracks formed; at 0.17% carbon content the allowed sulfur content is 0.020%. The other types of defects could be eliminated by improving the operation of the intermittent ladle, stoppers, etc. Bead formation was prevented by maintaining the required level of the metal in the crystallizer by reducing the coating of the intermittent ladle and improving the removal of slag the amount of slag inclusions were reduced. In March 1960, the rate of flawless 170 x 1020 mm slabs from killed carbon steel was as high as 94 - 96%, the maximum waste: 1.9%. The slabs were rolled into 2.5 - 3.0 mm and 10 - 25 mm sheets and it was found that sheets of cast slabs have the same plasticity and surface-quality as those made of rolled slabs. Mechanical properties, microstructure and macrostructure of the cast slabs meet the standard requirements. There are 4 figures and 2 tables.

ASSOCIATION: TsNIICHM and Novo-Lipetskiy metallurgicheskiy zavod (Novo-Lipetsk Metallurgical Plant)

Card 5/5

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

CHIGRINOV, M.G.; KATOMIN, B.N.; LOBANOV, V.V.

Crust formation on steel-pouring nozzles of intermediate ladles in continuous steel casting equipment. Stal' 23 no.3:215-217 Mr '63. (MIRA 16:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii i Novolipetskiy metallurgicheskiy zavod
(Continuous casting--Equipment and ..lies)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

VORONOV, Nikolay Mikhaylovich; BLIDCHENKO, Ignatiy Fedorovich; GONCHAROV, Viktor Mikhaylovich; LOBANOV, Vasiliy Vasil'yevich; MERKUR'YEV, Gennadiy Dmitriyevich; BLAGOVIDOV, I.F., kand. tekhn. nauk, retsenzent; GROMOV, G.N., inzh., retsenzent; EMINOV, Ye.A., inzh., retsenzent; LOSIKOV, B.V., prof., red.; SOBAKIN, V.V., inzh., retsenzent; MEDVEDEVA, M.A., tekhn. red.

[Fuel oil and lubricating materials in railroad transportation] Neftianoe toplivo i smazochnye materialy na zheleznodorozhnom transporte; spravochnik. [By] N.M.Voronov i dr. Moskva, Transzheldorizdat, 1962. 322p. (MIRA 15:9)
(Railroads--Fuel) (Railroads--Lubrication)
(Petroleum products)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

VORONOV, Nikolay Mikhaylovich; BLIDCHENKO, Ignatiy Fedorovich; GONCHAROV, Viktor Mikhaylovich; LOBANOV, Vasiliy Vasil'yevich; MERKUR'YEV, Gennadiy Dmitriyevich; BLAGOVIDOV, I.F., kand. tekhn. nauk, retsenzent; EMINOV, Ye.A., inzh., retsenzent; GROMOV, G.N., inzh., retsenzent; LOSIKOV, B.V., prof., red.; SOBAKIN, V.V., inzh., red.; MEDVEDEVA, M.A., tekhn. red.

[Petroleum fuel and lubricants in railroad transportation; handbook] Neftianoe toplivo i smazochnye materialy na zheleznodorozhnom transporte; spravochnik. Moskva, Transzheldorizdat, 1962. 322 p. (MIRA 16:6)
(Petroleum products) (Railroads--Fuel)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

SOKOLOV, G.A.; ZUYEV, I.M.; LOBANOV, V.V.; ZUBAREV, A.G.; KLIMASHIN, P.S.

Treatment of converter and open-hearth steel with electric furnace slag. Stal' 24 no.7:612 Jl '64. (MIRA 18:1)

1. Moskovskiy institut stali i splavov i Novolipetskiy metallurgicheskiy zavod.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

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L 56524-65
ACCESSION NR: AP5016791

UR/0286/65/000/010/0138/0139
665.4 : 658.527

AUTHOR: Bugayets, T. A.; Lobanov, V. V.

TITLE: A method for continuous production of lubricating grease. Class 23, No. 82511

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 10, 1965, 138-139

TOPIC TAGS: lubrication, lubricating grease, continuous flow method, continuous process

ABSTRACT: This Author's Certificate introduces a method for continuous production of lubricating grease. All production operations are mechanized and done in closed equipment. Closed conveyors are used for moving the raw material, intermediate products and finished goods.

ASSOCIATION: none

SUBMITTED: 04Jul49

ENCL: 00

SUB CODE: IE, FP

NO REF SOV: 000

OTHER: 000

Card 1/1

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

L 01806-67 EWT(m)/T DJ

ACC NR: AP6030589 (AN) SOURCE CODE: UR/0413/66/000/016/0073/0073

44

B

INVENTOR: Ismailov, R. G. A. O.; Mamedov, M. A. A. O.; Spektor, Sh. Sh.; Seidov, M. M. M. O.; Vartapetov, A. A.; Shchelkonogov, I. A.; Kyazimov, A. A. O.; Aliyev, A. A. G. O.; Tangiyeva, T. A.; Kesel'man, L. G.; Lobanov, V. V.; Chikunov, V. A.; Blidchenko, I. F.; Tarumov, G. A.; Bombandirov, P. P.; Merkur'yev, G. D.; Petrov, S. A.

ORG: none

TITLE: Lubricating oil for bushings. Class 23, No. 184997

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 73

TOPIC TAGS: lubricant, bushing, petroleum

ABSTRACT: An Author Certificate has been issued describing a lubricant for bushings, with a solar fraction and mazut base. To expand the operating temperature range of the oil, a petroleum fraction with a boil-away of 4—5% at 240—320C is added to the lubricant. This fraction is obtained from the petroleum distillate at 300—310C. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 05Nov64/

UDC: 629.11.012.26

Card 1/1

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

COUNTRY : GDR
CATEGORY : Cultivated Plants. Potatoes, Vegetables, Cucurbits. M

ABS. JOUR. : RZhBiol., No. 23 1958 No. 104 684

AUTHOR : Lobanov, V. Ya.
INST. : Gross-Klusewitz Institute of Plant Breeding.
TITLE : Studies of Potato for Affliction with Viral Diseases in GDR

ORIG. PUB. : Kartofel', 1958, No. 1, 61-63

ABSTRACT : A description of laboratory methods of the determination of viral diseases of potato in GDR (specifically at the Institute of Plant Breeding in Gross-Klusewitz). The author recommends these methods for scientific research institutions in USSR, engaged in the breeding and seed growing of potato and agricultural technique for same. Large scale determination of viral diseases can be entrusted to the seed testing laboratories.

Card: 1/1

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, V.Ya.

Improve seed quality. Zemledelie 6 no.2:66-67 '58. (MIRA 11:3)
(Seeds)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

BLYAKHEROVA, Raisa Moiseyevna; LOBANOV, Vasiliy Yakovlevich; KATSEL'SON, S.M., red.; BERLOV, A.P., tekhn. red.

[Seed grain production] Semenovodstvo zernovykh kul'tur. Moskva, Izd-vo "Znanie," 1958. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, no.21). (MIRA 11:8)
(Grain)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, V.Ya.

Sow high-quality seeds only. Zemledelie 26 no. 4:69-72 Ap '64. (MIRA 17:5)

1. Direktor TSentral'noy kontrol'no-semennoy laboratorii pri Ministerstva sel'skogo khozyaystva SSSR.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, Ya.

Forest-steppe in the steppes. IUn. nat. no.9:10-11 S '61. (MIRA 14:8)

1. Predsedatel' Kuybyshevskogo oblastnogo obshchestva okhrany prirody.

(Kuybyshev Province--Afforestation)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, Ye. I

"Dividing Clamping Mechanisms," Stanki I Instrument 16, Nos. 4-5, 1945

BR-52059019

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

KAZAKOV, D.S., inzh. (stantsiya Kurgan, Yuzhno-Ural'skoy dorogi); KHORT, I.L.; LOBANOV, Ye.I., dorzhnyy master (stantsiya Kashira, Moskovskoy dorogi); NEBYKOV, A.F., pensioner, byvshiy dorozhnyy master (stantsiya Kotel'nikovo, Severo-Kavkazskoy dorogi)

How to achieve economies in spending allocations for snow control. Put' i put.khoz. no.12:8 D '59. (MIRA 13:4)

1. Nachal'nik distantsii puti, stantsiya Novyy Oskol, Moskovskoy dorogi (for Khort).
(Railroads--Snow protection and removal)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

USTIMENKO, V.F., starshiy dorozhnyy master; ZYKOV, F.M., starshiy dorozhnyy master; KIREY, P.I.; IVANITSKIY, M.V.; LOBANOV, Ye.I., dorozhnyy master; GAYDAR, P.R.; SIDOROV, B.N.; SAVKOV, Ye.I.; SAFONKIN, A.N.; PETROV, A.S.; BURLAK, F.V., inzh.

Letters to the editor. Put' i put.khoz. 5 no.5:42-44 My '61. (MIRA 14:6)

1. Stantsiya Kupino, Omskoy dorogi (for Ustimenko). 2. Stantsiya Kotel'nich, Gor'kovskoy dorogi (for Zykov). 3. Stantsiya Petropavlovsk, Omskoy dorogi (for Kirey, Ivanitskiy). 4. Stantsiya Stupino, Moskovskoy dorogi (for Lobanov). 5. Zamestitel' nachal'nika distanstsii puti, st., Izyum, Donetskoy dorogi (for Gaydar). 6. Nachal'nik distantsii puti, st. Berlik, Kazakhskoy dorogi (for Sidorov). 7. Nachal'nik PMS-62, st. Nikitovka, Donetskoy dorogi (for Savkov). 8. Smennyy master shchebenochnogo kar'yera st. Chokpar, Kazakhskoy dorogi (for Safonkin). 9. Nachal'nik tekhnicheskogo otdela sluzhby puti, g. Yaroslavl' (for Petrov). 10. Distantsiya zashchitnykh lesonasazhdeniy, st. Artemovsk, Donetskoy dorogi (for Burlak).

(Railroads)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

USSR/Physics - Photocells, Sensitive Layer 1 Aug 52

"Action of a Flow of Electrons on the Sensitive Layer of Tube Photocells," B.P. Angelov, Ye.M. Lobanov, S.V. Starodubtsev

"Dok Ak Nauk SSSR" Vol 85, No 4, pp 733-735

Studies the dependence of the current in the external circuit of electron-tube selenium and silver-sulfate photoelements, which are exposed to an electron beam, upon energy (800-20,000 ev) and upon intensity of the electron beam. Concludes that exposure of a tube photocell to an electron beam leads to the formation of a tube emf of the

227T72

same sign as the photo-emf, and that electron beams can be utilized to study the properties of blocking layers in tube photocells. Submitted by Acad P.I. Lukirskiy 3 Jun 52, who, the article states, showed continued interest in this work.

227T72

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

TAVRIZOV, Vladimir Mikhaylovich; CHINSNOVICH, M.I., retsenzent; DEGTEREV, Ye.S., retsenzent; ARGUTINSKIY, V.N., redaktor; LOBANOV, Ye.M., redaktor izdatel'stva; BEGICHEVA, M.N., tekhnicheskiy redaktor

[Blasting operations on waterways] Vzryvnye raboty na vodnykh putiakh. Moskva, Izd-vo "Rechnoi transport," 1956. 246 p. (MIRA 9:10)
(Blasting, Submarine)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, Ye.M., kandidat fiziko-matematicheskikh nauk; KRIVOSHEYEV, V.M., inzhener.

Use of radioisotopes for fuel control in bunkers in power plants. (MLRA 9:12)
Energetik 4 no.11:4-6 N. '56.
(Fuel) (Gamma rays--Industrial applications)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

21(0)

Lobanov, Ye. M.

Trudy [illegible] Moscow, Izdatel'stvo AN SSSR, 1958. 314 p. [illegible] 4,500 copies printed.

Sponsoring Agencies: USSR. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii, and Akademiya nauk SSSR.

Editorial Board of Set: V.I. Dikushin, Academician (Resp. Ed.), N.N. Shumilovskiy (Deputy Resp. Ed.), Yu. S. Zaslavskiy (Deputy Resp. Ed.), L.K. Tatochenko, B.I. Verkhovskiy, S.T. Kazarov, L.I. Petrenko, and N.G. Zelevinskaya (Secretary).

Ed. of Publishing House: F.N. Belyanin; Tech. Ed.: T.P. Polenova.

PURPOSE: This book is intended for specialists in the field of machine and instrument manufacture who use radioactive isotopes in the study of materials and processes.

COVERAGE: This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the use of radioisotopes in the machine-and instrument-manufacturing industry. The individual papers discuss the applications of radioisotope techniques in the study of metals and alloys, problems of friction and lubrication, metal cutting, engine performance, and defects in metals. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording and measuring devices, quality control, flowmeters, level gauges, safety devices, radiation counters, etc. These papers represent contributions of various Soviet institutes and laboratories. They were published as Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science, April 4-12, 1957. No personalities are mentioned. References are given at the end of most of the papers.

Birger, G.I., B.I. Verkhovskiy, and Ye. Ya. Ovcharenko (Fizicheskiy institut imeni P.N. Lebedeva AN SSSR i Konstruktorskoye byuro "Tsvetmetavtomatika" MTsM SSSR — Institute of Physics imeni P.N. Lebedev, Academy of Sciences, USSR, and Design Bureau "Tsvetmetavtomatika" MTsM USSR). New Type of a Radioactive Densimeter 159

Kardash, Ya.G. (Tsentral'nyy nauchno-issledovatel'skaya laboratoriya Gosgortekhnadzora — Central Scientific Research Laboratory of "Gosgortekhnadzor" USSR). Industrial Instruments for Gamma-ray Density Control 165

Val'ter, A.K., and N. L. Gol'din (Fiziko-tekhnicheskiy institut Akademii nauk USSR i Zavod kontrol'no-izmeritel'nykh priborov — Institute of Physics and Technology, Academy of Sciences, Ukr.SSR, and Monitoring and Metering Instrumentation Factory). Calculation and Study of the Density of Iron-ore Slurry on the Basis of Gamma-ray Absorption 174

Vishnyak, G.B. (Ministerstvo stroitel'stva elektrostantsiy SSSR — Ministry for the Construction of Electric Power Stations in the USSR). Performance of Gamma-ray Spoil Meters on Dredges 182

Lobanov, Ye. M. (Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSR — Leningrad Institute of Physics and Technology, Academy of Sciences, USSR). Application of the Gamma Densimeter Designed by LFTI, Academy of Sciences, USSR 184

Dedyukov, S.N. (Ministerstvo rechnogo flota SSSR — Ministry of the River Fleet, USSR). Use of Radioactive Radiation in River Transport 190

Vaynberg, A.Ya. (Vsesoyuznyy nauchno-issledovatel'skiy institut molochnoy promyshlennosti — All-Union Scientific Research of the Dairy Industry). Use of Radioactive Radiation in the Automatic Control and Regulation of Technological Processes of Dairy Production 192

Smirnov, S.N. (Tsentral'nyy nauchno-issledovatel'skiy institut kozhevenno-obuvnoy promyshlennosti — Central Scientific Research Institute of the Leather and Shoe Industry). Use of Radioactive Isotopes in the Leather Industry 196

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, Ye.M., NIDZYAN, Ye.I.

Experimental use of gamma rays to determine the density of polymineral pulp. Obog. rud 2 no. 6:67-75 '57. (MIRA 11:8)
(Ore dressing)
(Gamma rays--Industrial applications)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

STARODUBTSEV, S.V., akademik, otv. red.; ABDULLAYEV, A.A., kand. fiz.-mat. nauk, red.; ABDURASULOV, D.M., doktor med. nauk, red.; ARIFOV., U.A., akademik, red.; BORODULINA, A.A., kand. biol. nauk, red.; IVASHEV, V.N., red.; IKRAMOVA, G.S., red.; KIV, A.Ye., red.; LOBANOV, Ye.M., kand. fiz.-mat. nauk, red.; NIKOLAYEV, A.I., kand. med. nauk, red.; NISHANOV, D., kand. khim. nauk, red.; SADYKOV, A.S., akademik, red.; TALANIN, Yu.N., kand. fiz.-mat.nauk, red.; TURAKULOV, Ya.Kh., doktor biol. nauk, red.; KHAMIDOV, R.I., red.; BABAKHANOVA, A.G., tekhn. red.

[Works of the Tashkent Conference on the Peaceful Uses of Atomic Energy] Trudy Tashkentskoi konferentsii po mirnomu ispol'zovaniiu atomnoi energii, Tashkent, 1959. Tashkent. Vol.2. 1960. 449 p. (MIRA 14:5)

1. Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Tashkent, 1959. 2. Akademiya nauk Uzbekskoy SSR (for Starodubtsev, Arifov, Sadykov). 3. Institut yadernoy fiziki AN UzSSR (for Abdullayev, Ivashev). 4. Chlen-korrespondent AN SSSR (for Sadykov)

(Atomic energy--Congresses)

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66529

~~24(3),24(4),21(7)~~ 24,6800 SOV/166-59-3-2/11

AUTHORS: Lobanov, Ye.M., and Starodubtsev, S.V.

TITLE: Investigation of the Electromotive Force Which Arises During the Irradiation of the Photovoltaic Cell With α-Particles

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 3, pp 5-17 (USSR)

ABSTRACT: The investigation was carried out 1) for the determination of the optimal conditions for the construction of economic atomic sources of current and 2) because the application of particles with a bounded and easily measurable free path represents a sensible mean for the investigation of processes in the immediate neighborhood of the photovoltaic cell. Similar questions are treated by the author and others in [Ref 1,2,3]. Principal results of the present paper: The current in the outer circuit of the photocell irradiated with α-particles is proportional to the intensity of the flow of the particles falling into the cell. The photovoltaic cells can be used for the measurement of the intensity of flow of charged particles. For an increasing total dose of the radiation the current decreases somewhat in the outer circuit of the irradiated chain. From the curve "current in the outer circuit - energy of the

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66529

Investigation of the Electromotive Force Which Arises During the Irradiation of the Photovoltaic Cell With α-Particles

SOV/166-59-3-2/11

α-particles" the thickness of the sensible layer of the photocell and the mean length of the diffusion shift of the electron in the semiconductor can be obtained approximately. Photocells with selenium and silver sulphide distinguished themselves in experiments by a very low efficiency (for a change of the energy of the radiation into electric energy).
There are 6 references, 4 of which are Soviet, and 2 American.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR, Institut yadernoy fiziki AN Uz SSR (Leningrad Physical-Technical Institute AS USSR, Institute of Nuclear Physics AS Uz SSR)

SUBMITTED: May 15, 1958

4

Card 2/2

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

06374
SOV/166-59-5-1/9

24(4);24(7);23(1)

AUTHORS: Lobanov, Ye.M., Romanov, A.M., and Starodubtsev, S.V.

TITLE: Multi-Angular Magnetic Broad-Band Spectrograph

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 5, pp 3-11 (USSR)

ABSTRACT: The authors point out the necessity to construct a magnetic spectrograph having the advantages of the spectrograph of Buechner [Ref 18, 19] but simultaneously having the following properties: 1) resolving power of 0.1% for a relative solid angle $\sim 10^{-4}$ ster; 2) simultaneous investigation of particles in an utmost large interval of energy; 3) simultaneous measurement of the distribution of energy for 10-15 different departure angles; 4) covering of the angular domain from 0 to 170° by every 2-3°; 5) usefulness for rigid and gaseous targets. Such a spectrograph is called a multi-angular magnetic broad-band spectrograph. The authors discuss questions combined with the construction of this device. The ionic optics calculated by Leise [Ref 20] is recommended. The entrance in and the departure of the particles from the camera shall be made like

Card 1/2

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

Multi-Angular Magnetic Broad-Band Spectrograph 06374 SOV/166-59-5-1/9

in [Ref 21]. For registering of the particles the luminescence camera [Ref 6] shall be used. The magnetic circuit of the proposed device forms a toroid of magnetic iron divided into several sectors.

The authors mention L.M.Nemenov, N.A.Vlasov, V.F.Litvin, and V.P.Rudakov.

There are 6 figures and 21 references, 6 of which are Soviet, 2 Swedish, 1 Swiss, and 12 American.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR; Institut yadernoy fiziki AN Uz SSR (Physical-Technical Institute AS USSR; Institute of Nuclear Physics AS Uz SSR)

SUBMITTED: April 20, 1959

Card 2/2

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

LOBANOV, Ye.M.; ZVYAGIN, V.I.; SHALPYKOV, A.

Sensitivity of silicon photoelements to X rays. Dokl.AN Uz.SSR no.6:11-12 '59. (MIRA 12:9)

1. Fiziko-tekhnicheskiy institut AN UzSSR i Institut yadernoy fiziki AN UzSSR. Predstavleno akademikom AN UzSSR S.V.Starodubtsevym.

(Photoelectric cells) (X rays)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ABDULLAYEV, A.A.; LOBANOV, Ye.M.; KHAITOV, B.K.; KHAYDAROV, A.A.

Use of the tritium radioisotope in studying the dynamics of underground water. Izv.AN Uz.SSR.Ser.fiz.-mat.nauk no.6: 82-83 '59. (MIRA 13:6)

1. Institut yadernoy fiziki AN UzSSR.
(Tritium--Isotopes) (Water, Underground)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/166/60/000/02/10/013

AUTHORS: Zvyagin, V.I., and Blinkov, D.I., Blinkova, G.B., and Lobanov, Ye.M.

TITLE: Negative Photodiode Effect in the Prebreakdown Region of Germanium pn-Junctions

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1960, No.2, pp.84-88

TEXT: The negative photodiode effect consists in the diminution of the back current for a lighting of the crystal. During the switching in of the light there appears a sudden enlargement of the current intensity, whereafter it becomes slowly weaker and reaches a value smaller than the value measured in the darkness. If now the light is switched in again, then there appears a sudden decrease and a following slow increase of the current intensity. For the first time V.I.Murygin (Ref.5) has observed this effect at selenium cells. The authors investigate the same effect at specially produced germanium diodes D - 7 where the crystal surface was not varnished and which were radiated with gamma rays of Co^{60}. Beside of the above mentioned properties of the effect the authors proved a temperature dependence. The authors try to

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Negative Photodiode Effect in the Prebreakdown Region of Germanium pn-Junctions

S/166/60/000/02/10/013

explain the effect, but the sudden variation of the current intensity is not explained.
There are 9 references: 4 Soviet and 5 American.

ASSOCIATION: Institut yadernoy fiziki AN Uz SSR (Institute of Nuclear Physics AS Uz SSR)

SUBMITTED: January 22, 1960

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/166/60/000/004/005/008
C111/C222

AUTHORS: Abdullayev, A.A., Lobanov, Ye.M., Novikov, A.P. and Khaydarov, A.A.

TITLE: Radioactive Analysis of Skarns (Silicate Contact Gaugue) of the Ingichka Occurrence

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR. Seriya fiziko-matematicheskikh nauk, 1960, No.4, pp. 65-74.

TEXT: The paper contains results on the practical measurement of the concentration of W, Mn, Na, Al and Fe in the skarns of the Ingichka tungsten occurrence. The measurements were carried out according to a method elaborated by the authors (Ref.3) which permits to prove simultaneously several elements in a test without destoying of the test. For this aim the tests were radiated by neutrons; that led to the origin of radioactive isotopes. Then the identification of the elements in the test was performed simultaneously according to the half-life and according to the energies of the γ-radiation. Here the half-life curves were traced for every element in a special region of energy being characteristic for the element. The experiments have

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/166/60/000/004/005/008
C111/C222

Radioactive Analysis of Skarns of the Ingichka Occurrence

confirmed that the method proposed by the author in (Ref.3) for the identification of several elements in a test is possible without a separation of the elements. The method is suitable for radioactive well logging.
There are 9 figures, 3 tables and 8 references: 6 Soviet and 2 American.

ASSOCIATION: Institut yadernoy fiziki AN Uz SSR (Institute of Nuclear Physics of the Academy of Sciences Uzbekskaya SSR)

SUBMITTED: March 6, 1960

Card 2/2

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/166/60/000/005/004/008
C111/C222

AUTHORS: Abdullayev, A.A., Lobanov, Ye.M., Novikov, A.P., Khaydarov, A.A., and Romanov, M.M.

TITLE: Analysis of Activated Samples of Ore With the Aid of Scintillation Gamma-Spectrometers

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1960, No.5, pp.48-56

TEXT: The authors propose a method permitting an analysis of multiple-component materials without a radiochemical separation of the isotopes. The analysis of the samples radiated with neutrons is carried out with the aid of a multi-channel scintillation gamma-spectrometer which records the total spectrum of gamma radiations of the mixture of radioactive isotopes. In order to separate the radiations of the single isotopes the timely change of the intensity of the different spectral lines being characteristic for the isotope in question, is considered. By such a modification of the usual method it becomes possible to identify the elements according to the half-life as well as to the energies of the gamma lines of corresponding radioactive isotopes. Thereby it becomes possible, for complicatedly composed ores to prove the single elements

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

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C111/C222

Analysis of Activated Samples of Ore With the Aid of Scintillation Gamma-Spectrometers

qualitatively as well as quantitatively. The quantitative proof is carried out by a comparison with known standard samples. The authors report especially on the application of the method for the analysis of the In-content in sfalerite ores and of the Cu and Mn-content in granitic ores. A diagram is given for the decrease of the activity of the elements appearing in sfalerites

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C111/C222

Analysis of Activated Samples of Ore With the Aid of Scintillation Gamma-Spectrometers

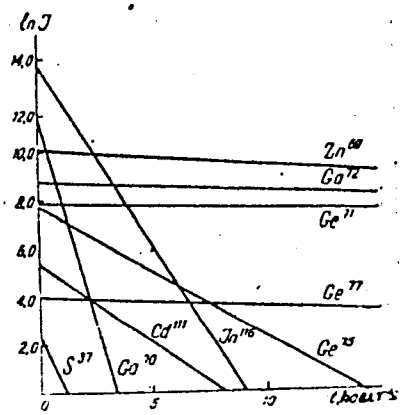

Рис. 3. Расчетные кривые спада активности элементов.

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S/166/60/000/005/004/008
C111/C222

Analysis of Activated Samples of Ore With the Aid of Scintillation Gamma-Spectrometers

Fig. 3. Calculated curves for the decrease of the activity.
The diagram fig.5. serves for the determination of the % content of In in ores with a different content of ZnS.

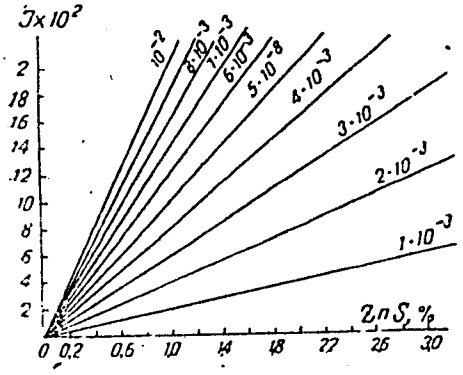

Рис. 5. Номограмма для определения процентного содержания In в рядах с различным процентным содержанием ZnS.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/166/60/000/005/004/008
C111/C222

Analysis of Activated Samples of Ore With the Aid of Scintillation Gamma-Spectrometers

Fig.5. Nomogram for the determination of the % content of In in ores with a different % content of ZnS.
There are 4 tables, 5 figures and 5 references: 4 Soviet and 1 American.

ASSOCIATION: Institut yadernoy fiziki AN Uz SSR (Institute of Nuclear Physics of the Academy of Sciences Uzbekskaya SSR)

SUBMITTED: March 6, 1960

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LOBANOV, Ye. M.

PHASE I BOOK EXPLOITATION SOV/5592

Vsesoyuznoye soveshchaniye po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheniy v narodnom khozyaystve SSSR. Riga, 1960.

Radioaktivnyye izotopy i yadernyye izlucheniya v narodnom khozyaystve SSSR; trudy Vsesoyuznogo soveshchaniya 12 - 16 aprelya 1960 g. g. Riga, v 4 tomakh. t. 4: Poiski, razvedka i razrabotka poleznykh iskopayemykh (Radioactive Isotopes and Nuclear Radiation in the National Economy of the USSR; Transactions on the Symposium Held in Riga, April 12 - 16, 1960, in 4 volumes. v. 4: Prospecting, Surveying, and Mining of Mineral Deposits) Moscow, Gostoptekhizdat, 1961. 284 p. 3,640 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR. Gosudarstvennyy komitet Soveta Ministrov SSSR po ispol'zovaniyu atomnoy energii

Eds. (Title page): N. A. Petrov, L. I. Petrenko, and P. S. Savitskiy; ed. of this volume: M. A. Speranskiy; Scientific ed.: M. A. Speranskiy; Executive Eds.: N. N. Kuz'mina and A. G. Ionel';

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Radioactive Isotopes and Nuclear (Cont.) SOV/5592

Tech. Ed.: A. S. Polomina.

PURPOSE : The book is intended for engineers and technicians dealing with the problems involved in the application of radioactive isotopes and nuclear radiation.

COVERAGE: This collection of 39 articles is Vol. 4 of the Transactions of the All-Union Conference of the Introduction of Radioactive Isotopes and Nuclear Reactions in the National Economy of the USSR. The Conference was called by the Gosudarstvennyy nauchno-tekhnicheskiy komitet Sovet Ministrov SSSR (State Scientific-Technical Committee of the Council of Ministers of the USSR), Academy of Sciences USSR, Gosplan SSSR (State Planning Committee of the Council of Ministers of the USSR), Gosudarstvennyy komitet Soveta Ministrov SSSR po avtomatizatsii i mashinostroyeniyu (State Committee of the Council of Ministers of the USSR for Automation and Machine Building), and the Council of Ministers of the Latvian SSR. The reports summarized in this publication deal with the advantages, prospects, and

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Radioactive Isotopes and Nuclear (Cont.) SOV/5502

development of radioactive methods used in prospecting, surveying, and mining of ores. Individual reports present the results of the latest scientific research on the development and improvement of the theory, methodology, and technology of radiometric investigations. Application of radioactive methods in the field of engineering geology, hydrology, and the control of ore enrichment processes is analyzed. No personalities are mentioned. There are no references.

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STARODUBTSEV, S.V., otv. red.; ABDULLAYEV, A.A., kand. fiz.-mat. nauk, red.; ABDURASULOV, D.M., doktor med. nauk, red.; ARIFOV, U.A., akad., red.; BORODULINA, A.A., kand. biol. nauk, red.; IVASHEV, V.N., red.; IKRAMOVA, G.S., red.; KIV, A.Ye., red.; LOBANOV, Ye.M., kand. fiz.-mat. nauk, red.; NIKOLAYEV, A.I., kand. mad. nauk, red.; NISHANOV, D., kand. khim. nauk, red.; SADYKOV, A.S., akad., red.; TALANIN, Yu.N., kand. fiz.-mat. nauk, red.; TURAKULOV, Ya.Kh., doktor biol. nauk, red.; GAYSINSKAYA, I.G., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Transactions of the Conference on the Peaceful Uses of Atomic Energy held at Tashkent in 1959] Trudy Konferentsii po mirnomu ispol'zovaniiu atomnoi energii, Tashkent, 1959. Tashkent, Izd-vo Akad. nauk Uzbekskoi SSR. Vol.1. 1961. 410 p. (MIRA 14:9)

1. Konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. 2. Institut yadernoy fiziki AN Uzbekskoy SSR (for Starodubtsev, Arifov). 3. Institut fiziki AN Uzbekskoy SSR (for Abdullayev). 4. Chlen-korrespondent AN SSSR i AN Uzbekskoy SSR (for Sadykov).
(Atomic energy--Congresses)

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S/075/60/015/006/010/018
B020/B066

AUTHORS: Abdullayev, A. A., Lobanov, Ya. M., Novikov, A. P., Romanov, M. M., and Khaydarov, A. A.

TITLE: Determination of Indium Content in Sphalerites by Radioactivation Analysis

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 6, pp. 701-705

TEXT: The authors made an attempt of developing a method for the indium determination in sphalerites by means of direct measurement of the energy spectra of the test sample by a γ-scintillation spectrometer. The production of radioisotopes of indium according to the reaction (n,γ) was used as a basis for the method. The nuclear characteristics of the elements occurring in sphalerites are given in Table 1. The device applied consists of a special lead casing (with the spectrometric monocrystal NaI(Tl)) 40 mm in diameter and 38 mm high, which is connected with a photoelectronic multiplier of the ФЭУ-1С (FEU-1S) type; a single-channel amplitude analyzer with amplifier, a computer, and a stabilized high-voltage rectifier. The energy scale of the analyzer in the energy range of 0.3-1.5 Mev

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proved to be linear (Fig. 2). The activity of elements contained in the sphalerite was calculated from data given in Table 1, on the basis of which the curves for the activity decrease were plotted (Fig. 3), according to the equation $I = n\nu\sigma N\left[1 - \exp(-0.693t/T)\right]$, where $n\nu$ denotes the neutron flux, σ the cross section of neutrons of the elements, N the number of nuclei of the activated element, t the time of irradiation, and T the half-life period. The analysis of the curves given in Fig. 3 suggests a period of 5 minutes to be an adequate interval between the termination of irradiation and the beginning of measurements. The sphalerite standard samples were bombarded with slow neutrons from a polonium-beryllium source with an activity of 35 curies for 3 hours and 35 minutes. The authors investigated the change of intensity of the photopeaks of the energy spectrum with time, and identified the isotope both with respect to the characteristic bands of the spectrum and the half-life period. The activity of the indium isotope was measured within two half-life periods, and then the degradation curves were plotted (Fig. 4). Table 2 gives the results obtained for the activity of standard samples of different indium contents. Fig. 5 shows the activity as a function of the percentage indium content at an interval

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Determination of Indium Content in Sphalerites by Radioactivation Analysis

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of measurement of 5 minutes and with a 5 g sample. On the basis of Fig. 5, a nomograph was plotted to determine the percentage indium content in samples of different weights (Fig. 6). After calibrating the device and plotting the nomograph, the indium concentration was determined in sphalerites from some deposits of the Uzbekskaya SSR (Table 3). The difference between the results is, on an average, not more than 7%, and the statistic error not more than ±3%, whereas the characteristic error of the method (due to unequal conditions on bombarding and measurement) is ± 2 - 3%, at an In-content in the order of magnitude of 0.1%. Finally, the authors thank S. T. Baladov for providing an analytical sample. There are 6 figures, 3 tables, and 6 references: 3 Soviet, 1 Austrian, and 2 US.

ASSOCIATION: Institut yadernoy fiziki AN UzSSR, Tashkent (Institute of Nuclear Physics of the AS Uzbekskaya SSR, Tashkent)

SUBMITTED: August 25, 1959

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B112/B202

9,4300

AUTHORS: Zvyagin, V. I., Lobanov, Ye. M., Leushkina, G., Bartnitskiy, I. N.

TITLE: Anomalously negative current and anomalously positive photocurrent

PERIODICAL: Izvestiya Akademii nauk UzSSR. Seriya fiziko-matematicheskikh nauk, no. 2, 1961, 29 - 32

TEXT: The authors observed the following behavior of germanium: If a voltage is applied, the inverse current increases to a certain maximum value after which it slowly decreases to a value near the saturation value of the current. Irradiation with visible light causes an increase of the inverse current up to a certain value which is much higher than the value of the ordinary positive photocurrent. Due to this behavior, the authors use the term "anomalously negative" current and "anomalously-positive" photocurrent in contrast to the ordinary current and photocurrent. An "anomalously positive" current and an "anomalously negative" photocurrent correspond to the "pre-anomalous" behavior. [illegible] of experimental

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B112/B202

Anomalously negative...

data yielded more exact data on the energy scheme of the germanium surface. This scheme is reproduced in Fig. 3.

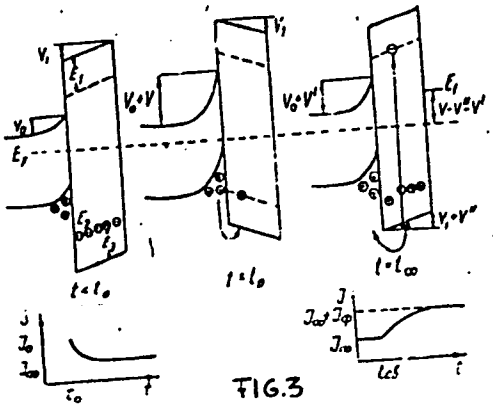

FIG.3

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Anomalously negative...

In equilibrium state, the potential difference between inversion layer with a potential $V_0 + V'$ and the oxidation layer with a potential $V_1 + V''$ corresponds to the external voltage. The authors give empirical formulas for the transition characteristics of the anomalously negative current and the anomalously positive photocurrent:

$$I(t) = I_\infty - A_1 \ln(1 - C_1 e^{-\alpha_1 t})$$

characterizes the transition state of the anomalously negative current. I_∞ is the value of the dark current, A_1, C_1, α_1 are constants depending on voltage and temperature. The transition characteristics of the anomalously positive photocurrent is given by the formula:

$$I(t) = I_\infty + \left[I_{ph} + A_2 \ln(1 - C_2 e^{-\alpha_2 t})\right]$$

where I_{ph} is the value of the stationary photocurrent, A_2, C_2, α_2 are constants depending on voltage, temperature, and illumination. The inverse current which appears after the illumination is switched off, has the following transition characteristics:

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$$I(t) = I_{\infty} + I_{ph} - \left[I_{ph}^{1'} + A_3 \ln(1 - C_3 e^{-\alpha_3 t})\right].$$

There are 3 figures and 2 Soviet-bloc references.

ASSOCIATION: Institut yadernoy fiziki AN UzSSR (Institute of Nuclear Physics, Academy of Sciences, UzSSR)

SUBMITTED: November 10, 1960

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/075/61/016/001/004/019
B013/B055

AUTHORS: Lobanov, Ye. M., Romanov, O. M., Romanov, M. M., and Khaydarov, A. A.

TITLE: Determination of Copper and Manganese in Ores by Neutron Activation Analysis of Induced Radioactivity

PERIODICAL: Zhurnal analiticheskoy khimii, 1961, Vol. 16, No. 1, pp. 25-28

TEXT: In the present work the authors studied the applicability of γ-spectrometry in the activation analysis for copper and manganese in rock samples by using a low-intensity neutron flux (10^7-10^8 neutrons·cm^{-2}·sec^{-1}) for activation. Rock samples containing 0.03 - 0.9% copper and 0.01 - 0.3% manganese were analyzed. The chemical composition of the investigated syenite-diorite and the nuclear characteristics of the elements contained in this rock appear in Table 1. Basing on these data, the conditions for the quantitative determination of copper and manganese were worked out. For calibration, standard samples of known copper- and manganese content were prepared and irradiated with slow Po-Be neutrons from a neutron

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source of activity approximately 20 c. A paraffin block was used as a moderator. The duration of irradiation was chosen with consideration for the expected activity calculated for the particular isotopes contained in the sample from the known expression (Ref. 8) $A = n_0 \cdot \sigma_{act} \cdot N [1 - \exp(-\lambda)]$, where n_0 = thermal neutron flux, σ_{act} = effective activation cross section, N = total number of nuclei of the isotope in the sample, λ = disintegration constant = $0.693t/T^{1/2}$, and t = duration of irradiation. The γ-activity of the activated samples was measured with a γ-scintillation spectrometer (Ref. 9). Fig. 1 shows the γ-spectrum of Cu^{64}, Fig. 2 that of Mn^{56} and Fig. 3 the superposed γ-spectra of Cu and Mn. For the quantitative determination of Cu and Mn in the test pieces, the γ-spectra measurements of the standard samples were plotted in the diagram shown in Fig. 4. This method makes the direct determination of 0.03 - 0.9% Cu and 0.028 - 0.3% Mn possible. The percentages of Cu and Mn in various rock samples as determined by the suggested method and the results of the chemical analyses appear in Table 2. The statistical measuring error did

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Determination of Copper and Manganese in Ores by Neutron Activation Analysis of Induced Radioactivity

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not exceed 5%. Repeated measurements were in satisfactory agreement, the deviations being around 3%. The use of higher neutron fluxes by increasing the activity of the source or by applying a (skvazhinnyy) neutron generator (Ref. 10) shortens periods of irradiation and increases the sensitivity of the activation analysis. There are 4 figures, 2 tables, and 10 references: 4 Soviet, 3 French, and 3 US.

ASSOCIATION: Institut yadernoy fiziki AN UzSSR, Tashkent (Institute of Nuclear Physics of the Academy of Sciences Uzbekskaya SSR, Tashkent)

SUBMITTED: October 1, 1959

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LEBANOV, Ye.M.

PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. M. Abdurasulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Zkrimova; A. Ye. Kiv; Ye. M. Lebanov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

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Transactions of the Tashkent (Cont.) SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

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Transactions of the Tashkent (Cont.) SOV/5410

of Geological Specimens 277

Abdullayev, A. S., S. A. Bibinov, Ye. M. Lobanov, A. P. Novikov, and A. A. Khaydarov [Institute of Nuclear Physics AS UzSSR]. Express Determination of Lead Percentage in Concentrates 282

Yerozolimskiy, B. G., D. F. Bespalov, L. N. Bondarenko, L. R. Voitsik, N. V. Popov, A. I. Khaustov, Yu. S. Shimelevich, A. S. Yudin [Institute of Geology and Production of Mineral Fuels AS USSR]. Results of the First Industrial Tests of a Neutron Generator in Oil Wells 285

Flaksin, I. N., V. N. Smirnov, and L. P. Starchik [Institut gornogo dela AN SSSR - Mining Institute AS USSR]. Use of Alpha-Radiation of Po^{210} for the Quantitative Control of Enrichment Productions Containing Beryllium, Boron, Fluorine, and Aluminum 293

Srapenyants, R. A., and B. B. Nefedov [Vsesoyuznyy n.-i. institut mekhanizatsii sel'skogo khozyaystva - All Union Scientific

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ABDULLAYEV, A.A.; LOBANOV, Ye.M.; NOVIKOV, A.P.; KHAYDAROV, A.A.; ROMANOV, M.M.

Analyzing activated rock samples by scintillation gamma spectrometers. Izv. AN Uz. SSR. Ser. fiz.mat. nauk no.5:48-56 '60. (MIRA 14:1)

1. Institut yadernoy fiziki AN UzSSR.
(Rocks—Analysis) (Gamma-ray spectrometry)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

STARODUBTSEV, S.V., akad., otv. red.; ABDULLAYEV, A.A., kand. fiz.-mat. nauk, red.; ABDURASULOV, D.M., doktor med. nauk, red.; ARIFOV, U.A., akad., red.; BORODULINA, A.A., kand. biol. nauk, red.; IVASHEV, V.N., red.; IKRAMOVA, G.S., red.; KIV, A.Ye., red.; LOBANOV, Ye.M., kand. fiz.-mat. nauk, red.; NIKOLAYEV, A.I., kand. med. nauk, red.; NISHANOV, D., kand. khim. nauk, red.; SADYKOV, A.S., akad., red.; TALANIN, Yu.N., kand. fiz.-mat. nauk, red.; TURAKULOV, Ya.Kh., doktor biol. nauk, red.; GAYSINSKAYA, I.G., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Transactions of the Tashkent Conference on the Peaseful Uses of Atomic Energy] Trudy Tashkentskoy konferentsii po mirnomu ispol'zovaniiu atomnoi energii, 1959. Tashkent, Izd-vo Akad.nauk Uzbekskoi SSR. Vol.1. 1961. 410 p. (MIRA 15:5)

1. Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Tashkent, 1959. 2. Akademiya nauk Uzbekskoy SSSR (for Starodubtsev, Arifov, Sadykov). 3. Chlen-korrespondent Akademii nauk SSSR (for Sadykov). 4. Institut yadernoy fiziki Akademii nauk Uzbekskoy SSR (for Arifof, Lobanov). 5. Institut krayevoy eksperimental'noy meditsiny Akademii nauk Uzbekskoy SSR (for Turakulov).

(Atomic energy--Congresses)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

37956

S/194/62/000/003/035/066
D256/D301

26.1512
9.6150

AUTHORS: Shalpykov, A. and Lobanov, Ye. M.

TITLE: Photoelectric properties of silicon barrier photoelements

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 3, 1962, abstract 3-3-85sh (Nekotorye vopr. prikl. fiz. Tashkent, AN UzSSR, 1961, 36-45)

TEXT: The behavior of the silicon photoelements under the influence of penetrating radiations was investigated in order to determine their usefulness as radiation detectors, and to try the possibility of transforming the energy of nuclear radiations into the electrical energy. The photoelements were fabricated of 4 ohm.cm resistivity p-type silicon by gaseous diffusion of P. The following properties of the photoelements were measured: The volt-ampere curves, lux-ampere curves, spectral characteristics, etc., and their dependence upon the temperature. The reverse current as a function of the voltage does not saturate, and its logarithm is

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linearly dependent on the temperature. The photocurrent depends linearly on the illumination (up to 500 lux) changing slowly with the temperature; the photo-e.m.f. shows a nonlinear dependence on the illumination and decreases linearly with the temperature. The spectral characteristics are presented together with the sensitivity distributions of the cathodes. A linear dependence of the photocurrent on the X-ray intensity was obtained. The current is a linear function of the illuminated area at a constant flux as well as of the intensity of Co^{60} gamma rays (from 500 to 7,000 roentgen/hour). The photoelements can be used for measuring radiation doses; at 150 mcurie/sec the output current is 10^{-10} amp /Abstracter's note: Dimension "mcurie/sec" is obviously erroneous; perhaps it should read "milliroentgen/sec" but then it would represent intensity rather than the dose./. Expressions suitable for calculations are obtained, and the following diffusion lengths of the secondary charge carriers are derived for 3 samples: 118; 245 and 257 microns. 15 references. /Abstracter's note: Complete translation./

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/058/62/000/003/050/092
A061/A101

34 3420

AUTHORS: Zvyagin, V. I., Lobanov, Ye. M., Rubinova, E., Blinkov, D. I.

TITLE: Coefficient of visible light reflection from germanium

PERIODICAL: Referativnyy zhurnal, Fizika, no.3, 1962, 1, abstract 3G4 (Sb. "Nekotoryye vopr. prikl. fiz.", Tashkent, AN UzSSR, 1961, 51-54)

TEXT: Reproducibility and divergence of the reflection coefficient R of silicon and germanium crystals treated with standard pickling agents were examined on an СФ-2М (SF-2M) spectrophotometer. It was established that "grinding" and "polishing" pickling agents modify R in individual intervals of the visible spectrum region by more than 20 - 30%. These changes are explained by the composition and structure of the oxide layer. For some pickling agents and for crystal rotation about the axis perpendicular to the surface considered, the curve $R = f(\lambda)$ was found to have a series of maxima and minima, the number of which depends on crystal orientation. Curves $R = f(\lambda)$ were measured for germanium surfaces that were ground and pickled by agents used in the production of H_2O_2 and NaOH semiconductor instruments, following irradiation by Co^{60} γ-rays. An attempt is made to explain the results obtained. G. Gorodinskiy

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

ZVYAGIN, V.I.; LOBANOV, Ye.M.; LEUSHKINA, G.; BARTNITSKIY, I.N.

Anomalous negative current and anomalous positive photocurrent. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk no. 2:29-32 '61. (MIRA 14:5)

1. Institut yadernoy fiziki AN UzSSR.
(Germanium—Electric properties)

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31069
S/166/61/000/006/010/010
B102/B138

24.7700(1035,1043,1055)
26.1512

AUTHORS: Shalpykov, A., Lobanov, Ye. M.

TITLE: Determination of some parameters of semiconducting materials by electron irradiation of p-n junctions

PERIODICAL: Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 6, 1961, 80-81

TEXT: The authors examined the dependence of a Si photocell current on the energy and on the intensity of the incident electron beam. The energy of the bombarding electrons was varied between 0 and 30 kev by means of a high-voltage rectifier. The incident electron current did not exceed 20 μa at a beam diameter of about 10 mm. During the measurements the photocells were placed inside a glass chamber in which pressure was maintained at 10^{-6} mm Hg. The current in the cell due to electron bombardment was separated from the photocurrent due to light emission from the electron gun. The cells were made of p-type Si single crystals, with p-n junction produced by thermal diffusion in gaseous phosphorus. Results: The short-circuit current, I_{sc}, caused by electron bombardment increased

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B102/B138

Determination of some parameters of ...

linearly with electron current increasing from 0 to 20 μa. The ionization energy $\mathcal{E}$ was determined from I_{sc}: $\mathcal{E} = 3.9 \pm 0.5$ ev for a 20-kev beam. Finally there is a discussion of possible determination some recombination constants when irradiating a photocell by light or by electrons. The separation coefficient α can be determined from the relation $\alpha = I_{sc}/qN(1-r)(1-e^{-\varkappa d})\beta$, q is the electron charge, d the sample thickness, N the incident quantum flux density, $\varkappa$ the absorption coefficient, r the reflection coefficient and β the quantum yield of the internal photoeffect. Using relations given by G. L. Bir and G. Ye. Pikus (ZhTF, 1957, XXVII, no. 3, 467) α can be used to determine the depth of the p-n junction, the surface recombination rate, carrier diffusion length and absorption coefficient. For electrons of 8 - 16 kev the absorption coefficient in Si can be calculated with data from a paper by A. Ya. Vyatskiy and A. F. Makhov [Abstracter's note: No reference given.] (Fizika tverdogo tela, 1960, v. 2, no. 5, 887). The absorption coefficient can be used to find the hole diffusion coefficient and the surface recombination rate, and using a relation by V. K. Subashiyev (Fizika tverdogo tela, 1960, v. II, no. 2, 205), the hole diffusion length can be estimated. There are 8

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31069
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B102/B138

Determination of some parameters of ...

references: 6 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: McKay K. G., McAfee K. B. Phys. Rev., 1953, 91, 1079; Rappoport P. Phys. Rev., 1954, 93, 1, 246.

ASSOCIATION: Akademiya nauk UzSSR (Academy of Sciences Uzbekskaya SSR)

SUBMITTED: July 18, 1961

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

30146
S/608/61/000/000/001/007
B139/B102

9.6150 (1482)
26.1512

AUTHORS: Shalpykov, A., Lobanov, Ye. M.

TITLE: Photoelectrical properties of silicon photocells with depletion layers

SOURCE: Nekotoriye voprosy prikladnoy fiziki, 1961, 36 - 45

TEXT: The Institut poluprovodnikov AN SSSR (Institute of Semiconductors AS USSR), the Fizicheskiy institut AN SSSR (Physics Institute AS USSR), and the Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute AS Uzbekskaya SSSR) are concerned with the technological aspects of the manufacture of silicon photocells. Since silicon photocells with depletion layers are potential indicators for radiation and might also be used for converting solar energy or nuclear radiation into electric energy, the authors studied the effect of gamma and X-rays on valve-type silicon photocells. The photocells, supplied by the last-mentioned institute had been obtained by diffusing phosphorus into p-type Si (4 ohm·cm; electron lifetime, $3 \cdot 9 \cdot 10^{-6}$ sec). The depth of the p-n junction was about 2μ. The ohmic Pd contacts were electrolytically produced. The sensitive surface

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B139/B102

Photoelectrical properties of ....

areas varied from 22 to 28 mm in diameter. The volt-ampere characteristics showed good linearity, and their slope increased with rising temperature. In addition, the authors studied the spectral sensitivity and several photoelectrical properties of the photocells in question. An УРС-70 (URS-70) X-ray device with a molybdenum anticathode and a Co^{60} preparation of 15 r/hr at 1 m distance were used as radiation sources. The power flux of the Co^{60} source was varied from 500 to 7000 r/hr by changing the distance. The photocurrent in the external circuit of the photocell was measured at different voltages and anode currents. The photoelectric short-circuit current increased linearly with rising gamma-ray intensity. The photoelectric effect produced in the p-n junctions of a semiconductor under the action of gamma radiation can also be used to determine the diffusion length of its minority carriers. The density of the short circuit current produced in p-n junctions by gamma irradiation is given by $I = eg\alpha$, where e = electronic charge, g = carrier generation rate, and α = diffusion length. α can be determined if g is known. With $g = N\mu\bar{E}/\bar{\varepsilon}$ one obtains $I = e\mu N\frac{\bar{E}}{\bar{\varepsilon}}\alpha$, where N = number of gamma quanta per sec and per unit area of the p-n junction, μ = radiation attenuation coefficient.

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Photoelectrical properties of ...

$\bar{E}$ = mean energy of a Compton electron, and ε = mean energy required for the production of an electron-hole pair. μ was experimentally found to be 0.113 ± 0.0095. The values $\bar{E}$ = 0.59 Mev and $\bar{\varepsilon}$ = 3.6 ev were taken from publications. Using these values, the diffusion length of three silicon photocells was calculated to be 118, 245, and 257μ. There are 8 figures and 15 references: 11 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: Chapin, Fuller & Peerson, J. Appl. Phys. 25, 676, 1954; Bell Lab. Rec., 33, 241, 1955; Heitler W., "The Quantum Theory of Radiation" Press New York, N 4. 1954; Yremmelmejer Proc. Y. R. E. 46, N 6, 1045 - 1049, 1958; Mc.Kay K. C., Me-Afee K. B., Phys. Rew. 91, 1079, 1953.

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30148
S/608/61/000/000/003/007
B143/B102

9.4160

AUTHORS: Zvyagin, V. I., Lobanov, Ye. M., Rubinova, E., Blinkov, D. I.

TITLE: Reflection coefficient of visible light reflected from germanium

SOURCE: Nekotoriye voprosy prikladnoy fiziki, 1961, 51 - 54

TEXT: The light reflection coefficient R is more dependent on the state of the surface than is the rest of physical parameters. Since R and the absorption coefficient depend on the energy structure of the crystal surface, measuring these coefficients permits to infer the energy structure of the germanium surface. Chemical polish of germanium results in the formation of an oxide coating on the crystal surface. R is not changed by etching crystals with different crystallographic directions. However, the same etching agent lays bare quite definite faces, independent of the orientation of the crystal. This means that either the ratio of the area of faces remains unaltered, or R is not dependent on the type of crystallographic faces. To decide for one or the other possibility, R_o was measured for germanium treated with etching agents of this type.

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Reflection coefficient of...

Measurements showed that differently worked crystals furnished values for R differing by 20 - 30%. This implies that R is not dependent on the type of crystallographic faces but on the composition and structure of the 10 - 50 Å thick oxide coating. Some etching agents cause R to be changed when the crystal is rotated around an axis perpendicular to the surface investigated, passing through a number of maxima and minima. If the crystals are worked with other etching agents, R is independent of the orientation of the crystal. In this case, the correct value of R is obtained. Differences in the values of R, occurring as a result of treating the crystal with the same etching agent, are related to the structure of the monoxide film which is gradually converted into dioxide in the atmosphere. Irradiated with shortwave light, this film generates an anomalously high negative photocurrent in the diodes due to the shortwave light being absorbed by the film. Gamma irradiation of germanium in moist atmosphere reduces the value of R. Apparently, irradiation of the germanium surface causes the formation of a film resembling the monoxide film. Indicative of this is the existence of the anomalously high negative photocurrent. Gamma irradiation of germanium, protected from moisture, has no effect on R. There are 1 figure and 5 references: 2

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Reflection coefficient of...

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B143/B102

Soviet and 3 non-Soviet. The three references to English-language publications read as follows: Hancock R., Edelman S. Rev. Scient. Instr., 27, 1082, 1956; Mc. Kelvey I., Longini R. J. Appl. Phys., 25, 5, 634, 1954; Ellis S. G. Journ. Appl. Phys., 28, No 11, 1262, 1957.

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30149
S/608/61/000/000/004/007
B143/B102

9.4340 (also 1143,1150)

AUTHORS: Lobanov, Ye. M., Zvyagin, V. I., Blinkov, D. I., Blinkova, G. B.

TITLE: Effect of gamma rays on germanium diodes

SOURCE: Nekotoriye voprosy prikladnoy fiziki, 1961, 55 - 57

TEXT: Gamma irradiation causes a negative photoeffect in germanium diodes. The authors discovered this effect in Д-7 (D-7) diodes, and reported on it earlier (Izv. AN UzSSR, ser. fiz. mat. nauk, 1960, no. 2). They assumed that this effect is due to inhomogeneities in the volume (Frenkel' defects). The negative photocurrent depends on the temperature and the spectral distribution of light. It increases with increasing frequency of the illuminating light. In the photocells examined, the increase in photocurrent was particularly striking at $\lambda \approx 0.6\mu$. For waves longer than 0.8μ, the negative photocurrent is practically vanishing. This means that it is due to the light being absorbed by the oxide coating and not by the surface-near layer. This was confirmed by a series of experiments. Gamma irradiation of germanium in moist atmosphere causes

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Effect of gamma rays on...

the formation of a film on the surface whose reflection coefficient is similar to that of monoxide-coated (etched) germanium. This results in the occurrence of the characteristic negative photocurrent. Thus, the strong change of the diode characteristics is not only due to inhomogeneities of the crystal lattice but also to the conversion of the dioxide coating into monoxide. Since surface electrons are transferred to the monoxide coating, it is assumed that it is negatively charged by applying a voltage in the blocked direction. This results in the formation of holes in the surface-near layer that provide a channel for excess conductivity. Light absorption transmits the electrons from the acceptor levels to the conduction band of the coating, and from there, overcoming a potential barrier, to the volume of the germanium. The oxide coating is positively charged due to accumulation of bound holes, which reduces their concentration in the channel and, subsequently, the reverse current. This model permitted to find empirical formulas for the excess reverse current and for the photocurrent in a germanium diode. The transient characteristics of the diode were computed, experimentally verified, and graphically compared. They were found to agree fairly well. After applying a voltage, the reverse current increases, whereas it decreases

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Effect of gamma rays on...

when the light is turned on. There are 2 figures, 3 tables, and 3 references: 1 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Ellis S. Journ. Appl. Phys., 28, No. 11, 1262, 1957; Brattain W., Bardeen J. Bell. Syst., Techn. J., 32, 1, pp. 1 - 41, 1953.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

33116
S/638/61/001/000/043/056
B108/B138

24.2200(1147,1158,1164)

AUTHORS: Nizametdinova, M. A., Lobanov, Ye. M.

TITLE: Effect of radioactive radiations on the magnetic properties of ferrites

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 267-270

TEXT: The variations in the properties of ferrites under neutrons, protons, and gamma irradiation have been studied. Variations in magnetic and electrical properties attributable to variations in the crystal lattice depend on the nature and dose of the radiation as well as on the composition of the ferrite. For this reason several types of ferrites of various shapes were investigated. Irradiation was carried out at the reactor of the Institut atomnoy energii AN SSSR (Institute of Atomic Energy AS USSR) (thermal neutrons), at the synchrocyclotron of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) (660-Mev protons), and at the Fiziko-tekhnicheskiy institut AN UzSSR (Physico-

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33116

Effect of radioactive radiations ... S/638/61/001/000/043/056
B108/B138

technical Institute AS UzSSR) (gamma rays, 350,000 r/hr). Measurement showed that total losses increase more rapidly with increasing field strength after, than before irradiation. The hysteresis loop became more rectangular when the ferrite was irradiated. Coercive force generally remained unchanged. Variations in the properties of ferrites under irradiation are either attributed to displacement of the ions in the lattice, or to variation in spin exchange interaction, in the valency of the ions of the interstitial metals, in ion spin orientation, and in domain movement. There are 1 figure, 3 tables, and 5 references: 2 Soviet and 3 non-Soviet.

ASSOCIATION: Institut yadernoy fiziki AN UzSSR (Institute of Nuclear Physics AS Uzbekskaya SSR)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

33117
S/638/61/001/000/044/056
B108/B138

24.2253

AUTHORS: Shalpykov, A., Lobanov, Ye. M.

TITLE: Gamma sensitivity of silicon photocells

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 271-276

TEXT: To investigate the possibility of using silicon photocells as direct converters of nuclear into electrical energy the authors studied p-type silicon valve-photocells prepared by them in the semiconductor laboratory of the Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute AS UzSSR). Research in the field of silicon photocells is being advanced particularly, at this institute and at the Institut poluprovodnikov (Semiconductor Institute) and Fizicheskiy Institut AN SSSR (Physics Institute AS USSR). The lux-ampere characteristics of the barrier-layer photocells were linear up to 600 lux. The spectral characteristics had their sensitivity maximum around 7500 Å. The photocurrent is linearly dependent on the area irradiated and is directly proportional to the

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Gamma sensitivity of silicon ...

intensity of incident X-rays. Silicon photocells can therefore be used in X-ray dosimeters. The gamma-ray experiments were made with Co^{60} as source (15 r/hr). The current recorded is linearly dependent on gamma-ray intensity. At a dose of 500 r/hr, it is of the order of 10^{-7} a. The photoelectric effect at the p-n junctions under gamma irradiation can be used to determine the diffusion length of minority carriers. The overall absorption coefficient for gamma rays from Co^{60} was found to be 0.113 ± 0.0095. With the aid of this value and with data from other publications (Maslakovets Yu. P. et al. ZhTF, 1956, 26, 2396) the diffusion lengths L = 118, 245, and 257 μ were determined for the three different silicon photocells from the formula $I_{short} = egL$, e - electron charge, g - rate of carrier production. There are 5 figures and 12 references: 9 Soviet and 3 non-Soviet. The reference to the English-language publications read as follows: Chapin, Fuller and Peerson. J. Appl. Phys., 25, 676, 1954; Bell. Lab. Pec., 33, 241, 1955; Vremmelmejer. Procy. IRE 46, 6, 1045-1049, 1958; Heitler W. The Quantum Theory of Radiation, Oxford University, Press, New York, 4, 1954.

ASSOCIATION: Institut yadernoy fiziki AN UzSSR (Institute of Nuclear Physics AS Uzbekskaya SSR)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320010-3

S/194/62/000/002/047/096
D201/D301

9,4340

AUTHORS: Zvyagin, V. I., Lobanov, Ye. M. and Rzhanov, A. V.

TITLE: Differential resistance of germanium diodes

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 2, 1962, abstract 2-4-12zh (V sb. Nekotoryye vopr. prikl. fiz. Tashkent, AN UzSSR, 1961, 58-63)

TEXT: A study of the differential resistance R_d of germanium diodes. The diodes were prepared by the method of fusing indium into an electron conducting germanium. The resistivity of germanium was varied from 3.5 to 35 ohm/cm. R_d was evaluated from the measurements by a valve millivoltmeter with small a.c. voltage ($V < \frac{kT}{e}$) superimposed on the reverse d.c. bias and from the voltage drop across a calibrated resistor connected in series with the diode. The results of investigations, at a frequency of 70 c/s, were obtained by statistical processing of a large quantity of experimental material. Ty-

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pical graphs of the dependence of R_d on $\sqrt{V}$ at different temperatures are given, together with $\log_e R_d$ on the reciprocal of temperature $(\frac{1000}{T^oK})$ for various voltages and a table of values of activation energy calculated from graphs of semiconductor diodes made of material with different specific resistances. Graphs of dependence of $\log_e \tau_p$ (τ_p - lifetime of holes) on reciprocal of temperature are also given for typical diodes and diodes made of germanium with a lower specific resistivity. The graphs show the values of activation energy ΔE's at low temperatures and those for temperatures higher than 40^oC ($\Delta E''$). It is shown that the whole set of experimental data may be successfully described by the formula of K. V. Tolpygo and E. I. Rashba (see ZhT Fiz. 1956, XXVI, 7), if one assumes in it $\tau_p = \tau_o e^{\frac{\Delta E}{kT}}$, provided $\Delta E = -\Delta E'$ at low and $\Delta E = \Delta E'$ at high temperatures. It follows from this formula that R_d increases with de-

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creasing specific resistivity. As an example R_d is given in the form of graphs for diodes with different specific resistivities at V = 30 V. 1 reference. /Abstracter's note: Complete translation./

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24.2200 (1147, 1164, 1482)

AUTHORS: Nizametdinova, M. A., Lobanov, Ye. M.

TITLE: Effect of radioactive radiation on magnetic properties of ferrites

PERIODICAL: Referativnyy zhurnal, fizika, no. 2, 1962, 50, abstract 2E448 ("Tr. Tashkentsk. konferentsii po mirn. ispol'zovaniyu atomn. energii, 1959, v. I", Tashkent, AN UzSSR, 1961, 267-270)

TEXT: Various ferrites of domestic production, intended for pulse technique and ultrahigh frequencies, were subjected to irradiation by neutrons, protons and γ-rays. It was established that the Q-factor of the most ferrites deteriorates under effect of neutrons. Magnetic permeability μ of ferrites irradiated with neutrons and protons varies differently: in some it increases (M-2000, M-3000 ferrites), in others it decreases (0-2000, M-4000 ferrites), and in ferrites 1-22 (N-22), N-27, M-3000D (M-3000D) and M-17 (I-17) it was stable with respect to irradiation. The part of hysteresis loop, characterizing demagnetization and running prior to irradiation above the main magnetization curve, runs below the latter after irradiation. Under irradiation effect, the squareness of hysteresis loop increases, which is important for memory devices. Phase displace-

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