

8(6), 14(6)

SOV/112-59-4-6599

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr: 4, p 30 (USSR)

AUTHOR: Nikonov, A. P.

TITLE: Main Trends in Bettering Heat Utilization and Improving Economy of Regional Condensation-Type Electric Generating Stations

PERIODICAL: Tr. Leningr. inzh.-ekon. in-ta, 1957, Nr 19, pp 108-127

ABSTRACT: Methods for evaluating heat utilization at condensation-type stations are reported, and the influence of various factors upon the station economy is examined. It is pointed out that the following factors have the most important bearing on per-unit investment and electric-energy cost (particularly in the case of a relatively cheap fuel): large capacity of the station, increasing the generating-unit capacity, and increasing the number of hours of utilization of the station installed capacity. Choice of initial steam parameters is determined by the fuel costs and by the capital investment in coal mines and, therefore, should be made according to individual conditions in various areas

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SOV/112-59-4-6599

**Principal Trends in Bettering Heat Utilization and Improving Economy of . . . .**

of the country. For the next 10-15 years, the following steam parameters are recommended (depending on fuel cost): 130 atm, 565°C; 170 atm, 600/650°C; 220 atm, 600-650°C; and 300 atm, 650°C. It is stated that steam reheating is considered not only as a means against moisty steam in the last turbine stages but also as a means to considerably raise the economy of the condensation-type station. Feed-water temperature should be determined for every steam-parameter set.

Soviet editor's note: It is stated that the choice of steam parameters depending on fuel cost is subject to further investigation; undoubtedly, the economic effect of higher steam pressure will be much less pronounced in cheap-fuel areas.

S. M. Sh.

Card 2/2

*trends in reading*  
NIKONOV, A.P., Cand Tech Sci -- (also) "Basic ~~directions~~ *directions* for  
~~the~~ *economic efficiency* power engineering efficiency and ~~of~~ *of*  
condensation electric power stations." Len, 1958, 16 p  
including cover (Min of Higher Education USSR. Len Engineering  
Economics Inst) 150 copies (EL, 27-~~8~~, 111)

ARTYUGIN, I.M.; GRACHEV, Yu.P.; DAVYDOV, L.N.; DOTNIKOV, Ya.P.; KIRPICHEV,  
V.I.; LEVENTAL', G.B.; MELENT'YEV, L.A.; MICHURIN, K.I.; NIKONOV,  
A.P.; SASHONKO, G.I.; STARIKOV, V.G.; PROLOV, V.I.; KHRILEV, L.S.;  
RABINOVICH, A.L., red.; SOBOLEVA, Ye.M., tekhn. red.

[Technical and economic principles of the expansion of heat sup-  
ply engineering in power systems] Tekhniko-ekonomicheskie osnovy  
razvitiia teplofikatsii v energosistemakh. Moskva, Gos. energ.  
izd-vo, 1961. 328 p. (MIRA 1513)

(Heat engineering) (Electric power plants)

KUZNETSOV, Yu.A.; MAKAROV, A.A.; MELENT'YEV, L.A.; MERENKOV,  
A.P.; NEKRASOV, A.S.; TSVETKOV, N.I.; KUZNETSOV, Yu.A.;  
MAKAROVA, A.S.; KARPOV, V.G.; MANSUROV, Yu.V.; SYROV,  
Yu.P.; KHRILEV, L.S.; TSVETKOVA, L.A.; VOYTSENKHOVSKAYA,  
G.V.; YEFIMOV, N.T.; LEVENTAL', G.B.; KHANAYEV, V.A.;  
BELYAYEV, L.S.; GAYN, A.Z.; KARTELEV, B.G.; KRUMM, L.A.;  
LIOPO, T.N.; SVIRKUNOV, N.N.; DRUZHININ, I.P.;  
KONOVALENKO, Z.P.; KHAM'YANOVA, N.V.; SHVARTSBERG, A.I.;  
NIKONOV, A.P.; STARIKOV, L.A.; POFYRIN, L.S.; PSHENICHENOV,  
N.N.; TROSHINA, G.M.; CHEL'TSOV, M.B.; SVETLOV, K.S.;  
SUMAROKOV, S.V.; TAKAYSHVILI, M.K.; TOLMACHEVA, N.I.;  
KHASILEV, V.Ya.; KOSHELEV, A.A.; KUDINOVA, L.I., red.

[Methods for using electronic computers in the optimization of power engineering calculations] Metody prizeneniia elektronno-vychislitel'nykh mashin pri optimizatsii energeticheskikh raschetov. Moskva, Nauka, 1964. 318 p.

(MIRA 17:11)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Energeticheskiy institut. 2. Chlen-korrespondent AN SSSR (for Melent'yev).

NIKONOV, A. P., NIKOLAYEV, A. M., and ZHAVORONKOV, N. M.

"Experimental Verification of the "Two-films" Theory in Absorption Processes."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

NIKONOV, A.P., kand.tekhn.nauk

Concerning the optimum degree of heat regeneration in a GT-25-700  
gas turbine system. Elek.sta. 32 no.4:23-24 Ap '61.

(MIRA 14:7)

(Gas turbines)

TSUKERMAN, R.V., kand.tekhn.nauk; NIKONOV, A.P., kand.tekhn.nauk;  
BYKOV, V.N., kand.tekhn.nauk

Use of the boiler-turbine equipment at electric power plants with  
high parameters. Elek. sta. 32 no. 5:7-12 My '61. (MIRA 14:5)  
(Steam power plants)



TSUKERMAN, R.V., kand.tekhn.nauk; NIKONOV, A.P., kand.tekhn.nauk; BYKOV,  
V.M., kand.tekhn.nauk

Operational reliability of high-pressure boiler and turbine equip-  
ment. Energomashinostroenie 9 no.6:27-30 Je '63. (MIRA 16:9)

NIKONOV, A.P., kand. tekhn. nauk; STARIKOV, L.A., inzh.

Method for choosing effective areas of the application of composite and separate systems of power supply using BESM-2m electronic computers. Teploenergetika 10 no.11:51-55 N '63.

1. Sibirskiy energeticheskiy institut Sibirskogo otdeleniya AN SSSR.

NIKONOV, A.f.

Analysis of the operation of the distribution device of the transmitter of the IFA-57 apparatus. Izv. vuzov. Inst. svyazi. no.16: 115-124 '63. (MIRA 17:10)

1. Leningradskiy elektrotekhnicheskiy institut svyazi im. prof. N.A.Bonch-Bruyevicha.

NIKONOV, A.P., kand. tekhn. nauk; STARIKOV, L.A., inzh.

Mathematical model with a computer for determining the relative effectiveness of central heating. Teploenergetika 12 no.11:57-62 N '65. (MIRA 18:10)

1. Energeticheskiy Institut Sibirskogo otdeleniya AN SSSR.

KUZNETSOV, Yu.A., kand. ekonom. nauk; NIKONOV, A.I., kand. ekonom.  
nauk; NIKONOV, A.I., kand. tekhn. nauk

Use of mathematical modeling techniques in the comparison of  
composite and separate power distribution networks. Elek. sta  
36 no.4:86-87 Apr '65. (MIRA 18:6)

FOLZIK, Palladiy Vasil'yevich; NIKOL'OV, Aleksandr Romanovich;  
KASHTANOV, F., red.

[Preventive maintenance of the power equipment of industrial enterprises] Planovo-predupreditel'nyi remont energeticheskogo oborudovaniia promyshlennykh predpriatii. Minsk, Belarus', 1964. 125 p. (MIRA 18:4)

NIKONOV, A.V., izh.

Data on air pollution in welding in an atmosphere of carbon dioxide.  
Sudostroenie 28 no.5:45-58 My '62. (MIRA 15:7)  
(Protective atmospheres) (Air- Pollution)

YEFROIMOVICH, Yu.Ye.; MARINUSHKIN, A.M.; TSUKANOV, V.P.; SHIKOV, I.P.;  
NIKONOV, A.Y.; KABLUKOVSKIY, A.F.; KOTIKOV, A.N.; KOLCHAKOV, V.A.;  
VINogradov, V.M.; GENISHT, Ye.S.

VU-5086 computer and high-speed electronic automatic controller for  
regulating power supply to electric arc furnaces. Prem. energ. 18 no.7:  
7-8 J1 '63. (MIRA 16:9)

(Electric furnaces)



L 11219-66 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) DIAAP  
ACC NRT AP605526 SOURCE CODE: UR/0009/66/020/001/0063/0065

AUTHOR: Klimenkov, V. B.; Nachiporuk, V. A.; Kopchinskiy, G. A.; Yaroshevich, V. F.; Strutsinskiy, V. A.; Popov, V. D.; Nikonov, A. V.

ORG: none

46

TITLE: Test stand at the Institute of Physics AN UkrSSR

B

SOURCE: <sup>19</sup>Atomnaya energiya, v. 20, no. 1, 1966, 63-65

TOPIC TAGS: nuclear engineering, nuclear reactor, reactor fuel element, test stand

ABSTRACT: A test stand for critical assemblies was put into operation at the Institute of Physics AN UkrSSR at the end of 1964. The installation uses assemblies of fuel elements of the VVR-M research reactor; the moderator is ordinary water; the side reflector is made from the beryllium reflectors of the VVR-M reactor. The stand is located in a separate building. The radioactive zone is separated from the control panel by one meter of concrete shielding. The installation is equipped with sensitive monitoring and measuring systems as well as with systems for automatic and remote control. All precautions have been taken to assure reliable nuclear

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ACC NR: AP6005535

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safety and automatic control of the critical assemblies. A dc amplifier is connected to a galvanometer for monitoring currents in the ionization chamber down to  $10^{-12}$  amp. Two recording potentiometers and a pulse rate counter are used for monitoring the power level. The instruments give reliable readings below the subcritical power level. Automatic control of the process is possible during operation at a power of more than 0.03 w which corresponds to an average thermal neutron flux of about  $0.4 \cdot 10^6$  neutrons/cm<sup>2</sup>·sec. The automatic regulator consists of two KNK-56 ionization chambers connected in parallel, a potentiometric power controller with a high impedance input and a steel absorber, an electronic amplifier and an amplidyne. This automatic regulator is extremely convenient for operation with critical assemblies. It may be used for rapid compensation of a chain reaction at "zero" power levels and for calibration of control rods. The unit increases work safety and accuracy of holding a constant power level when detectors are activated. In addition to the steel absorber in the automatic regulator, chain reaction may be controlled by two or three boron remote control rods. An emergency signal automatically brings these rods together with three emergency safety rods into the radioactive zone of the assembly. All control and safety rods are moved by servo drives which are connected to solenoids and position indicators. Operational experience at

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ACC NR: AP6005535

the Institute of Physics has shown that the test stand is a versatile tool which  
may be conveniently used for experimental research in physics and nuclear engineer-  
ing. Orig. art. has: 4 figures. [14]

SUB CODE: 18/

SUBM DATE: 28Jul66/

ATD PRESS: 4195

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Card 2/3

S/135/62/000/009/001/004  
A006/A101

**AUTHORS:** Shrayerman, M. R., Candidate of Technical Sciences, Nikonov, A. V.,  
Engineer

**TITLE:** The effect of the conditions of semi-automatic welding in carbon  
dioxide upon the mechanical properties of the weld metal

**PERIODICAL:** Svarochnoye proizvodstvo, no. 9, 1962, 19 - 22

**TEXT:** The cooling rate of the weld and weld-adjacent metal was taken as the  
basic criterion to determine the dependence of their mechanical properties on the  
welding conditions. Grade 09Г2 (09G2) and CX7-4 (SKhL-4) steel 20 mm thick,  
were multi-pass welded with 1 mm diameter C808Г2C (Sv-08023) wire. Mechanical  
tests show that the mechanical properties of the weld metal and the weld-adjacent  
zone depend upon the welding conditions. This dependence is illustrated by a  
series of graphs. The mechanical properties can be regulated in a wide range. When  
Sv-08023 wire is used, and proper welding conditions are employed, the weld metal  
strength may equal that of the base metal in steels with a yield limit up to  
45 kg/mm<sup>2</sup>. Stability of the welding process, and satisfactory seam formation are  
assured by welding in carbon dioxide with 1.0 and 1.2 mm wire, at 80 - 170 amps  
and 120 - 200 amps current intensity and 6 - 26 and 8 - 26 m/hour welding speed.  
Card 1/2

TIMOSHENKO, V.V.; MARTYNISHKIN, A.M.; TSUKANOV, V.P.; GARGO, Ya.V.;  
SHIKOV, I.P.; NIKOBY, A.Y.; POSTNIKOV, V.P.; KOROLEV, G.D.;  
ARTAMONOV, A.N.; TEMNIKOV, S.N.; KABLUKOVSKIY, A.F.; MAKHOV, A.Kh.;  
KOTIKOV, A.Kh.; ZNAMENSKIY, B.A.; ZUYEV, T.L.; KOZDNYAKOV, A.P.;  
BALASHOV, S.A.; YEREMIN, I.P.

New design of electrode holders for electric-arc smelting furnaces.  
Prom. energ. 15 no.8:13-14 Ag '60. (MIRA 15:1)  
(Electric furnaces)

NIKONOV, N.N.

Synchronous starting of S<sup>1</sup> and S<sup>2</sup> series electric sections.  
Elek. i topl. tsiaga 2 no.12:24-27 D '58. (MIRA 12:1)

1. Moshal'nik elektroshe Nesyayansk, Kuybyshevskaya doroga.  
(Electric railroads) (Railroad motorcars)

NIKONOV, B.N.; VISIN, N.G., kand. tekhn. nauk

Experience of synchronous starting of  $S^r$  and  $S^r$ -series electric sections.  
Elek. i topl. tiaga § no.3:14-15 Nr '61. (MIRA 14:6)

1. Nachal'nik elektredpo Besymyanka Kuybyshevskoy dorogi (for Nikonov).  
(Railroad motorcars)

SOV/112-57-5-10958

9 (3)

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 5, p 201 (USSR)

AUTHOR: Nikonov, B. P.

TITLE: Radioactive-Tracer Study of Oxide-Coated Cathodes  
(Issledovaniye oksidnykh katodov metodom radioaktivnykh indikatorov)

PERIODICAL: Tr. n.-i. in-ta, M-vo radiotekhn. prom-sti SSSR, 1956,  
Nr 1 (29), pp 3-16

ABSTRACT: Vaporization of Ba and Sr oxides from oxide-coated cathodes was investigated depending on the coating composition, the current density, the duration of operation, and the temperature. The investigation was conducted by means of radioactive isotopes Ba140 and Sr80 added to the carbonates during their deposition by ordinary methods; in the case of a double carbonate either Ba or Sr was tagged. The specific activity of carbonate was so proportioned that the determination of  $10^{-7}$ - $10^{-8}$  g of the substance could be secured. A construction of experimental tubes is described in which the vaporized oxides were collected by movable targets suitable to be placed into a counting

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SOV/112-57-5-10958

**Radioactive-Tracer Study of Oxide-Coated Cathodes**

outfit. After the oxides had been sprayed on the targets, the tubes were opened, cathodes were treated with 5% acetic acid; Ba and Sr deposited as sulfates were transferred onto "chemical targets" for quantitative evaluation in a counting outfit. It was found that the rate of BaO and SrO evaporation is independent of the current density up to 2 amp/cm<sup>2</sup>; this indicates the possibility of collecting high-current densities from oxide-coated cathodes on pure Ni base; this also indicates a small proportion of ionic current in the oxide coating. The above fact shows that the free alkali-earth metal remains in the oxide layer, and that the electrolytic activation should be more correctly interpreted as a process of recombination of fast electrons with Ba ions. With the same cathode conditioning, BaO vaporizes 30-40 times faster than SrO, the latter having practically constant rate of evaporation during the cathode service. On the other hand, the rate of evaporation of BaO falls off rapidly with time; after 120 hours this rate is 50-60 times lower than the initial rate ( $8 \times 10^{-3}$  mg/cm<sup>2</sup> hour). From the above data, the latent heat of vaporization was computed for SrO

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SOV/112-57-5-10956

9 (3)

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 5, p 201 (USSR)

**AUTHOR:** Nikonov, B. P.

**TITLE:** New Materials for Oxide-Coated Cathode Base  
(Novyye materialy dlya kernov oksidnykh katodov)

**PERIODICAL:** Tr. n.-i. in-ta, M-vo radiotekhn. prom-sti SSSR, 1956,  
Nr 1(29), pp 17-33

**ABSTRACT:** Choice of an efficient addition to the Ni base of an oxide-coated cathode to obtain high-emission stable characteristics has been made on the basis of the available data about the following: the reductibility of various elements with regard to BaO, their vaporizability, and the characteristics of a layer formed on the boundary of the base-oxide layer. Investigations of the activation process, cathode stability, and cathode service life were conducted for pure electrolytic Ni base and for bases made from Ni with addition of Si, Ti, Al, Mg, Th, Ba, Ca, and W; the investigations were conducted with a special end-cathode tube having a water-cooled Mo var anode. Cathode

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SOV/112-57-5-10956

**New Materials for Oxide-Coated Cathode Base**

temperature was measured by a chromel-alumel thermocouple. Activizing effect of the addition was evaluated in terms of time required to reach the maximum cathode activity. Cathode stability during its life test (850° C, 100 ma/cm<sup>2</sup>) could be judged on the basis of the cathode-underheating characteristic, sparking current under pulse conditions (2 microsec), and the characteristic temperature ( $\theta$ ). With pure Ni, a satisfactory activation was obtained only for the case of the filament annealed in hydrogen and the cellulose nitrate present in the oxide layer. Tests with various additions showed that the best results can be obtained with filament of Ni-Ca alloy (0.1-0.2%); this filament base is recommended for heavy-current cathodes. Besides that, good results were obtained with filaments from Ni-Ca (0.1-0.2%) and W (3-5%) alloy, also with an increased content of W (10-12%) alloys for thin directly heated cathodes. The methods for preparing tubing from the above alloys are being developed by the Giprotsvetmetobrabotka Institute. Bibliography: 8 items.

Ye.S.S.

Card 2/2

*НИКОНОВ, Б. П.*  
AUTHORS: Nikonov, B.P. and Tsarev, B.M.

109-3-2/23

TITLE: Investigation of nickel Alloys for Oxide Cathode Cores  
(Issledovaniye nikelovykh splavov dlya kernov oksidnykh katodov)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol.III, No.3, (March)  
pp. 313 - 321 (USSR).

ABSTRACT: An attempt is made to find such reducing agents which, when added to the core of an oxide cathode, will readily evaporate from the cathode nickel at the activation temperatures and will produce compounds (at the boundary between the oxide layer and the core) having conductivity approximately equal to that of the oxide layer. An estimate of the reducing properties of various elements with respect to the oxides of rare metals can be done on the basis of the free energy of the chemical reaction involved. Such estimates were made by A. White (Ref.4) for certain oxide cathode reactions; similar calculations were made by the authors for a large number of the reactions (Ref.5). The resulting data are indicated in Table 2, which shows the value of the free energy, the equilibrium constants and the vapour pressure of barium during the thermal dissociation and reduction of barium by Ni, W, Si, Ti, Al, Mg, Th, Ca and Sr. The table shows that very low barium vapour

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100-3-2 '23

## Investigation of Nickel Alloys for Oxide Cathode Cores

pressures are obtained during the thermal dissociation so that these pressures can produce the concentration of free metal in an oxide layer of the order of  $10^{-14}$  or  $10^{-13}$  at the normal operating temperatures of the cathode. This quantity of the free metal is much lower than that necessary for the activation. Further data on the reaction between oxide layer and the core are shown in Fig.8; these were taken from a work by A. Eisenstein (Ref.8). From the above, it is concluded that from amongst the various metals, only Ba, Sr and Ca have the necessary evaporation rate, satisfactory reducing properties and low inter-face resistance. Some experimental measurements were also carried out to investigate the problem more satisfactorily. The first series of experiments were done on thermionic diodes having flat cathodes and Kovar anodes. The temperatures of the cathode were measured in each tube by means of a thermocouple. The cathodes had a diameter of 5 and 3.6 mm, were made of nickel tape, and were coated with double carbonate. The thickness of the coating was 100 to 220  $\mu$ . Two types of the experimental tubes are shown in Figs. 2 and 3. The characteristics of the tubes were measured by means of pulses having 2.2  $\mu$ sec. duration and 100 p.p.s. repetition rate. The results

Cards

## Investigation of nickel Alloys for Oxide Cathode Cores

109-3-2/23

are reported in Tables 3, 4, 5 and 6 and in Figs. 4 to 8. From Tables 4 and 5, it follows that Ca and Sr activate the cathode very satisfactorily, while W is less satisfactory; practically no activation can be obtained on a pure nickel. Figs. 6 show the change of the emission current as a function of time for nickel-cathodes with the following admixtures: 1) Ca; 2) Si; 3) W; 4) Mg, and 5) pure electrolytic Ni. From these, it follows that the tubes fitted with a Ni-Ca cathode core give the highest stable currents, while the tubes fitted with other types of cores have comparatively low emission currents which can be attributed to either their poor activation properties or high inter-face resistance, or both. Figs. 7 and 8 show the mutual conductance of two commercial tubes which were fitted on the following types of cathodes: a) Ni-Ca; b) Ni-W, and c) Ni-Si. The above investigation showed that the inclusion into the Ni core of an oxide cathode of such admixtures as Ca and Sr is highly desirable, since it leads to an improvement in the cathode characteristics; the cathodes can easily be activated, have a comparatively low inter-face resistance and give a stable emission. There are 8 figures, 6 tables and 11 references, 8 of which are English and 3 Russian.

Card 3/4

NIKONOV, B.P.

AUTHORS: Nikonov, B.P. and Starodubov, I.P.

109-3-17/23

TITLE: ~~Evaporation~~ of Calcium from the Core into the Oxide Layer  
(Ispareniye kal'tsiya iz kerna v oksidnyy sloy)PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol.III, No.3,  
pp. 430 - 431 (USSR).

ABSTRACT: The investigation described was carried out by a method analogous to that used by Ptushinskiy (Ref.1). A nickel cathode containing 0.05% Ca was used in the investigation. The cathode was in the form of a cup whose top wall was coated with the double carbonate to a thickness of 140 - 150  $\mu$ . The cathodes were de-gassed at a low temperature and then kept in vacuum at a temperature of 1 000  $^{\circ}$ C. The experimental tubes were then dismantled and the oxide coating was cut into slices of 10  $\mu$  thickness. The amount of calcium evaporated into the oxide layer as a function of the heating time at 1 000  $^{\circ}$ C is shown in Fig.1. From this, it is seen that the amount of calcium is a logarithmic function of time; this is also confirmed by plotting the curve of Fig.1 to the logarithmic scale as shown in Fig.2. The penetration of calcium into the barium layer is illustrated by the curve of Fig.3, from which it follows that nearly all the evaporated calcium is concentrated in the layer nearest to the core; this layer has a thickness of about 10  $\mu$ .

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Evaporation of Calcium from the Core into the Oxide Layer 109-3-17/23

At a distance of 40 to 50  $\mu$  from the core, the relative amount of calcium is only 1 to 2%.

There are 3 figures, 1 table and 1 Russian reference.

SUBMITTED: May 31, 1957.

AVAILABLE: Library of Congress  
Card 2/2



NIKONOV, B.P.

109-5-18/23

AUTHORS: Dzantiyev, B.G., Miller, V.B. and Nikonov, B.P.

TITLE: Evaporation of Barium and Strontium Oxides from an Oxide Cathode (Ispareniye oksidov bariya i strontsiya s oksidnogo katoda)

PERIODICAL: Radiotekhnika i Elektronika, 1958, vol.III, No.3, pp. 431 - 433 (USSR).

ABSTRACT: The investigated cathodes were coated with the double carbonate containing radio-active traces Ba<sup>140</sup> and Sr<sup>89</sup>. The carbonates were deposited on to the cores of electrolytic nickel by spraying and had a thickness of 100  $\mu$ . The active surface had an area of 0.2 cm<sup>2</sup>. The investigation was carried out at various cathode temperatures (745 - 1300 °C), at various anode current densities (up to 2.2 A/cm<sup>2</sup>) and over varying periods of operation. The relationship between the evaporation of the oxides and the current density is shown in Fig.1, where the abscissae represent the current density and the co-ordinates give the amount of the evaporated oxides in %. The percentage of the evaporated oxides as a function of time is given in Fig.2; the curves were taken at a temperature of 1040 °C and at a current density of 0.75 A/cm<sup>2</sup>. Fig. 3 shows the amount of the evaporated oxides as a function of the cathode temperature; the Card1/2 curves were taken after a 20-hour operation of the cathodes

109-3-18/23

Evaporation of Barium and Strontium Oxides from an Oxide Cathode

from which no current was drawn. From the above figures, it is seen that the evaporation of barium is more intense than that of strontium. Thus, at a temperature of 1 200 °C, nearly 90% of barium and only 10% of strontium is evaporated after a 20-hour operation. The authors express their thanks to Professor M.B. Neyman and B.M. Tsarov for their help and discussions. There are 3 figures and 5 references, 1 of which is Russian.

**SUBMITTED:** May 31, 1957

**AVAILABLE:** Library of Congress  
Card 2/2

SOV/109-3-8-10/18  
AUTHORS: Nikonov, B.P., Tarash, I.L. and Tsarev, B.M.  
TITLE: Influence of the Temperature and Core Material on the  
Life of an Oxide Cathode (Vliyaniye temperatury i  
materiala kerna na dolgovechnost' oksidnogo katoda)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 5, Nr 8,  
pp 1043 - 1045 (USSR)

ABSTRACT: The investigations described were carried out on tubes,  
type 6Zh1P, the cathode temperatures being 780, 820 and  
850 °C. The cores of the tube cathodes were either of  
pure, electrolytic nickel, nickel with admixture of  
strontium or nickel with tungsten. The chemical compo-  
sition of these core materials is shown in the table  
on p 1043. The cathodes of the tubes were coated with  
the triple carbonate of the standard composition and the  
tubes were mounted, pumped and activated by the usual,  
standard technique. The experimental results are shown  
in Figures 1, 2, 3 and 4. The curves of Figure 1 show  
the emission current as a function of time for the three  
cathode temperatures. The curves of Figure 2 represent  
the slope of the tubes as a function of time for the  
above three temperatures. Figure 3 shows the current of

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SOV/109-3-8-10/18

Influence of the Temperature and Core Material on the Life of an Oxide Cathode

the tubes as a function of time for the three core materials, while figure 4 shows the current for various temperatures for the nickel-strontium cathode. From the investigation, it is concluded that long life in the tubes can be secured by running the cathodes at a comparatively low temperature (750 - 780 °C). It was also found that the amount of an activator in the cathode core should be small but it must be sufficient to permit an adequate activation of the cathode. There are 4 figures and 7 references, 6 of which are Soviet and 1 English.

SUBMITTED: January 29, 1958

Card 2/2

1. Oxide cathodes--Life expectancy
2. Oxide cathodes--Materials
3. Oxide cathodes--Temperature factors
4. Oxide cathodes--Test results

5.2400

25973

S/539/60/000/031/006/014

EO71/E135

**AUTHORS:** Nikonov, B.P., and Smoktiy, L.Ya.

**TITLE:** The reduction of sulphate and selenites with hydrogen

**PERIODICAL:** Moscow. Khimiko-tekhnologicheskii institut. Trudy. No.31, 1960. Issledovaniya v oblasti khimii i tekhnologii elektrovakuumnykh materialov. pp. 46-49

**TEXT:** In connection with the investigation of thermo-emission and other properties of sulphides and selenides of alkali earth elements there was a necessity for the preparation of these materials free from impurities. The usual method of preparation is based on the reduction of corresponding sulphates, selenites and tellurites with hydrogen. As the literature data on the conditions of reduction are contradictory, the authors carried out an investigation of the reduction process of the above salts with hydrogen. Chemically pure  $\text{BaSO}_4$  and  $\text{CaSO}_4$  as well as salts prepared in the laboratory from alkali earth nitrates, ammonium sulphate and selenous acid (chemically pure) were used for the experiments. The precipitation of sulphates was done from hot

Card 1/3

K

25976

8/559/60/000/051/007/014  
E075/E355

9.3.20

**AUTHORS:** Kevtunenke, P.V., Kondakov, B.V. and Nikonov, B.P.

**TITLE:** On Disturbing the Stoichiometry of Calcogenides of Alkali Earth Metals During Heat-treatment in Vacuo

**PERIODICAL:** Moscow. Khimiko-tehnologicheskii institut. Trudy. No. 51. Moscow, 1960. Issledovaniya v oblasti khimii i tekhnologii elektrovakuumnykh materialov, pp. 50 -54

**TEXT:** Using a method of T.P. Berdennikov a quantitative determination was made of the non-stoichiometric barium forming in barium oxide, sulphide and selenide during heat-treatment in vacuo. It was found that under otherwise equal conditions the concentration of the non-stoichiometric barium increased in the following order: BaO; BaS and BaSe. According to data published by V. Grattidge and G. John in Ref. 1 (Russian translation published in Sb. Problemy sovremennoy fiziki, IL, 5, 113, 1954) and B.P. Nikonov and

Card 1/3

25974  
S/539/60/000/031/007/014  
E073/E355

On Disturbing ....

V.A. Smirnov in Ref. 2 (Voprosy radioelektroniki, Part. 1, Vol. 4, 110, 1960), the emission properties of these substances decreased in the same order. The authors investigated the temperature dependence of the concentration of non-stoichiometric barium. They found that barium oxide showed a peculiar behaviour. Whilst in barium sulphide and barium selenide the concentration of the stoichiometric barium increased sharply, it hardly increased at all in barium oxide in the investigated temperature range and even showed a slight decrease if the temperature were raised above 800 °C. An optimum concentration of residual barium was observed only in barium oxide and this was probably due to a change in the composition of the evaporation products in vacuo during heat-treatment; this problem requires further study. The obtained experimental results show that the nature of the emission centres in oxide cathodes is more complex than a simple disturbance of the stoichiometry.

Card 2/5

15.2620

2640  
S/076/61/035/007/010/019  
B127/B208AUTHORS: Nikonov, B. P., and Otmakhova, N. G.

TITLE: Evaporation of chalcogenides of alkaline earth metals

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 7, 1961, 1494-1498

TEXT: The authors studied the evaporation rate of chalcogenides of alkaline earth metals, used for manufacture of thermionic emitters working at high temperatures. The effusion method was used for this study. The evaporation rate was calculated by the following formula:

$$g_{1,2} = \frac{i}{2} \left\{ 1 + \left( \frac{d_2}{d_1} \right)^2 + 4 \left( \frac{h}{d_1} \right)^2 - \sqrt{\left[ 1 + \left( \frac{d_2}{d_1} \right)^2 + 4 \left( \frac{h}{d_1} \right)^2 \right]^2 - 4 \left( \frac{d_2}{d_1} \right)^2} \right\} \quad \text{or}$$

$g_{12} = d_2^2 / (d_2^2 + 4h^2)$ , when  $d_1 \ll d_2$ .  $d_1$  is the diameter of the effusion hole,  $d_2$  the diameter of the diaphragm and  $h$  the distance between the two.

Card 1/6



8340

S/076/61/035/007/010/019  
B127/B208

## Evaporation of chalcogenides...

The bottom of the effusion chamber was covered with 5-7 mg alkaline earth sulfate, -carbonate, or -selenite which contained radioactive Ba<sup>-140</sup> or Sr<sup>-89</sup>. A stream of pure dry hydrogen was passed through the effusion chamber at a pressure of 760 mm Hg and a temperature of 30°C, in which the sulfates and selenites were reduced to the corresponding sulfides and selenides. Barium sulfate was roasted at 950-1000°C for 20-25 min, barium and strontium selenites, however, at 600-620°C for 30-40 min. The hydrogen was then evacuated, and the apparatus was kept for two hours at a temperature of 450°C. The evaporator was dehydrogenated at 700-1150°C (BaO), 700-1300°C (BaS), and 600-900°C (BaSe, SrSe) within 30-40 min with an extraction time of 2-3 min at the same temperatures. The substances were evaporated at 1100-1600°K with several hours. The presence of BaO on the parts of the apparatus was not observed during its evaporation, which was however the case with BaS, BaSe and SrSe. Results of measurement: For the evaporation rate of BaO the authors found  $\log w(\text{g}/\text{cm}^2.\text{sec}) = 7.7 - 20,000/T$  and for the vapor pressure,  $\log p(\text{mm Hg}) = 9.6 - 20,000/T$ . Fig. 2 shows the evaporation rate as a function of temperature, Table 1 presents various

Card 2/6

26360

9/076/61/035/007/010/019  
B127/B208

Evaporation of chalcogenides...

results. Table 2 gives the calculated results, according to which all compounds studied except BaO evaporate under dissociation into the atoms. There are 2 figures, 2 tables, and 20 references: 6 Soviet-bloc and 14 non-Soviet-bloc. The three most recent references to English-language publications read as follows: Ref. 6: R. I. Ackermann et. al.: J. Chem. Phys., 25, 1089, 1956; Ref. 16: P. W. Bickel et. al.: J. Chem. Phys. 22, 1793, 1954; Ref. 17: M. G. Inghram et. al.: J. Chem. Phys., 23, 2159, 1955.

SUBMITTED: October 16, 1959

Card 3/6

KISELEV, A.B.; NIKONOV, B.P.

Activation of alkaline earth oxides in a vacuum by passage of  
electric current. Radiotekh. i elektron. 7 no.9:1585-1592 S '62.  
(MIRA 15:9)

(Cathodes) (Alkaline earth oxides)

226th-65  
EPP(o) WH/CD/JG/MLK/AT  
EPI(1)/EPI(2)/EPI(ep)-2/EPI(n)-2/EPI(w)-2/T/EPI(t)/EPI(b) Ps-4/Pab-10

8/0000/ea/000/000/0188/0192

ACCESSION NR: AT5002779

AUTHOR: Kuleshova, T. F. ; Nironov, B. P.

TITLE: The use of rhenium as a base material for oxide cathodes

SOURCE: Vsesoyuznoye soveshchaniye po problemam fiziki. 2d. Moscow, 1962. Rany  
Rhenium; trudy soveshchaniya Moscow, Izd-vo Nauka, 1964, 186-192

SYNOPSIS TAGS: rhenium, oxide cathode, electrode material, alkaline earth oxide,  
rhenium oxide, rhenium electrode, magnetron, rhenium mechanical property

ABSTRACT: The authors studied the reactions of rhenium with alkaline earth oxides in  
a vacuum and the properties of rhenium-base oxide cathodes. The interaction of rhenium  
with strontium oxide in a vacuum was studied by measuring the rate at which strontium  
oxide was reduced at 1000-1300C. It was

... cathodes, determined the optimum composition of the cathode and investigated the stability of their thermionic and secondary emission characteristics.

1/2

16th 65

REF ID: A7500379

... cathodes were studied. The results show that the use of a  $\text{Ca}^{2+}$  base is very advantageous for the very high temperature of nickel-base cathodes. For this reason, and also because of the high strength of cerium at temperatures above 1000°C, its low volatility, and good wettability, cerium is included in the base material composition. The results show that a cerium-yttrium-nickel base is now used. Original base: 5.0% cerium and 2.0% yttrium.

ORIGINATOR: none

DATE: 05Aug64

CLASS: UNCL

GROUP: MOD

REF ID: 014

EXTENSION: 005

011-09 28T(8)/I/ent... 2.01e 0-4/01/01/A \*

ACCESSION NR. AT5002780 S. 0000 64 000. 000. 0190/0190

AUTHOR: Kiselev, A.B., Nikonov, B.P.

TITLE: The use of rhenium and its alloys in electronic vacuum devices

SOURCE: sesoyuznoye soveshchaniye po problemam renya. 23. Moscow, 1962. Renty  
Rhenium study soveshchaniya. Moscow, Izd-vo Nauka, 1964, 193-199

TOPIC TAGS: rhenium, rhenium alloys, rhenium electrode, barium rhenium cathode, thermionic emission, tungsten alloy, rare earth oxide, coated cathode

ABSTRACT: The article reviews the applications of rhenium and its alloys in cathode electronics and their use as structural parts of electronic devices, etc. The properties of rhenium as a thermionic emitter are discussed and compared to those of tungsten, tantalum, and molybdenum. The emissive properties of rhenium barium cathodes are described. The uses of rhenium as base material for high-temperature cathodes are treated at length; the thermionic emission characteristics of rhenium-, tantalum-, niobium-, and molybdenum-base cathodes coated with thorium oxide, yttrium oxide, cerium oxide, and europium oxide are compared. Rhenium is also discussed as a field emitter, and as a material for heating elements when it is alloyed with tungsten.

13015-65

ACCESSION NR: AT5002780

The emission properties of barium-rhenium cathodes were measured by V N Dmitriy-  
ev. Orig art. has: 2 figures and 4 tables.

ASSOCIATION: none

SUBMITTED: 06Aug64

ENCL: 00

SUB CODE: MM, EC

NO REF SOV: 021

OTHER: 000

ACCESSION NR: AP4017601

S/0109/64/009/002/0308/0316

AUTHOR: Smirnov, V. A.; Nikonov, B. P.

TITLE: Emission and adsorption characteristics of BaO-Ba system

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 308-316

TOPIC TAGS: BaO Ba cathode, oxide cathode, activated oxide cathode, BaO Ba cathode adsorption, BaO Ba cathode emission

ABSTRACT: An experimental investigation of the emission and adsorption of BaO-Ba at 550-1,150K in a constant Ba stream of  $10^6$ - $10^{10}$  atoms/cm<sup>2</sup> sec is reported. The structure and preparation of the test device are described in detail. The surface of naturally activated BaO is almost entirely covered with Ba; however, a small additional Ba spraying (up to  $1.5 \times 10^{13}$  atoms/cm<sup>2</sup>) results in a further reduction of the work function (by 0.3-0.4 ev), with a corresponding reduction of Ba evaporation heat from 3.9 to 2.4 ev. According to an

Card 1/2



**ACCESSION NR: AP4017601**

approximate evaluation, BaO in a constant Ba stream can be practically used as a thermoelectron emitter only within 900-1,100K and with a Ba stream of  $10^{-10}$  g/cm<sup>2</sup> sec. Similar to W in a Cs or Ba stream, the emission from BaO in a Ba stream depends on the temperature. "The authors feel indebted to N. D. Morgulis and A. R. Shul'man for valuable discussions." Orig. art. has: 4 figures and 5 formulas.

**ASSOCIATION: none**

**SUBMITTED: 28Dec62**

**DATE ACQ: 18Mar64**

**ENCL: 00**

**SUB CODE: GE, PH**

**NO REF SOV: 012**

**OTHER: 006**

Card 2/2



65-65

SESSION NR. AP4046684

emission currents within 240-5000, were measured. The work function was computed from  $I_e = A_0 T^2 e^{-\phi/kT}$  where  $A_0 = 120.4 \text{ amp/cm}^2 \text{-deg}^2$ ,  $\phi$  is the work function at a temperature T. Work function values determined by the above method and by the conventional emission method proved to be practically equal.  $\phi$  can be computed from these formulas:  $\phi = (1.6 \pm 0.05) + (5 \pm 1) \times 10^{-4} T$  for  $(\text{Ba,Sr})\text{O}$ ,  $\phi = (1.2 \pm 0.05) + (5 \pm 1) \times 10^{-4} T$  for  $(\text{Ba,Sr,Ca})\text{O}$ . The partial oxygen pressure in the residual gases which cause cathode poisoning was approximately determined (table supplied).

Orig. article has 4 figures and 1 table.

ASSOCIATION: none

COMPLETED: 24Jun63

ENCLOSURE

CODE: EC

NO REF SOV: 000

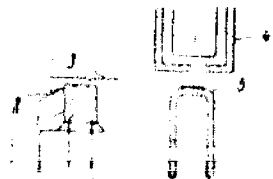
OTHER: 008

4-013

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ACCESSION NO: AP4046684

-- ENCLOSURE 1



Elements of the experimental tube

- 1 - cathode
- 2 - thermocouple
- 3 - flap anode
- 4 - movable electron gun
- 5 - tungsten tape

Card 1/1

REF ID: A65 EWP(e)/EPA(s)-2/ENT(m)/EPF(o)/EPF(n)-2/EXT(m)/EPR/EPA(w)-2/2/  
EPA(bb)-2/EWP(b) Pub-10/Pr-4/Pa-4/Pt-10/Ps-4 IFF(c)  
REF ID: A65  
ACCESSION NR: AP5007093 S/0109/65/010/003/0476/0483

63  
B

AUTHOR: Beynar, K. S.; Nikonov, B. P.

TITLE: Emission and adsorption properties of BaO-Ba, SrO-Ba, and CaO-Ba systems

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 476-483

TOPIC TAGS: <sup>31</sup>BaO-Ba emission, <sup>31</sup>SrO-Ba emission, <sup>31</sup>CaO-Ba emission

ABSTRACT: A further experimental investigation (cf. Rad. i Elektronika, 1964, 2, 2, 104) of the possibility of improving the emission properties of oxide-coated cathodes by introducing Ba from an extraneous source is reported. The experimental tube (see Enclosure 1) consisted of Ba source 1, two diaphragms 2 with 2-mm holes in them, tungsten filament 3 for determination of the Ba-stream

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APR 21 1965  
ACCESSION NR: AP5007093

properties of BaO-Ba, SrO-Ba, and CaO-Ba were investigated at 560-1150K and a Ba stream within  $1.2 \times 10^{11}$  -  $1.6 \times 10^{12}$  at/cm<sup>2</sup> sec. At 1000-1100K, the source evaporated Ba by 3-4 orders of magnitude more than BaO. From the experimental emission data, the work function and its temperature dependence were estimated (fig. 5 and table 2). The data obtained shows that: (1) There is a

ASSOCIATION: none

SUBMITTED: 03Feb64

NO REF SOV: 008

ENCL: 01

OTHER: 004

SUB CODE: EC, MI

Cont 2/3

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ACCESSION NR AP5007093

ENCLOSURE 1

L 3807-66 EWT(m)/ETC/ENG(m)/T DS  
ACCESSION NR: AP5017666

UR/0109/65/010/007/1300/1305  
621.385.735.019.31

19  
B

AUTHOR: Nikonov, B. P.; Kovtunenکو, P. V.

TITLE: Thermal dissociation of alkali-earth-metal chalcogenides and the life of oxide-coated cathodes

SOURCE: Radiotekhnika i elektronika, v. 10, no. 7, 1965, 1300-1305

TOPIC TAGS: oxide coated cathode

ABSTRACT: The results are reported of an experimental investigation of the effect of thermal treatment in vacuum upon the composition of Ba, Ca, Sr compounds with O, S, Se chalcogens. An electrolytically pure nickel base was coated with BaSO<sub>4</sub>, BaSeO<sub>3</sub>, BaCO<sub>3</sub>, CaCO<sub>3</sub>, or SrCO<sub>3</sub> 80-100-micron thick layer and heated to 1050, 850, or 600C. The excess Ba content in BaO was measured before and after its spraying at different temperatures. It was found that vacuum calcination results in the formation of nonstoichiometric compounds

Card 1/2



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ACCESSION NR: AP5017666

with deficient metalloids; the composition and properties of these compounds last as long as the initial chalcogenide is in sufficient supply. Both the initial activation and the preservation of activity under operating conditions are ensured by the process of thermal dissociation. Orig. art. has: 4 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 09Apr64

ENGL: 00

SUB CODE: EC, IC, GC

NO REF SOV: 011

OTHER: 012

Card 2/2

ACC NR: AN6029193

Monograph

UHF

Kudintseva, Galina Alekseyevna; Mel'nikov, Aleksandr Ivanovich; Morozov, Aleksandr Vasil'yevich; Nikonov, Boris Pavlovich

Thermionic cathodes (Termoelektronnyye katody) Moscow, Izd-vo "Energiya," 1966. 367 p. illus., biblio. 7500 copies printed.

TOPIC TAGS: electron tube cathode, thermionic emission, electron emission, emissivity

PURPOSE AND COVERAGE: This book may be used by students studying electronics and also by engineers and technicians concerning with the design of electrovacuum devices and cathode production technology. The book describes the technology of production and basic physical, technological and operational characteristics of various types of thermo-ionic cathodes for vacuum devices such as oxide cathodes, high-temperature cathodes based on the rare earth oxides and thorium oxide, various forms of pressed, impregnated and cell metalloporous cathodes, metalloceramic and boron-coated cathodes and their heaters. Major attention is given to the rational selection of cathodes, their structures, materials and processing methods. Chapters I—IV were written by B. P. Nikonov; V and VII by A. V. Morozov; VI and IX A. I. Mel'nikov; and VIII by G. A. Kudintseva. A. I. Belousov, P. M. Bernshteyn, L. A. Vikman, A. A. Gugin, L. A. Yermolayev, A. B. Kiselev, M. V. Kaganovich, G. M. Kuznetseva, E. V. Lobova, R. A. Makarova, L. M. Navskaya, V. I. Nekrasov, T. M. Novikova, I. A. Neskova, N. M. Ogaleva, S. Ye. Rozhkov, V. Smirnov,

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UDC: 621.385.7

ACC NR: AK6029193

L. Ya. Smokty, and A. Ye. Filippova participated in the experiments described in the book. References follow each chapter.

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ACC NR. AM6029193

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ACC NR: AM6029193

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ACC NR: AM6029193

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AVAILABLE Library of Congress

SUB CODE: 09/ SUBM DATE: 05Apr66/ ORIG REF: 186/ OTH REF: 139

Card 6/6

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 7,  
p 193 (USSR) 15-57-7-10043

AUTHOR: Nikonov, B. S.

TITLE: The Principal Outlines of the Geological Structure and the Oil Potential in the Dzhimdan-Dagi Region on the Eastern Shore of Northern Sakhalin (Osnovnyye cherty geologicheskogo stroeniya i perspektivy neftenosnosti Dzhimdan-Dagi rayona na vostochnom poberezh'ye Severnogo Sakhalina)

PERIODICAL: Tr. Vses. neft. n.-i. geologorazved. in-ta, 1956, Nr 99, pp 88-109

ABSTRACT: The Dzhimdan-Dagi oil region of Sakhalin comprises Tertiary and Quaternary rocks. 1) The Dayekhuriye series (Pg<sub>3</sub>) consists of shales and sandy shales with layers of mudstone and sandstone. Upper Oligocene-lower Miocene molluscs and foraminifers

Card 1/3



15-57-7-10043

The Principal Outlines of the Geological Structure (Cont.)

1954, ser. geol., Nr 5,) within the Eastern Sakhalin anticlinorium. This tectonic zone is distinguished by intense folding of the Tertiary rocks. Faulting has been important, some displacements reaching 2000 m to 3000 m. The author suggests that the Tertiary rocks of this region have very little oil potential. A bibliography with 16 references is appended.

Card 3/3

N. A. Bogdanov

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1000 1000 1000 1000 1000

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1000 1000 1000 1000 1000

(MIRA 1010)

1000 1000 1000 1000 1000

1000 1000 1000 1000 1000

DESYATCHIKOV, B.A., kand. ekon. nauk; GABZAILOV, G.F., kand. ekon. nauk; KADYROV, Z., nauchn. sotr.; ABDUSHUKUROV, T.; KALIYAKIN, P.V., kand. ekon. nauk; FOKIN, A.I., kand. ekon. nauk; BAKIYEVA, R.A., nauchn. sotr.; IHRAGIMOV, M., nauchn. sotr.; KARDASI, A.A., kand. ekon.nauk; KADANER, E.A.; NIKONOV, F.D., nauchn. sotr.; ANTONETS, G.M.; ARTYKOV, A.A., kand. ekon. nauk; TRUSOV, A.N.; OVCHAROVA, M.A., nauchn. sotr.; TSOY, P., nauchn. sotr.; KASHAKIN, P.V., kand. ekon. nauk, otv. red.; DZHAMALOV, O.B., doktor ekon. nauk, red.; ARTYKOV, A., kand. ekon. nauk, red.; DESYATCHIKOV, B.A., kand. ekon. nauk, red.; SHARIFKHODZHAYEV, M., kand. ekon. nauk, red.; DESYATNIK, F.M., red.; GOR'KOVAYA, Z.P., tekhn. red.

[Economics of the machinery manufacture of Uzbekistan] Ekono-  
mika mashinostroyeniya Uzbekistana. Tashkent, Izd-vo AN Uzb.SSR,  
1963. 289 p. (MIRA 16:12)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut ekonomiki.  
(Uzbekistan--Machinery industry)

31939  
8/123/61/000/022/023/024  
A004/A101

1.2300

AUTHOR: Nikonov, G.D.

TITLE: Automatic argon-arc welding of light alloys with consumable electrodes

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 22, 1961, 37-38, abstract 22L236 ("Sudostroyeniye", 1961, no. 7, 44 - 48)

TEXT: The author describes the results of works which were carried out by a welding laboratory on the application of automatic argon-arc welding of aluminum-magnesium alloys with consumable electrodes. Welding was carried out on the modernized standard AIC-500 (ADS-500) welding automatic. The automatic has a sufficiently large regulation range of the electrode feed speed (120-450 m/hr). Its advantage is the possibility of stepless regulation of the numbers of revolutions of the head motor. The author describes the improvements which were achieved when the welder was prepared for operation. In designing the gas-electric torch, special attention was paid to the nozzle shape. He reports on the optimum nozzle shapes for different welding conditions. The stable burning of the arc during gas-electric welding affects the seam shape and depth of fusion to a con-

Card 1/3

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A004/A101

Automatic argon-arc welding ...

considerably greater extent than in submerged electric arc welding. A high stability of the process during argon-arc welding with consumable electrodes is attained on account of the right selection of the arc supply sources. In view of the absence of special welding generators, the GC-500 (GS-500) and GC-300M (GS-300M) generators were modernized. AMr-6 (AMg-6) welding wire was used as addition agent during the welding of AMr-5 B (AMg-5V) and AMr-6 (AMg-6) aluminum magnesium alloys. Prior to welding, the wire was carefully cleaned and chemically treated. It was found by investigating the chemical composition of the seam metal that its magnesium content is on the average by 10% lower than in the base metal and addition material. During the welding, argon of the first grade with a minimum impurity content is used as shielding gas. Good welding results were obtained with argon containing not more than 0.015% nitrogen and 0.01% oxygen. The selected welding conditions fully determine the geometry of the welding seam cross-section. The penetration depth grows with an increase of the welding current and decreases with an increased welding speed. The welding of butt seams without dressing of the edges has a number of advantages. To obtain a reinforced seam of the required shape, the edges are chamfered to an insignificant depth of the sheet in welding metal up to 15 mm thick. The dressing angle affects to a considerable extent the seam quality. A great importance for a good seam forma-

X

Card 2/3

Automatic argon-arc welding ...

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8/123/61/000/022/023/024  
A004/A101

tion has the relative position of the parts of the system gas nozzle - current supply line nipple - component, and also the torch angle of inclination. The author presents parameters of an optimum position of the system parts, and a table of the automatic welding conditions for aluminum-magnesium alloys. He states the results of mechanical tests of welding joint specimens from AMg-58 and AMg-6 materials 3, 5, 8, 10 and 15 mm thick, welded by the automatic-mechanical argon-arc process with consumable electrodes. The strength of the welding joint is on the average 90% of the strength of the base metal for the AMg-6 alloy. Welding joints from the AMg-5V alloy have the same strength as the base metal owing to the use of the AMg-6 welding wire. The author presents a table with comparative data on the costs of welding the AMg-6 alloy of 8 mm thickness. Special fixtures should be used to facilitate the assembly and welding during the automatic welding of light aluminum alloys in big-lot production. There are 5 figures.

N. Alekseyev

[Abstracter's note: Complete translation]

Card 3/3

19753-05 EWT(m)/EPP(c)/ZPP(n)-2/EWA(d)/EWP(v)/T/EPR/EPP(t)/EPP(k)/EPP(b) PP-4/PP-4  
 LJP(c) MJW/JD/IRW  
 S/0135/85/000/001/0024/0026

ACCESSION NR: AP5002889

44  
B

AUTHOR: Nikonov, G. D. (Engineer)

TITLE: Welding of AMg5V and AMg6 alloys in a mixture of argon and helium

SOURCE: Svarochnoye proizvodstvo, no. 1, 1965, 24-26

TOPIC TAGS: welding, aluminum welding, inert atmosphere welding, argon arc welding, helium arc welding/alloy AMg5V, alloy AMg6

ABSTRACT: In view of the decreases in the costs of He, the author investigated its possible use as an inert gas during aluminum welding. Tests showed that the existing equipment for the welding of AMg5V and AMg6 alloys can utilize highly purified helium instead of pure argon. When use of pure helium is desired, a stable welding

... which would be as good as ... of those obtained with pure As. Orig. ...  
... and 3 tablets.

Card 1/2

L. 29953-65

ACCESSION NR: AP6002889

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: MM, IE

NO FILE NOV: 000

OTHER: 000

Card 2/2



37407

8/135/62/000/005/005/007  
A006/A101

18.11.1962

AUTHOR: Nikonov, G. D., Engineer

TITLE: Semi-automatic submerged-arc welding of titanium alloys

PERIODICAL: Svarochnoye proizvodstvo, no. 5, 1962, 30 - 32

TEXT: Welding of titanium alloys with the use of oxygenless flux makes it possible to join plates without bevelling of edges. However, the basic deficiency of this method is its unsatisfactory maneuverability. High efficiency can be combined with maneuverability in semi-automatic welding. Experimental investigations were therefore carried out on semi-automatic welding of 48-OT3 titanium alloy with AN-T1 (AN-T1) and AN-T3 (AN-T3) flux, for the purpose of selecting the necessary welding equipment, stable welding process, conditions for welding plates of various thickness, and for establishing the welding technology. Necessary welding parameters, uniform electrode wire supply to the welding zone, and cooling of the heated welding-torch parts are ensured by the use of the ПШП-10 (PShF-10) semi-automatic machine designed by NIAT. It has a drawing feed-mechanism and represents a pistol equipped with a small-size electric motor and a reductor. The machine was redesigned in such a manner that the

Card 1/2

NIKOLAY, G. I.

USSR/Electricity  
Circuits, Resistance  
Resistance, Electrical

Mar/Apr 49

"A Graphic Method of Calculating Dipoles of Non-Linear Resistance," G. I. Nikolov, 17 pp

"Avtomat i Telemekh" Vol I, No 2, pp 143-15

Mathematical calculation of electric circuits of nonlinear resistances for the case of dipolar excitation is cumbersome and in technical practice is applied with difficulty. Discusses principles of calculating graphically the electrical network of only active positive resistances for the case

41/4910

USSR/Electricity (Contd)

Mar/Apr 49

of dipolar excitation of constant electromotive force.

41/4910

SENGUYEV, M.F., prof.; NIKONOV, G.I., aspirant

Methods of testing corn-ensilage harvesters. Trakt. i sel'khozmasch.  
no.4:28 Ap '59. (MIRA 12:5)

1. Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo  
khozaystva.

(Harvesting machinery--Testing)

NIKONOV, G. I.

Cand Tech Sci - (diss) "Study of the energetics of forage-harvester assembly in the harvesting of corn." Kiev, 1961. 23 pp; with diagrams; (Ministry of Agriculture Ukrainian SSR, Ukrainian Academy of Agricultural Sciences); 150 copies; price not given; (KL, 10-61 sup, 217)

NIKONDV G. K.

USSR

Electrolysis as a means of identifying and isolating the active principles of pharmaceutical plants. G. K. Nikondv (All-Union Inst. Medicinal Plants, Moscow) *Appl. Biochem.* 4, No. 1, 13-18 (1955) — Electrolysis offers a less tedious and complicated means of identification and sepa. of the active principles of medicinal plants than the usual methods. It permits the sepa. of nondissoc. compds., i.e., terpenes, carbohydrates, tans, phyto steroids, etc., from dissocd. compds. The latter compds. of basic and acidic nature can be further sepa. The plants were extrd. with 85-90% alc. when use of water was inadvisable because of poor soly. or deleterious effect upon the extractives. Stainless steel was used as cathode, C as anode. The cathodic diaphragm was cellophane, the anodic, either cellophane or parchment. In case of poor cond. the soln. was cooled. at 40-50 mm. pressure. The cathodic fluid was kept weakly acid by adding from time to time small amts. of HOAc or tartaric acid. Upon completion of dialysis the cathodic fluid was filtered off from pptd. org. salts and cooled. in vacuo to sirupy consistence. The anodic fluid was neutralized with Na<sub>2</sub>CO<sub>3</sub> and evapd. in vacuo to dryness. The fluid left after dialysis in the middle chamber of the app. was cooled. to sirupy consistence. Investigation of the 3 fractions revealed the presence of active principles which were not detected in previous studies. A. S. Mikhlin

*Handwritten:* 1  
*Handwritten:* m  
C. de arensis as new source of pyridine. C. S.  
subsonary. Its structure is shown in Fig. 2. It is  
found identical with pyridine. It was obtained from the  
seeds of C. de arensis. It is one of the products found in  
all parts of the plant. A method for its preparation and  
its structure, p. 204. Its structure is shown in Fig. 2.  
pyridine derivatives is described. After treatment of the plant  
ppid. with p. 204.

NIKONOV, G.K., kandidat khimicheskikh nauk

Chromatographic method of separating substances on paper; brief  
review. *Spt.delo* 5 no.5:30-34 S-O '56. (MLBA 9:11)

I. Vsesoyuznyy institut po issledovaniyu lekarstv i aromaticeskikh  
rastenii.  
(CHROMATOGRAPHIC ANALYSIS)

NIKONOV, G.K. (Moskva)

Paper chromatographic separation of alkaloids; brief survey. *Apt. dele 6 no.2:64-68 Nr-Ap '57.* (NIRA 10:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekerstvennykh i aromatischeskikh rasteniy.  
(ALKALOIDS) (CHROMATOGRAPHIC ANALYSIS)



~~NIKONOV, G.K.~~

Paper chromatography of glycosides. Apt. delo 7 no.2:86-89 Mr-Ap '58.  
(GLYCOSIDES--ANALYSIS) (MIRA 11:4)  
(CHROMATOGRAPHIC ANALYSIS)

NIKONOV, G.K.

Paper chromatography of natural derivatives of - and -benzopyrone  
and tanning materials. Med.prom.12 no.3:16-21 Nr '58. (MIRA 11:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy lekarstvennykh i  
aromaticheskikh rasteniy.

(TANN: 3 MATERIALS--ANALYSIS) (BENZOPYRONE--ANALYSIS)  
(CHROMATOGRAPHIC ANALYSIS)

NIKONOV, G.K.

Photodimerization of furocoumarins. Zhur. ob. khiz. 34 no.8:  
2815-2816 Ag '64. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromaticeskikh rasteniy (VILAR).

NIKONOV, G.K.

Chemical study of the alkaloids of *Masckia amurensis* Rupr. et Maxim.  
Trudy VILAR no. 11:38-45 '59. (MIRA 14:2)  
(LEGUMINOSAE) (ALKALOIDS)

NIKONOV, G.K.

Extraction of cynarin, a tridypride of caffeic and quinic acids,  
from the blossoms and roots of Arnica montana L. Trudy VILAR  
no. 11:169-173 '59. (MIRA 14:2)  
(ARNICA) (CYNARIN)

NIKONOV, G.K.

Furocoumarins as a group of substances of vegetable origin with  
an anticancerous action. Trudy VILAR no. 11:180-201 '59.

(MIRA 14:2)

(FUROCOUMARIN) (CANCER RESEARCH)

NIKONOV, G.K.; BAN'KOVSKIY, A.I.

Rapid method for the qualitative detection of alkaloids in plants.  
Trudy VILAR no. 11:296-300 '59. (MIRA 14:2)  
(ALKALOIDS) (INDICATORS AND TEST PAPERS)

NIKONOV, G.K.

Chromatography of alkaloids on paper. Trudy VILAR no. 11:400-524  
'59. (MIRA 14:2)

(PAPER CHROMATOGRAPHY) (ALKALOIDS)



NIKONOV, G.K.

Some new Chinese preparations from plants. Med. prom. 14 no. 2: 57-60  
# '60. (NIRA 13:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarnykh  
i aromatischeskikh rasteniy.  
(CHINA--BOTANY, MEDICAL)

NIKONOV, G.K., SAPUNOVA, L.A.

Quantitative determination of anthraglycosides in the dry extract  
of *Rubia tinctorum*. Med. proc. 14 no. 10:38-40 0 '60.

(MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromaticeskikh rasteniy.

(GLYCOSIDES) (MADDER)

KIBAL'CHICH, P.N., NIKONOV, G.K., CHERNOBAY, N.Kh., IVASHIN, D.S.

Cultivation of *Ami majus* L. as a source for obtaining furocoumarins.  
Med. prom. SSSR 14 no.12:23-26 D '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromatischeskikh rasteniy.  
(FUROCOUMARIN) (AMI MAJUS)

NIKONOV, G.K. (Moskva); LOU TSZHI-TSIN; CHI-CHIN-DE [Ch'ih Ch'in-tieh];  
MA LIN-TEN'; DUN LI-LI [Tung Li-li]; MIN CHI-MEE; KHO TUAN-SEN';  
LO YA-CHIN [Lo Ya-ch'in]

Materials for a study of the substances in Chinese popular medicine  
used in the treatment of hypertension, nephritis, diabetes, and  
cancer. Report no. 1. Apt. delo 10 no. 2:71-83 Mr-Ap '61.

(MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromaticeskikh rasteniy, Moskva (for Nikonov). 2. Farmatsevti-  
cheskiy fakul'tet Pekinskogo meditsinskogo instituta, Pekin  
(for all, except Nikonov).

(CHINA—MEDICINE, POPULAR)

NIKONOV, G.K.; LOU TSZHE-TSIN; CHE CHIN-DE; MA LIU-TAN; SUN LI-LI; HIN CHI-KAI  
KHO TUAN-SUN; LO YAL-CHIN

Data on the study of drugs used in Chinese popular medicine for treating  
hypertension, nephritis, diabetes and cancer. Report No.2. Apt. delo  
10 no.6:73-78 N-D '61. (MIRA 15:2)

1. Vsesoyuznyy institut lekarstvennykh i aromaticeskikh rasteniy  
(for Nikonov).  
(HYPERTENSION) (KIDNEYS DISEASES)  
(DIABETES) (CANCER) (CHINA MEDICINE, POPULAR)

NIKOROV, G.K.

Synthesis of an amino derivative of peucedanis. Izv. ob khim.  
31 no.1:305-308 Ja '61. (MIRA 14:1)

1. Vsesoyuznyy institut lekarstvennykh i aromaticeskikh rasteniy.  
(Peucedanis)

NIKONOV, G.K.

Dry extract of madder. Apt. delo 11 no.2:31-34 Kr-Ap '62.  
(MIRA 15:5)

1. Vsesoyuznyy institut lekarstvennykh i aromaticeskikh rasteniy.  
(MADDER)

NIKONOV, G.K.; VEREMEY, R.K.

Lactones of *Phellodendron sacchalinense* (Fr.Schmidt) Sarg.  
Dokl.AN SSSR 148 no.4:850-852 F '63. (MIRA 1614)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromaticeskikh rasteniy. Predstavleno akademikom A.I.  
Oparinym.

(Lactones)

(Rutaceae)



NIKONOV, G.K.; VERMEY, R.K.; MESSCHERYAKOV, A.A.

Chemical study of the flavone of the osage orange *Maclura aurantiaca* Nutt. *Med. promyshl. SSSR* 17 no.8:13-15 Ag'63  
(MIRA 17:2)

1. 1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh i aromaticeskikh rasteniy i Institut botaniki AN Turkmen-skoy SSR.

NIKONOV, G.K.; IVASHENKO, A.A.

Chemical study of brimstonewort (Peucedanum morisonii Bess.)  
Zhur. ob. khim. 33 no.8:2740-2744 Ag '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromaticeskikh rasteniy (VILAR).

NIKONOV, G.K.; RODINA, N.I.; PIMENOV, M.G.

*Angelica ursina*, a new source of coumarin. Apt. delo 12  
no.4:41-44 JI-Ag '63. (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh i aromaticeskikh rasteniy.

NIKONOV, G.K.; VEREMEY, R.K.; KUVAYEV, V.B.

Lactones from angelique fruits (*Archangelica tsciuganica*).  
Zhur. ob. khim. 33 no.8:2744-2746 Ag '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut lekarstvennykh  
i aromaticeskikh rasteniy (VILAR).