High-vacuum, Emission Electron Microscope

investigated cathode; b) an immersion lens; c) projection lens; d) a high-voltage lead; e) the photocamera window; f) a screen; g) a protective cylinder; h) a collector; i) a mirror; j) an evacuating tube; k) a movable anode; l) a glass insulator; m) a bellows-type joint; n) a Kovar tube; o) a flange for the cathode and p) a flange for the cathode-shifting mechanism. The microscope was made vacuum-tight by employing copper gaskets instead of the usual rubber rings. It was possible to obtain a vacuum of 2×10^{-7}, the normal evacuation time being 12-18 hours. The electron-optical system of the microscope consists of an immersion lens and a projection lens. The immersion lens consists of the investigated cathode (Figure 3), a focusing electrode and the anode diaphragm. The projection lens consists of two electrical lenses and it was specially designed by D.V. Fetisov. If the microscope were to be employed in the investigation of L-cathodes and pressed cathodes, it should have a resolution of the order of 0.1 μ. In the microscope concerned, the resolving power is primarily dependent on the chromatic

High-vacuum, Emission Electron Microscope

aberration of the immersion lens. From the calculations, it follows that this aberration is of the order of 0.03 μ. The spherical aberration of the immersion lens is of the order of 0.01 μ and it is possible to neglect the other types of aberration. However, in the investigation of the actual cathodes, the resolution of the microscope is also dependent on the condition of the investigated surface; a rough cathode surface or the contact fields of the cathode spots can result in a significant deterioration of the resolving power of the microscope. The microscope is being used to investigate the structure of L-cathodes; a photograph of such a cathode is shown in Figure 4. The authors express their gratitude to D.V. Fetisov for constructing the electrostatic lenses and to M.M. Fedorov for his interest in this work.

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High-vacuum, Emission Electron Microscope SOV/109-3-8-16/18

There are 4 figures and 15 references, 9 of which are Soviet, 3 English, 2 French and 1 German.

SUBMITTED: January 29, 1958

1. Electron microscopes--Design 2. Electron microscopes--Operation
3. Electron microscopes--Performance 4. Cathodes (Electron tube)
--Analysis 5. Thermionic emission--Analysis

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48-22-5-3/22

AUTHORS: Popov, B. N., Koliverdov, V. F.

TITLE: The Secondary Emission of Thorium Oxide, Activated by Barium (Vtorichnaya emissiya okisi toriya, aktivirovannoy bariyem) Data From the VIIIth All-Union Conference on Cathode Electronics, Leningrad, October 17-24, 1957 (Materialy VIII Vsesoyuznogo soveshchaniya po katodnoy elektronike, Leningrad, 17-24 oktyabrya, 1957 g.)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958, Vol. 22, Nr 5, pp. 496 - 504 (USSR)

ABSTRACT: In most recent time secondary emitters have found widespread use in various types of electron devices. The main requirements applied to emitters which are used in magnetrons are given. The emitters used at present do not perfectly meet these demands. The most direct way for the creation of highly effective and stable emitters is the finding out of compounds, especially of oxides, which have the necessary properties. A second way is the variation of the properties of substances by means of corresponding treatment. For a better understanding of the methods of the property improvement of substances for this

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The Secondary Emission of Thorium Oxide, Activated by Barium

purpose the general properties of the energetic structure of the secondary emitters are discussed. A survey of publications is given (References 2-7). By the demonstrated facts the authors are induced to meet the claims with distrust, concerning the presence of free atoms of alkaline metals and-earths on the surface of heated nonmetallic targets. The assumption, uttered before, on the oxidation of the metallic barium by the residual oxygen seems to the authors to correspond best with truth; therefore the increase of σ takes place. From the performed experiments unfortunately the unpleasant conclusion must be deduced that the emitter described here cannot find practical application, because it operates with the residual gases and has a higher consumption of barium than in the metallic-porous cathodes. In specific single cases, however, its application will be possible. For the final solution of this question experiments in super-high vacuum and in a gas of known composition must be performed. They are in progress. A. R. Shul'man always showed much interest in this work and took part in the discussion on it. Finally

Card 2/3

The Secondary Emission of Thorium Oxide, Activated by Barium 48-22-5-3/22

the discussion on the abstract by the authors is summarized, in which took part L. N. Yasnopol'skiy, A. V. Morozov, V. N. Lepeshinskaya, I. M. Bronshteyn, O. G. Sarbey and the first author. There are 4 figures, 1 table and 27 references, 17 of which are Soviet.

1. Secondary emitters--Applications 2. Secondary emitters--Properties 3. Secondary emitters--Sources 4. Thorium oxices--Effectiveness 5. Barium--Applications

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48-22-5-18/22

AUTHORS: Mel'nikov, A. I., Morozov, A. V.
Popov, B. N., Maklakov, A. A.

TITLE: Pressed Cathodes of Aluminates and Tungstates of Barium and Calcium (Pressovannyye katody na osnove alyuminatov i vol framatov bariya-kal'tsiya)(Data From VIII. All Union Conference on Cathode Electronics, Leningrad, October 17-24, 1957)(Materialy VIII Vsesoyuznogo soveshchaniya po katodnoy elektronike, Leningrad, 17-24 oktyabrya 1957 g.)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958 Vol. 22, Nr 5, pp. 613-621 (USSR)

ABSTRACT: Recently the demand for new types of cathodes has risen, as the oxide cathodes fail in the acception of emission currents of high density (mostly in high-frequency apparatuses). Therefore the idea of uniting the cathode space, where the active substance is formed, with the sponge by means of a direct introduction of barium combinations into the pores of the latter, has been put forward. There are a) impregnated (Ref 1) and b) pressed cathodes (Ref 2). Figure 1 domonstrates the construction of a pressed cathode. It is a molybdenum cylinder, into which a mixture of the active substance, tungsten powder and the reducing substances has been pressed. At the working

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temperature of the cathode, the interaction of the components of this mixture leads to the formation of free barium and to the activation of the cathode. As the barium compounds tested so far had proved unsatisfactory (reference 3,4), the authors set themselves the task of testing the compounds resulting from the interaction of alkaline earth metal oxides of barium and calcium with acidity--and amphoteric oxides. The investigations yielded the following conclusions: 1. The pressed cathodes mentioned in the title permit an uninterrupted emission up to a current density of 8 A cm^{-2} if the time of operation exceeds 1000 hours. 2. The mechanical and electrical stability of the cathodes is satisfactory, they are easily enough reactivated after the poisoning. 3. Their production is simpler than that of the L-cathodes. 4. The emission properties and the life of the cathodes depends on the properties of the active substance. Here Barium-calcium tungstate is superior to aluminates because

Pressed Cathodes of Aluminates and Tungstates of Barium and Calcium

of its stability in air. 5. The tungstate mentioned last makes possible a longer time of operation than the barium tungstate. 6. Preliminary tests have shown that the influence of considerable changes in the concentration of tungstate in the emitter on the emission currents of the cathodes is insignificant. A final interpretation of this phenomenon has not been given yet. S. D. Uman, Z. V. Kukushkina, L. G. Sherstnev, Ye. P. Ostapchenko, A. A. Gugnin, A. I. Figner and the first two authors joined in the discussion. There are 9 figures and 9 references, 2 of which are Soviet.

1. Cathodes (Electron tube)--Design 2. Cathodes (Electron tube) --Materials 3. Cathodes (Electron tube)--Effectiveness 4. Barium aluminates--Applications 5. Calcium aluminates--Applications 6. Barium tungstates--Applications 7. Calcium tungstates--Applications

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SOV/48-23-4-19/21

AUTHORS: Druzhinin, A. V., Popov, B. N.

TITLE: A High Vacuum Electron Microscope for the Investigation of Cathodes (Vysokovakuumnyy elektronnyy mikroskop dlya issledovaniya katodov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 4, pp 522 - 526 (USSR)

ABSTRACT: For the investigation of the hot cathodes an electron microscope with a gas pressure of only 2-5.10^{-7} [illegible] was developed. This entailed the necessity of devising new seals. Special mention is made of the internal image screen, which can be observed and photographed by means of a mirror. The instrument features a special appliance by which the electron current may be measured. Next, the construction is described and it is shown that in the design special importance had been attached to a quick change of the cathode, high efficiency of the vacuum pumps, and the possibility of observing poisonous chemical processes. The electron optical system is then described. It features an immersion object lens and the projecting lens consists of two unipotential lenses. A figure shows the whole experimental arrangement. Investigations carried out with this new instrument had the purpose of clarifying to what extent the unevenness of the cathode surface exerts an

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influence upon the dissolving power of a microscope. Likewise, the dissolving power is influenced by the emitting cathode zone and the chromatic aberration of the immersion lens. The determination of the heterogeneity of the cathode emission by measuring the electron beam surpasses all other methods hitherto applied. Figure 3 shows the distribution of the current upon the emitting surface of a pressed cathode, taken by this method. There are 3 figures and 5 Soviet references.

Popov, B.N.

S/109/60/005/05/020/021
E140/E435

AUTHORS: Zasslavyeva, N.Ye., Vikhlyayeva, P.P., Zhdan, A.G., Zernov, D.V., Kofanova, T.I., Peryeva, I.Ya., Tufilova, N.M., Polyakova, M.A., Popov, B.N., Spivak, G.V., Shabel'nikova, A.E. and Yacnopol'skaya, A.A.

TITLE: Report on the Ninth All-Union Conference on Cathode Electronics

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 5, pp 866-879 (USSR)

ABSTRACT: This conference took place in Moscow from 21-28th October 1959 with the participation of Soviet scientists and guests from Hungary, Eastern Germany, the Chinese Peoples' Republic and Czechoslovakia. The chairman of the organization committee was Academician Vekshinskiy. The report consists of brief abstracts of 125 papers presented at the plenary sessions and the sections of the conference. 15 Reports were presented in the section on surface properties of solids dealing with electron adsorption and structural properties of active surface films. Electron-optical studies of "patch fields" on emitting surfaces were discussed. 6 Papers on the

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physics of semiconductor cathodes were given in the section on thermionic emission. 17 Papers were presented in the section on photoelectric emission. Many papers discussed industrial technology of photocells and multipliers. 16 Papers were presented at the section on secondary-electron emission. The section on field emission heard 11 papers discussing pulse field emission at high current densities, surface phenomena, field emission of semiconductors and the "condenser" cathode. More than 30 papers and brief communications were presented at the section on properties, new types and technology of cathodes, relating to the technology of various types of cathodes, their behaviour in practical devices and the operating mechanisms of individual cathodes. 19 Papers were given at the section on interaction of solid bodies with streams of charged particles and residual gases. Notes of conference discussion indicated that several sharp and critical exchanges of views took place.

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S/109/60/005/008/006/024
E140/E555

26.2312
9,3120 (1003, 1137, 1140)

AUTHORS: Dyubua, B.Ch. and Popov, B.N.

TITLE: Certain Emission and Adsorption Properties of the System W-O-Ba

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.8, pp.1233-1240

TEXT: The present study is motivated by the search for film cathodes resistant to residual-gas poisoning. The system W-O, W-Ba, W-O-Ba were studied in a range of oxygen pressures between 10^{-9} and 10^{-5} mm Hg. Oxygen was introduced into the vacuum system either by thermal decomposition of copper-oxide in a nickel tube or by thermal decomposition of $KMnO_4$. Neither method affected the experimental results at pressures above 10^{-6} mm Hg. The behaviour of the system observed is explained by two reactions. At degrees of oxygen coating on W less than 0.4, the reaction

$$\langle W \rangle + \frac{1}{2}(O_2) \rightarrow \langle WO \rangle$$

is assumed. At degrees of coating greater than 0.5 the reaction

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S/109/60/005/008/006/024
E140/E555

$$\langle WO \rangle + O_2 \rightarrow \langle WO_3 \rangle \quad (1)$$

is assumed. These reactions are compared with the reaction

$$\langle W \rangle + \frac{3}{2}(O_2) \rightarrow \langle WO_3 \rangle$$

usually occurring in the formation of tungsten anhydride by the burning of tungsten in oxygen. The system W-O-Ba, having three components, is more complicated than the system W-O. The effects of oxygen reduce the probability of agglomeration of the adsorbed film, and the oxides of barium and tungsten can appear; interaction between them then leads to the formation of tungstates. At residual gas pressures of 5×10^{-9} mm Hg, monotonic increase of thermionic emission of tungsten with increased degree of barium coating takes place. The appearance of extremal values of emission activation curve is connected with the presence of order of 5×10^{-7} mm Hg the

S/181/6 /003/006/0 5/03
B102/B201

9.3120 26.2312 24318

AUTHORS: Anikiyev, Yu. G., and Popov, B. N.

TITLE: Secondary emission of barium oxide

PERIODICAL: Fizika tverdogo tela, v. 3, no. 6, 196 1768-1777

TEXT: A novel investigation has been made of the secondary emission of BaO since, firstly, it plays an important role in the production of tungsten and aluminum cathodes, and secondly, the results heretofore obtained by various authors vary widely. The authors of the present paper set themselves the specific task of determining the coefficients δ of secondary emission as functions of the degree of the cathode activity and the oxygen pressure, these parameters being allowed to vary within widest possible limits. The oxygen pressure ranged between 10^{-8} and 10^{-5} mm Hg and over. To attain the highest possible cathode activity, cores with calcium addition were used; barium activated cathodes were, however, also used in the investigation. In these cathodes, not only their activity, but also the excess of neutral barium atoms in the

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S/181/61/003/006/015/031
B102/B201

Secondary emission of barium oxide

semiconductor was influenced. Measuring diagram and design of the experimental tube and of the emitter are described by way of introduction. σ was first measured as a function of voltage V_p of the accelerating electrode (V_p = energy of primary electrons) and the effect of activation upon these curves was examined. Both activation and a temperature rise were found to yield higher σ values. A study of the poisoning effects on σ showed that every poisoning process reduces the σ values on the $\sigma(V_p)$ curves) considerably (below the value of the non-activated cathode), which can be again corrected in part by a renewed activation. A study of the temperature dependence of the thermionic current and of σ showed the following: Up to temperatures at which a considerable thermal emission appeared, σ was not dependent on temperature at all and afterwards it exhibited an exponential rise which was the quicker the higher the anode activity. In cathodes of a low activity, σ was independent of temperature up to 850°C (with primary electrons of 400 [illegible]. For [illegible] activity, the $\sigma(V_p)$ [illegible] attained saturation [illegible] and slowly at a higher temperature [illegible]

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S/181/61/003/008/015/03
B102/B201

24918

Secondary emission of barium oxide

were also conducted with tubes, whose cathode coating was activated from an external source. The effect of oxygen upon the shape of secondary-current pulses and upon σ was examined next. Three cases could be distinguished here: 1) Cathodes of a very low activity displayed a practically normal pulse shape from room temperature to 850°C at $1 \cdot 10^{-4}$-$5 \cdot 10^{-9}$ mm Hg oxygen pressure. 2) Cathodes of a medium activity (exhibiting an exponential rise of σ at high temperatures) display a growth of the pulse front and a drop after the primary-current pulse has ended. The pulse attains its maximum value during the pulse. A rise of oxygen pressure to 10^{-4}-10^{-5} mm Hg does not have any effect upon the pulse shape. 3) Cathodes of a high activity: At a residual gas pressure of 10^{-8} mm Hg the secondary current pulse has a normal shape which on a pressure rise to $1 \cdot 10^{-5}$-$5 \cdot 10^{-6}$ mm Hg at high temperatures becomes distorted. A slow growth and an exponential drop take place; the pulse attains its peak during 20 μsec. The principal results of the present investigation are as follows: 1) σ depends at room temperature on the cathode activity; with an optimum activity σ attains a maximum value between 4.5 and 6.5. 2) For

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$T < 550^{\circ}C$, σ is independent of T. 3) For $T > 550^{\circ}C$, σ is independent of T in the case of cathodes of a low activity, whereas in case of such of a medium activity σ grows exponentially with T, and for such of a high activity it drops negligibly. 4) At low temperatures the pulse exhibits no growth and no tail piece with high-activity cathodes at $1 \cdot 10^{-5}$–$5 \cdot 10^{-6}$ mm Hg. Cathodes of a medium activity display a growth and tail piece of the pulse at $1 \cdot 10^{-5}$–$2 \cdot 10^{-9}$ mm Hg; all the same, the time constant is < 1 usec in this case. 5) It is possible to obtain all shapes of $\sigma(T)$ curves on one and the same target, by changing its activity or its barium content. There are 8 figures and 11 references: 4 Soviet-bloc and 7 non-Soviet-bloc. The most important references to English-language publications read as follows: M. A. Pomeranz. Phys. Rev. 70, 33, 1946; J. B. Johnson Phys. Rev. 69, 693, 1946; 73, 1058, 1948; 83, 49, 1951; J. T. Jones. Nature, 161, 846, 1948.

SUBMITTED: January 7, 1961

Card 4/4

S/109/62/007/009/008/018
D409/D301

AUTHORS: Dyubua, B.Ch., and Popov, B.N.

TITLE: Metals with high oxygen stability of thermionic emission

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 9, 1962, 1556 - 1565

TEXT: The stability towards oxygen of the thermionic emission of metals (both pure and coated by an adsorbed Ba-layer) was experimentally investigated. The studied metals -- rhodium, iridium, platinum, rhenium, titanium, zirconium and hafnium -- have greater emission stability towards oxygen than tungsten. The experimental apparatus is described. The experimental lamp was evacuated to a pressure of 3 · 10-9 mm Hg. The cathode temperature was determined by means of an optical micropyrometer. First, the system metal-oxygen was investigated. Heating of the metals at maximum possible temperatures, is accompanied by stabilization of their emission properties. For all the metals investigated, with the exception of platinum, stabilization was attained after 15-20 minutes; in the case

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Metals with high oxygen stability ...

of platinum, it took 200 minutes. Small temperature-variations (50-60°K) led (in all the metals except platinum) to an almost immediate change in emission. Adsorption of oxygen on the platinum surface can lead to a decrease or to an increase in emission; this depends on the temperature and pressure. For convenience, the metals are divided into two groups: 1) Rhodium, iridium, platinum and rhenium; 2) titanium, zirconium and hafnium. In the first group, a temperature rise leads initially to a decrease in the stability of emission. A further rise in temperature leads to a decrease in the equilibrium concentration of oxygen and to an increase in the stability of emission. Among the metals of the second group, zirconium and hafnium are initially more affected by oxygen. The kinetic processes are apparently the main factors, determining the stability of emission. If absorption is disregarded, then the oxygen concentration at the surface is mainly determined by the following processes: Chemisorption of oxygen, the reaction of oxygen with the metal surface (the formation of oxides), desorption of the reaction products. The rate of oxidation should increase from metal to metal in the following order: W, Ti, Zr, Hf. An investigation of the system metal-oxygen-barium showed that titanium, zirconium and hafnium

Metals with high oxygen stability ...

placed in a barium flow, also have greater emission stability than tungsten. The stability of rhenium-barium is lower than that of platinum, rhodium and iridium in barium; rhenium is however more advantageous by its high melting point and strength. It is concluded that the metals Rh, Ir, Pt, Re, Ti, Zr and Hf (both pure and coated with Ba) are more stable in emission towards oxygen than W. The use of these metals for bariated cathodes depends on the solution of the problem of applying the barium to the emitting surface. The theoretical study of the effect of oxygen on the emission of the metals, showed that increased stability of emission can be related to two factors: low rate of oxygen chemisorption or high rate of desorption of metal oxides. There are 8 figures and 2 tables.

SUBMITTED: December 29, 1961

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S/109/62/007/009/009/018
D409/D301

AUTHORS: Dyubua, B.Ch., Pekarev, A.I., Popov, B.N., and Tylkina, M.A.

TITLE: Thermionic emission of tungsten-titanium and tungsten-hafnium alloys and its dependence on oxygen pressure

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 9, 1962, 1566 - 1573

TEXT: The dependence of the work function of W-Ti and W-Hf alloys on their composition was investigated. It was found that the work function of solid solutions is lower than that of pure metals. Solid solutions and chemical compounds should be considered as new emitters whose properties differ from the properties of pure metals. As the original materials, tungsten powder of grade ВЧ (VCh) (highly pure) was used, titanium of grade ИМП-1А (IMP-1A), and chemically-pure hafnium. The composition of the alloys was determined by chemical analysis. The alloys underwent X-ray structural and metallographic analysis. The lattice parameters of the solution of hafnium in tungsten were calculated; it was found that the value of

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Thermionic emission of ...

the lattice parameter increases from 3.160 to 3.185 KX. The thermionic emission of the alloys was measured by means of an experimental lamp. For the W-Ti alloys, three values of the work function were obtained, in addition to the work functions of the pure metals. These values are roughly similar (3.6 - 3.75 ev). The dependence of the thermionic emission on the oxygen pressure, was investigated for both alloys without Ba-coating and with Ba-coating. In the first case, the behavior of the alloys is as follows: 1) If the oxygen pressure is increased, the thermionic emission changes in the same way as that of the low melting-point component; 2) the critical oxygen pressure is higher for the alloys (at equal temperatures), than for pure tungsten, but lower than that of the component metals. In the case of Ba-coated alloys, the following qualitative results were obtained from the experiments: 1) Under the action of the oxygen, the emission of the alloys initially increases, and then decreases (similar to the emission of tungsten); but the increase in emission is several hundredfold less than that of tungsten. 2) In the case of the alloys, the drop in emission starts at higher oxygen pressures than for pure tungsten, but at lower pressures than for pure titanium and hafnium. The authors also calcula-

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SOLOV'YEV, V.S.; POPOV, B.N.

Automatic transmission of the M-21 "Volga" automobile.
Avt.i trakt.prom. no.3:1-8 Mr '57. (MLRA 10:5)

1. Gor'kovskiy avtozavod imeni Molotova.
(Automobiles--Transmission devices, Automatic)

GOROKHOVSKIY, D.M.; GUTKIN, S.G.; ZISLIN, S.G.; KUZNETSKIY, K.D.; PELYUSHENKO, O.I.; POPOV, B.N.; YAKUBOVICH, I.Ye.; PROSVIRNIN, A.D., otv. red.; KNYAZEV, V.V., red.; YUNISOVA, M.I., tekhn. red.

[Motor vehicles manufactured at the Gorkiy Automobile Plant] Avtomobili Gor'kovskogo zavoda. Gor'kii, Gor'kovskoe knizhnoe izd-vo, 1963. 390 p. (MIRA 16:4)

1. Glavnyy konstruktor Gor'kovskogo avtozavoda (for Prosvirnin).
(Gorkiy--Motor vehicles)

TUSHINSKIY, M.D., prof., STANSKAYA, V.V., MOISEYEVA, O.I., POPOV, B.N.

Material on the effect of the liver on the blood system. Trudy LMI 2:102-108 '55 (MIRA 11:8)

1. Kafedra propedevticheskoy terapii (zav. - deystvitel'nyy chlen AMN SSSR prof. M.D. Tushinskiy) Pervogo Leningradskogo meditsinskogo instituta imeni akademika I.P. Pavlova.
(LIVER)
(BLOOD)

POPOV, B. N.

USSR/Medicine - Dysentery Feb 1948
Medicine - Case Records

"Certain Features of the Clinical Progress of Acute Dysentery," V. V. Stavskaya, Z. I. Sosnovik, B. N. Popov, Deputy, Dysentery Sec, Preliminary Therapeutic Clinic, First Leningrad Med Inst imeni Academician Pavlov, 8 pp

"Klin Medits" Vol XXVI, No 2

Discuss type of dysentery observed during the blockade of Leningrad. State that there was slight indication of intoxication, negligible temperature reaction, absence of typical stools, and spasm. Also sharp drop in natural immunity of population of Leningrad. Based on data collected during period, 1943 - 1945 Director of Preliminary Therapeutic Clinic: Prof M. D. Tushinskiy, Active Member, Academy of Medical Sciences, USSR.

PA47T61

POPOV, B.P., professor; GRITSKEVICH, D.I., professor

Prosthetics in the R.S.F.S.R.. Ortop., travm. protez. 17 no.5:3-8 S-O '56. (MIRA 10:1)

1. Iz TSentral'nogo nauchno-issledovatel'skogo instituta protezirovaniyya i protezostroyeniya Ministerstva sotsial'nogo obespecheniya.

(ARTIFICIAL LIMB,
hist. of prosthetics in Russia (Rus))
(ORTHOPEDICS
prosthetics in Russia)

POPOV, B.P., prof.; DIKKERT, G.A., inzh., red.; ABRIN, S.G., dotsent, red.; KOBRINSKIY, A.Ye., doktor tekhn.nauk, red.; MOLODAYA, Ye.K., prof., red.; ROSHCHIN, G.I., dotsent, red.; SLAVUTSKIY, Ya.L., kand.biolog.nauk, red.; SHENK, N.A., prof., red.

[What one should know about prosthesis] Chto nuzhno znat' o protezirovanii. Moskva, M-vo sots.obespecheniia RSFSR, 1959. 66 p. (MIRA 13:6)

(PROSTHESIS)

POPOV, B.P., prof., zasluzhennyy deyatel' nauki RSFSR

Prospects for research in the field of prosthesis and prosthesis construction. Ortop.,travm.i protez. 20 no.12:3-5 D '59. (MIRA 13:5)

1. Predsedatel' Uchenogo soveta Ministerstva sotsial'nogo obespecheniya RSFSR i direktor TSentral'nogo nauchno-issledovatel'skogo instituta protezirovaniya i protezostroyeniya Ministerstva sotsial'nogo obespecheniya RSFSR.
(PROSTHESIS)

POPOV, B.P.

Result of intrabronchial antibiotic therapy for pulmonary suppurations in a district hospital. Sov.med. 25 no.4:128-130 Ap '61. (MIRA 14:6)

1. Iz Cherlanskoy rayonnoy bol'nitsy (glavnyy vrach P.N.Filippov, nauchnyy rukovoditel' raboty - zasluzhennyy deyatel' nauki prof. R.M. Akhrem-Akhremovich).

(ANTIBIOTICS) (LUNGS—DISEASES)

MASLOV, O.K.; POPOV, B.P.; SALIMOV, S.G., dotsent

Case of compound treatment of severe botulism using controlled respiration. Sovet. med. 27 no.6:129 Je'63 (MIRA 17:2)

1. Iz kliniki gospital'noy terapii (zav. - dotsent S.G. Salimov) Blagoveshchenskogo meditsinskogo instituta i anesteziologicheskogo otdeleniya Amurskoy oblastnoy klinicheskoy bol'nitsy (glavnyy vrach M.V.Kosheleva).

POPOV, B.P.

Pay more attention to the problems of architectural design of sugar factories. Sakh. prom. 37 no.4:37-41 Ap '63. (MIRA 16:7)

1. Giprosakhar.
(Sugar factories—Design and construction)

POPOV, P. S.

USSR/Electricity
Furnaces, Electric
Controls, Electric

May 194

"Automatic Control of Electric Resistance Furnaces," V. V. Fedryavtsev, L. ... Ioffe, L. P. Shvalev, K. I. Glushkov, P. I. Selivanov, P. S. Popov, Plant imeni Kolotov, Ministry of Armament, 1 p

"Prom Energet" No 5

Staff of above plant did not allow ch rge of electric automatic controls to prevent increased output. Designed and installed a thermocouple-potentiometer type system, a circuit diagram of which is reproduced. Suggestion was awarded a fifth prize in All-Union competition.
F.B

1. POPOV, B. P.; PRIKLONSKIY, V. A.; ROZA, S. A.

2. USSR (600)

4. Soil Mechanics

7. Soil mechanics. N. A. TSytovich. Reviewed by V. A. Priklonskiy, S. A. Roza, B. P. Popov. Izv. AN SSSR. Otd. tekh. nauk. No. 8, 1952.

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

BARKAN, D.D.; YEGOROV, K.Ye.; POPOV, B.P.; SVETINSKIY, Ye.V.; PEVZNER, A.S., redaktor; MEL'NICHENKO, P.P., tekhnicheskiy redaktor

[Instructions for deep solidification of weak saturable soil by means of sand piles in laying foundations of buildings and structures] Instruktsiia po glubinnomu uplotneniiu slabykh vodonasyshchennykh gruntov peschanymi svaiami pri ustroistvo osnovanii zdanii i s ooruzhenii (I 198-55/Minstroi). Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 44 p. (MLRA 9:12)

1. Russia (1923- U.S.S.R.) Ministerstvo stroitel'stva. Tekhnicheskoye upravleniye.
(Foundations)

POPOV, B.P.

General application of formulas derived for calculating the resistance of piles. Trudy NII osn.i fund. no.30:111-120 '56. (MIRA 10:10)

(Soil mechanics) (Piling (Civil engineering))

POLSHIN, D. E., Cand. Tech. Sci., Scientific Council [illegible]
and Foundations, Moscow, TAKSER, L. ..., Cand. Tech. ...
Scientific Research Institute of Soil Mechanics [illegible],
and HUMEN, F. S., Cand. Tech. Sci., Scientific Research Institute
of Soil Mechanics and Foundations, Moscow

"The Observed Settlements of Buildings as Compared with Preliminary Calculation," a paper submitted at the 4th International Conference of the International Society of Soil Mechanics and Foundation Engineering, London, 12-24 Aug 57.

Popov, Boris Petrovich

124-58-9-10407

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 143 (USSR)

AUTHORS: Yegorov, K. Ye., Popov, B. P., Kuz'min, P. G.

TITLE: Actual Settling of Tall Buildings and Its Comparison With Calculated Values (Fakticheskiye osadki vysotnykh zdaniy i sravneniye ikh s raschetnymi)

PERIODICAL: V sb.: Materialy k 4-mu Mezhdunar. kongressu po mekhan. gruntov i fundamentostr., Moscow, AN SSSR, 1957, pp 88-99

ABSTRACT: Bibliographic entry

1. Structures--Stability 2. Mathematics--Applications

Card 1/1

POPOV, P.P.

Norms and technical specifications for designing foundations in England. Osn., fund. i mekh. grun. no.1:29-31 '59.
(MIRA 12:7)

(Great Britain--Foundations)

POPOV, B. S.

Popov, B. S. Sur une condition d'intégrabilité de d'Alembert relative à l'équation différentielle de la balistique. Bull. Soc. Math. Phys. Macédoine 1, 29–39 (1950). (Macedonian. French summary)

The fundamental equation $(y+\rho)y'+y^2-1=0$ may be transformed in the particular case where $\rho=Ax^2+Bx+C$ (A, B, C constants) into a differential equation of hypergeometric functions. Four known cases of integrability may be reduced to a single condition $B^2=A^2/k^2+4k^2+4AC$ (k an integer), which represents a generalization of that of d'Alembert.

W. S. Jardetzky (New York, N. Y.).

Source: Mathematical Reviews, Vol 12 No. 6

POPOV, B.S.

Popov, B. S. Sur une équation algébrique. Bull. Soc. Math. Phys. Macédoine 2, 3–15 (1951). (Macedonian. French summary)

The explicit solution of the equation

$$\sum_k \binom{n-k}{k} \frac{n}{n-k} p^k x^{n-k} = -q$$

is given by observing that the left hand side is $z_1^n + z_2^n$ where $z^2 - xz - p = (z - z_1)(z - z_2)$. The result is applied to give the trigonometric solution of the reduced cubic and of the biquadratic to which a Tschirnhaus transformation has been applied. *R. Church* (Monterey, Calif.).

Source: Mathematical Reviews, Vol 13 No. 6

POPOV, B.S.

POPOV, B.S.

(2)

Mathematical Reviews
Vol. 14 No. 7
July - -August 1953
Analysis

6-24-54

Popov, B. S. On a property of the derivatives of orthogonal polynomials. Fac. Philos. Univ. Skopje. Sect. Sci. Nat. Annuaire 4, no. 5, 8 pp. (1951). (Macedonian and English)

Let $R_n(x)=c_n d^n\{(x-a)^n(x-b)^n\}/dx^n$, denote by $R_n^{(r)}(x)$ its rth derivative. Using Leibnitz' rule for the derivative of a product, it is shown that

$$(1)\qquad R_n^{(r)}(a)=c_n\binom{n+r}{r}n!\binom{n}{r}r!(a-b)^{n-r}.$$

This generalizes the well-known corresponding result for Legendre's polynomials $P_n(x)$ [see du Plessis, Proc. Amer. Math. Soc. 2, 950 (1951); these Rev. 13, 553; also Grosswald, ibid. 1, 553–554 (1950); these Rev. 12, 178]. Using hypergeometric functions, the author gives an alternative proof of (1) for Legendre's polynomials, identical to an (unpublished) proof of Rainville, which the author does not seem to know. Gegenbauer's polynomials, defined by the generating function (2) $(1-2xz+z^2)^{-\nu}=\sum_n C_n^\nu(x)z^n$ have derivatives satisfying

$$(3)\qquad \left[C_n(x)\right]^{(r)}_{x=1}=2^r\Gamma(n+2\nu+r)\Gamma(\nu+r)/\Gamma(n+1-r)\Gamma(2\nu+2r)\Gamma(\nu).$$

(3) is proved by differentiating (2) (method identical to that of du Plessis, loc. cit.; observe that $C_n^1(x)=P_n(x)$) and, alternatively, by hypergeometric functions. Similarly it is mentioned that the derivatives of Tchebycheff's polynomials

$$T_n(x)=\frac{(-1)^n}{1\cdot3\cdot5\cdots(2n-1)}(1-x^2)^{\frac{1}{2}}\frac{d^n}{dx^n}(1-x^2)^{n-\frac{1}{2}}$$

satisfy $T_n^{(r)}(1)=n\cdot2\cdot4\cdots(2r-2)(n^{\frac{1}{2}}-r^{\frac{1}{2}})$. *E. Grosswald*

POPOV, B. S.

Greek

Popov, B. S. Factorization of an operator. Fac. Philos. Univ. Skopje. Sect. Sci. Nat. Annuaire 4, no. 7, 20 pp. (1951). (Macedonian. English summary)

It is known that the hypergeometric equation

$$x(x-1)y''+[(\alpha+\beta+1)x-\gamma]y'+\alpha\beta y=0$$

is reducible if and only if one of the numbers α, β, $\gamma-\alpha$, $\gamma-\beta$ is a positive or negative integer. The author finds an explicit reduction by determining the polynomials $P_i(x)$ for the equivalent equation

$$[P_1(x)d/dx+1][P_2(x)d/dx+P_3(x)]y=0.$$

M. Golomb (Lafa[illegible]ind.).

SOURCE: Mathematical Reviews, Vol. 14, No. 7, July- Aug. 1953, Unclassified

POPOV, B. S.

Popov, B. S. Remarque sur l'équation de Riccati. Bull. Soc. Math. Phys. Macédoine 2, 113–115 (1951). (Macedonian. French summary)

It is shown that if the coefficients of the Riccati equation satisfy a certain condition, then the equation can be integrated without any quadratures. *M. Golomb.*

SOURCE: Mathematical Reviews, Vol. 14, No. 7, July-Aug. 1953, Unclassified

USSR/Medicine - Hygiene and Sanitation Apr 49
Medicine - Public Health

"Improving Sanitation and Living Conditions of Sovkhoz Workers," B. V. Popov, 6 pp

"Fel'dsher i Akusher" No 4

Purpose of present plan for reforestation of USSR arid and steppe regions is eventual improvement of the living conditions of sovkhoz workers. Discusses prophylaxis against infectious diseases among workers, hygiene, pest control, and control of dampness in living quarters, maintaining purification of drinking and household water,

57/49T60

[redacted]

57/49T60

USSR/Medicine - Hygiene and Sanitation Apr 49
(Contd)

bathing and laundry facilities, and safety measures for protecting workers at their jobs.

57/49T60

POPOV, B. V.

[redacted]

POPOV, B.V.

Role of regional feldshers in organization of prophylactic measures in prevention of agricultural accidents. Fel'dsher & akush., Moskva No.2:9-14 Feb 52. (CIML 21:4)

SHANGIN, N.I.; POPOV, B.V.

Organization and method of work of regional sanitary inspectors. Fel'dsher & akush. no.4:40-45 Apr 1953. (CLML 24:4)

1. Candidate Medical Sciences for Shangin. 2. Moscow.

1. CHANGIN, N. I.; POPOV, B. V.

2. USSR (600)

4. Public Health

7. Organization and methods of work with official public health representatives. Fel'd. i akush. No. 4, 1953.

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

POPOV, B.V. (Moskva)

Domestic hygiene for collective farmers. Fel'd. i akush. no.7: 32-34 Jl '54. (MLRA 7:7)

(HYGIENE
*Russia, collective farmer's housing)
(HOUSING
*hygiene, collective farmer, Russia)

POPOV, Boris Vasil'yevich

[Protecting the health of workers in the lumber industry] Okhrana zdorov'ia rabochikh lesozagotovitel'noi promyshlennosti. Moskva, Medgiz, 1955. 70 p. (MLRA 9:11)
(LUMBERING)

POPOV, B.V. (G.Babushkin Moskovskoy oblasti)

National movement in sanitation work. Fel'd. i akush. no.2:35-36 F '55. (MLRA 8:4)

(PUBLIC HEALTH, in Russia, progr.)

POPOV, B.V.

Stavropol Territory House of Veterinary Hygiene Education. Veterinariia 35 no.6:10-12 Je '58. (MIRA 11:6)

1. Nachal'nik vetotdela Stavropol'skogo krayevogo upravleniya sel'skogo khozyaystva.
(Stavropol Territory--Veterinary hygiene)

POPOV, B.V., fel'dsher

Practice in carrying out preventive inoculations. Fel'd. i aksuh. 24 no.11:47 N '59. (MIRA 13:2)

1. Lipovetskiy fel'dshersko-akusherskiy punkt Vologodskoy oblasti.
(VACCINATION)

SOKOLOVSKIY, M.S.; GABINOVA, Zh.L.; POPOV, B.V.; KACHOR, L.F.; GOFMEKLER, V.A., red.

[Sanitary control of air pollution in Moscow; results of the work of the Sanitary Epidemiology Station of Moscow] Sanitarnaia okhrana atmosfernogo vozdukha Moskvy; iz opyta raboty Sanitarno-epidemiologicheskoi stantsii goroda Moskvy. Moskva, Meditsina, 1965. 92 p. (MIRA 18:8)

GOLYARKIN, F.Ye., kand. sel'skokhoz. nauk; YEMELINA, N.I., PETUKHOVA, Ye.S.; KHALENEVA, L.D.; GAVRILOV, I.V.; POPOV, B.V.

Pay more attention to the quality of stocked feeds. Veterinariia 41 no.7:4-7 Jl '64. (MIRA 18:11)

1. Moskovskaya veterinarnaya akademiya (for Yemelina, Petukhova, Khaleneva). 2. Vneshtatnyy korrespondent zhurnala "Veterinariya" Vladimirskaya oblast' (for Gavrilov). 3. Nachal'nik veterinarnogo otdela Stavropol'skogo krayevogo upravleniya proizvodstva i zagotovok sel'skokhozyaystvennykh produktov (for Popov).

ZHOKHOV, P.I., inzh.; PERN, G.V., inzh.; DAVIDOVICH, Ye.M., inzh.; GABINOVA, Sh.L., vrach; VASIL'YEVA, A.A., vrach; POPOV, B.V., vrach

Effect of smog in the air on landscape plantings. Gor.khoz.Mosk. 35 no.5:19-21 My '61. (MIRA 14:6)
(Moscow--Smog)

POPOV, B.V.

Transformation semigroups of a rank not above two. Dokl AN SSSR 161 no.5:1019-1022 Ap '65. (MIRA 18:5)

1. Leningradskiy gosudarstvennyy pedagogicheskiy institut im. Gertsena. Submitted November 13, 1964.

POPOV, B.V.; PONAMAREVA, L.K., red.

[The young electrician] IUnyi elektrotekhnik. Perm'. Permskoe knizhnoe izd-vo, 1959. 85 p.
(MIRA 17:6)

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POPOV, B. V.

SOV/6181

PHASE I BOOK EXPLOITATION

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

Eds. (Title page): G. P. Skornyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skornyakov; Ed. of Publishing House: M. L. Kryzhova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

Card 1/15

Materials of the Third Ural Conference (Cont.) SOV/6181

COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to G. V. Chentsova for help in preparing the materials for the press. References follow the individual articles.

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POPOV, B.V.; [illegible] G.A.

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PHASE I BOOK EXPLOITATION

307/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

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PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

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POPOV, B. V., Chief of Dept.
Stavropol Kraĭ Administration of Agric., Veterinary Dept.
"Ridding the sheep population of mange."
SO: Vet. 28 (10), 1951, p. 20

GABINOVA, Zh.L.; POPOV, B.V.

Main trends in the struggle for air purification. Gor. khoz. Mosk. 36 no.3:30-33 Mr '62. (MIRA 15:6)
(Moscow--Air--Purification)

POTOV, B. Ya.,

"Study of Performance of Sliding Bearings in Vertical Hydraulic Turbines." (Dissertation for Degree of Candidate of Technical Sciences) Min Heavy Machine Building USSR, Central Sci Res Inst of Technology and (sic) Machine Building (TsNIITMash), Moscow, 1955.

SO: M-1036 28 Mar 56

AZHAZHA, V.M.; GUMENYUK, V.S.; POPOV, B.Ye.

Expanding the use of the LGZ-10 high frequency oscillator.
Prib.i tekh.eksp. no.1:102-103 Ja-F '60.
(MIRA 13:6)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Oscillators, Electric)

S/126/60/009/03/009/033
E091/E435

AUTHOR: Popov, B.Ye.

TITLE: 'Influence of Ultrasonics on the Structure of Beryllium and Zinc Films Produced by Evaporation in Vacuum

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, pp 366-368 (USSR)

ABSTRACT: The source of ultrasonic oscillations was a magneto-striction transformer fed by a 10 kw generator. The layout of the plant is shown in Fig 1. The metal, which is evaporated from the crucible 1, condenses on the end faces of two rods 2 and 3, of 20 mm dia, symmetrically placed above the crucible. One of them, 2, is a reference specimen and is firmly attached to a water-cooled bush and the other, 3, represents a two half-wave sound transmitter connected by its upper end to the transformer concentrator. Rods with ground working faces were made from steel St 3. The transformer system with the concentrator and alternating sound transmitter ensured a resonance frequency of ultrasonic oscillations of 16 to 20 kc/s. The power maintained by the transformer was such that the

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Influence of Ultrasonics on the Structure of Beryllium and Zinc Films Produced by Evaporation in Vacuum

amplitude of displacement of the working face of the sound transmitter was 15 μ in all experiments. The temperature required for the deposition surface was produced by the tubular furnace 4 and controlled by a thermocouple 5. The furnace for heating the rods and the crucible was set so that a predetermined temperature should be established at the surface of the condensate at the moment of fusion of the metal in the crucible. Then the ultrasonic generator was switched on, the screen 6 was pushed aside and deposition started. During deposition the temperature of the surface of the condensate was maintained constant. For experiments with Be, it was 600 to 650°C. The rate of condensation was determined from the thickness the deposits had attained in the time of application. The minimum rate was 50 μ/hour, the maximum 700 μ/hour. When the metal was deposited, the crucible was covered with the screen, the generator disconnected and the intensity of heating of the crucible and the furnace gradually lowered. The

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condensate was finally cooled to room temperature in the furnace. The metallic films are relatively easily removed from the rods. Sections were prepared from specimens, some of which had been treated with sound. Their microstructure was clearly visible in polarized light. Fig 2 shows the influence of ultrasound on the grain size of Be deposited at 600°C at a rate of 6 μ/minute (a - not treated with ultrasound; b - treated with ultrasound). Fig 3 shows the change in average grain size of Be across a film deposited at 650°C at a rate of 11.5 μ/minute. The amplitude of oscillation of the surface of deposition was 15 μ, and the frequency 17.2 c/s (curve a). The dashed line b corresponds to the same conditions but without application of ultrasound. Fig 4 shows the microstructure of zinc deposited from the vapour phase at 300°C at a condensation rate of 20 μ/minute (a - without application of ultrasound; b - under the action of ultrasound). The author concludes that ultrasonic oscillations of the basis

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26.2240 also 2308

S/126/60/010/006/009/022
E193/E483

AUTHORS: Popov, B.Ye., Kovtun, S.F. and Amonenko, V.M.

TITLE: Refining the Structure of Beryllium and Chromium by the Application of Ultrasonics During Arc-Melting

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol.10, No.6, pp.853-856

TEXT: Owing to its coarsely-crystalline, dendritic structure, cast beryllium has low mechanical properties and it is for this reason that beryllium components are usually made by the powder metallurgy techniques. The disadvantage of this method consists in increased risk of contamination with beryllium oxides and other impurities which may considerably reduce the ductility of the metal. The object of the present investigation was to explore the possibility of producing pure (i.e. made by fusion) beryllium and chromium with a structure consisting of small, equiaxial grains. The experiments were carried out in an argon-arc furnace, the refining of the structure being obtained by subjecting the molten metal to ultrasonic vibration. A magnetostrictive converter, fed by a high-frequency generator operating in the 10 to 30 kilocycle

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chromium subjected

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Refining the Structure of Beryllium and Chromium by the Application of Ultrasonics During Arc-Melting

range, served as the source of ultrasonic waves. The sound energy was transmitted to the metal by means of a half-wave exponential concentrator and a water-cooled copper sound-conductor, led into the furnace through its bottom flange and attached to the crucible. The metal was subjected to the ultrasonic vibration for about 1 to 2 min, while still molten, and throughout the solidification stage. The degree of grain-refining achieved by these means was such that, in the case of beryllium, grain-size comparable to that in sintered specimens was obtained. The effect of the ultrasonic treatment was most pronounced in the central region of the ingot, the grains near its surface being somewhat larger and reaching the average size of 100 to 120 microns. This variation of [illegible] grain-size was attributed to non-uniformity of the acoustic field in the crucible of semi-spherical shape and to the variation in the rate of heat transferred from the crucible walls, the grain-size being smallest in the regions corresponding to the maximum cooling rate. The structure of chromium subjected

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Refining the Structure of Beryllium and Chromium by the Application of Ultrasonics During Arc-Melting

to the same treatment was more uniform, the difference between the largest and smallest grains not exceeding 100%. The grains in ultrasonically treated chromium were 40 to 50 times smaller than those in argon-arc melted specimens not subjected to the ultrasonic vibration and comparable in size to grains found in metal molten by conventional methods and allowed to solidify in the crucible. The density of the argon-arc melted beryllium and chromium specimens could be increased by increasing the duration of the ultrasonic treatment while the metal was still molten; when the duration of the ultrasonic treatment prior to solidification was not sufficiently long, pores, visible under microscope, were formed in the metal. There are 4 figures and 9 references: 5 Soviet and 4 non-Soviet (1 of which is translated into Russian).

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR
Physicotechnical Institute AS UkrSSR)

SUBMITTED: June 6, 1960

Card 3/3

BOBROV, A.I.; TURBANOVA, A.D.; POPOV, B.Ye.; CHEREPANOV, V.N.; KHORSHEV, V.M.

Acid sulfite pulping by the use of a magnesium base. Bum. prom. no. 2:5-8 F '64. (MIRA 17:3)

1. Moskovskiy filial Vsesoyuznogo nauchno-issledvoatel'skogo institute tsellyulozno-bumazhnoy promyshlennosti (for Bobrov, Turbanova). 2. Visherskiy kombinat (for Popov, Cherepanov, Khorshev).

L 30178-66 SCTB DD

ACC NR: AP6020312 SOURCE CODE: BU/0011/65/018/007/0655/0658

AUTHOR: Popov, C.; Bakurdjieva, N.

ORG: Institute of Plant Physiology, BAN

TITLE: Increase in stability of pigment protein complex in leaves and isolated chloroplasts influenced by manganese, nickel, and copper

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 7, 1965, 655-658

TOPIC TAGS: chloroplast, radiation plant effect, protein, plant physiology, wheat

ABSTRACT: The positive influence of trace elements on protein and pigment content of plants was proved lately by numerous researchers (Ye. A. Solov'yeva, N. A. Makarova, Fiziol. rasteniy, 7, 1960, 4, 419; Z. Suykovskiy, Sb. Fiziolog. biokhim. osnovy podvisheniya produktivnosti roslin [Symp. Physiol. and biochem. bases for increased plant productivity], Kiev, 1963, 135-138. The present article compares the changes in the quantity and state of pigments in leaves and chloroplasts from young wheat plants, controlled and treated with stimulating doses of Mn, Ni, and Cu, and in chloroplasts from broad beans with direct addition of the same elements. They were studied during the natural process of destruction of pigment-protein complex (PPC) as judged by the yellowing of starving leaves and during changes induced by the influence of UV-light and temperature at 80°. Results show that Mn, Ni, and Cu hinder the extractability of pigments probably by strengthening the link between pigment and protein (although the three elements do not act exactly in the same manner). This paper was presented by Academician I. Emanuiloff on 27 March 1965. Orig. art. has: 2 figures and 2 tables. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: 27Mar65 / OTH REF: 001 / SOV REF: 011

Card 1/1

L 1634-66 EWP(t)/EWP(b) DIAAP/IJP(c) JD/JG

ACCESSION NR: AP5024262 CZ/0043/64/000/009/0661/0668

AUTHOR: Stefanov, G. (Sofia); Menov, N. (Sofia); Tomov, T. (Sofia); Zhivkov, Z. (Zhivkov, Zh.)(Sofia); Georgiev, N. (Georgiyev, N.)(Sofia); Popov, C. (Popov, Kh.) (Sofia); Michailov, M. (Mikhaylov, M.)(Sofia); Tolgyessy, J. (Tol'dessi, Yu.) (Engineer, Docent, Candidate of sciences)(Bratislava)

TITLE: Determination of gold in mineral raw materials by means of the neutron activation analysis

SOURCE: Chemicke zvesti, no. 9, 1964, 661-668

TOPIC TAGS: gold, analytic chemistry, silicate, radiation spectrometer, radiometer, radiation chemistry, neutron irradiation, neutron flux, neutron

Abstract [Authors' German summary, modified]: A method is presented of determining gold in samples of silicates by means of the neutron activation method. Samples were irradiated in a nuclear reactor by a flux of neutrons of 2.4×10^{13} n by cm^{-2} by s^{-1}. The induced activity was measured by a 400-channel scintillation γ spectrometer or a B-2 radiometer. It is possible to determine gold in ore and non-ore raw materials up to the volume of 2.8×10^{-10} grams. Orig. art. has 2 graphs and 3 tables.

Card 1/2

L 1634-66

ACCESSION NR: AP5024262

ASSOCIATION: [Stefanov, Nenov, Tomov, Zivkov, Georgiev, Popov, Michajlov] Naucno izsledovatelski geologicheski institut pri Glavno upravlenie po geologija i ochrana na zemnite nedra, Laboratorja aktivacionen analiz, Sofia (Activation Analysis Laboratory, Scientific Research Institute of Geology, Main Administration for the Geology and Protection of Mineral Resources); [Tolgyessy] Katedra radiochemie a radiacnej chemie Slovenskej vysokej skoly technickej, Bratislava (Slovak Institute of Technology, Department of Radiochemistry and Radiation Chemistry)

SUBMITTED: 23Jan64 ENCL: 00 SUB CODE: GC, NP

NO REF SOV: 004 OTHER: 007 JPRS

Card 2/2

L 38937-66 EWP(t)/ETI JD

ACC NR: AP6029722 SOURCE CODE: CZ/0043/65/000/012/0918/0924

AUTHOR: Nenov, Nedjalko (Sofia); Popov, Christomil--Popov, Kh. (Sofia); Tomov, Trifon (Sofia); Stefanov, Georgij (Sofia); Tolgyessy, Juraj--Tel'deshi, Yu. (Docent; Engineer; Candidate of sciences; Bratislava)

ORG: [Nenov; Popov; Tomov; Stefanov] Laboratory for Activation analysis, Geological Research Institute, Main Administration of Geology and Protection of the Earth's Minerals; [Tolgyessy] Department of Radiochemistry and Radiation Chemistry, Slovak Tehnical University, Bratislava (Katedra radiochemie a radiacnej chemie Slovenskej vysokej skoly technickej)

TITLE: Nondestructive determination of As in ores and minerals containing high amounts of Mn by means of neutron activation analysis

SOURCE: Chemicke zvesti, no. 12, 1965, 918-924

TOPIC TAGS: neutron radiation, analytic chemistry, gamma spectrometer, scintillation spectrometer

ABSTRACT: The authors describe a method that may be used in the presence of above 1% of Mn without subjecting the sample to a radiochemical treatment; the samples are irradiated for 20 minutes by a stream of neutrons in a nuclear reactor. They are left standing for 70 hours so that interfering radiocompounds would be decomposed, and then As is determined by using a 400 channel scintillation gamma spectrometer. Sensitivity is 5.10^{-6} grams, accuracy ±15%. Orig. art. has: 2 figures and 3 tables. [JPRS: 34,669]

SUB CODE: 07 / SUBM DATE: 03Jun65 / ORIG REF: 001 / SOV REF: 001 / OTH REF: 007

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L 15605-66
ACC NR: AP6008216 SOURCE CODE: BU/0011/65/018/004/0365/0367

AUTHOR: Ivanov, V.; Popov, Ch.

ORG: Higher Institute of Veterinary Medicine, Sofia

TITLE: Ratio of catalase and of certain respiratory enzymes in various organs of hens

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 4, 1965, 365-367

TOPIC TAGS: enzyme, experiment animal, biologic metabolism, cell physiology

ABSTRACT: There is a number of investigations which show that the activity of respiratory enzymes in non-nucleate erythrocytes is considerably lower than that of the nucleate ones (Al. S. Hunter, F. S. Hunter, J. Cellular and Compar. Physiol., 1957, No 3, 49; S. Rapoport, E. O. G. Hofmann, Biochem. Z., 326, 1955, No 7). At the same time, a higher activity of the catalase is established in the non-nucleate erythrocyte as compared with the nucleate ones. These data have led to the assumption that there exists a certain dependence between respiratory enzymes and catalase in the erythrocytes. In an attempt to clarify the situation the authors studied 10% homogenates of

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ACC NR: AP6008216

the heart, liver, kidney, and skeletal muscle from the thigh of hens, a half hour after feeding and under the condition of complete rest, for cytochromoxydase, succindehydrogenase, and catalase activities. Results show that there exist grounds to assume the existence of a certain connection and interrelation between the activity of the catalase and the respiratory enzymes, but this interrelation is influenced by a number of other enzyme processes which are not clarified yet. The paper was submitted by Academician I. Emanouilov, 3 December 1964. Orig. art. has: 1 table. [JPRS]

SUB CODE: 06 / SUBM DATE: none / OTH REF: 014 / SOV REF: 003

IB

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[illegible] V, V.; [illegible]OPOV, Ch.

On the ratio of catalase and of certain respiratory enzymes in various organs of hens. Dokl. Polg. akad. nauk 18 no.4: 365-367 '65.

1. Submitted December 3, 1964.

POPOV, C.; BAKURDJIEVA, N.

Increase in stability of pigment protein complex in leaves and isolated chloroplasts, influenced by manganese, nickel and copper. Dokl. Bolg. akad. nauk 18 no.7:655-658 '65.

1. Submitted March 27, 1965.

POPOV Chr

2168. POPOV Chr. *Seeming contradiction between the clinical and radiological diagnosis on the one hand and the operative findings on the other in cases of ulcer of the duodenal bulb (Bulgarian text) KHIRURGIJA (Sofia) 1956, 9/7-8 (599-605) Illus. 12

In many very recent cases of ulcer of the duodenal bulb, the deformations of the outline seen on radiographs do not involve the whole thickness of the wall of the bulb, but represent radiological images due to oedematous swelling of the mucosa of the bulb, which may look quite normal if viewed externally. In such cases the surgeon may find during the operation that the bulb shows a wholly normal appearance, but when the clinical picture positively indicates an ulcer and radiography has confirmed the clinical diagnosis he should go through with the operation.

(XIV, 9)

MARKOV, V.N., akademik; BARDAROV, dotsent; POPOV, doktor

Restoration of penicillin sensitivity in resistant Staphylococcus. Zhur.mikrobiol.epid.i immun no.5:76-82 My '55. (MLRA 8:7)

1. Iz instituta mikrobiologii (dir. -akad. V.N.Markov) Meditsinskoy akademii imeni V.Chervenkova v Sofii.

(MICROCOCCUS PYOGENES, effect of drugs on, penicillin, restoration of sensitivity in resis. strains with anti-penicillinase serum)

(PENICILLINASE, antagonists, anti-penicillinase serum, restoration of penicillin sensitivity in resist. strains of Micrococcus pyogenes)

TOLGYESSY, Juraj, doc. inz. CSc.; POPOV, Christomil Petkov; STEFANOV, Georgi Ivanov; TOMOV, Trifon Tomov, inz.

Nondestructive determination of indium in intermetallic alloys by neuron activation in using Po+Be neutron source. Chem zvesti 18 no.1:49-55 '64

1. Nauchno izsledovatelski geologicheski institut pri Glavno upravlenie po geologiia i okhrana na zemnite nedra, Laboratoriia akticatsionen analiz, Sofiia (for all except Togyessy). 2. Katedra radiochemie a radinonej chemie, Slovenska vysoka skola technicka, Bratislava (for Tolgyessy).

ANGELOV, S., akad. prof. d-r.; POPOV, D., prof. d-r.; BALKANSKA, N., d-r.

Seroflocculation reaction of Mandula and its application in diagnosis and control of syphilis. Izv. mikrob. inst., Sofia Vol. 4:41-48 1953.

1. Direktor na Mikrobiologicheskiia instituta pri BAN. (for Angelov) 2. Direktor na Kozhno-venerichna a klinika pri Meditsinskata Akademiia V.Chervenkov (for Popov) 3. Nauchen sutrudnik pri Kozhno-venericheskiia institut. (for Balkanska)
(SYPHILIS, diagnosis, serol.)

POPOV, D.

Popov, D. The Bachevo Forest Enterprise, frontranker of the District.p.360.

Vol. 11, no. 8, Oct. 1955 GORSKO STOPANSTVO Sofiya, Bulgaria

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 2 February, 1956

MURIN, A.; POPOV, D.

Additivity of Soret coefficients. Doklady Akad. Nauk S.S.S.R. 88, 879-82 '53. (MLRA 6:2)
(CA 47 no.22:11902 '53)

W-29318-
B-76820, 7 Jul 54

POPOV, D., povar (Tashkent)

Oven with a hollow bar instead of the all-metal. Obshchestv.pit. no.5:30-31 My '62. (MIRA 15:5)
(Restaurants, lunchrooms, etc.—Equipment and supplies)

Popov, D.

Popov, Dimitŭr, Shaposhnikov, K., and Vasilev, Khr.: Fizika (Physics). Sofia: Pcopies Ed. Press. 1952. 150 pp. (2)

Popov, D.

New uses of sodium amide in organic syntheses. III. A new variant of the Perkin reaction—preparation of β-arylacrylic acids. Al. Spasov, St. Robev, and D. Popov. *Compt. rend. acad. bulgare sci.* 7, No. 1, 41–4(1954) (in German); cf. *C.A.* 49, 6182f.—To a soln. of 1.2 g. of AcOH in 15 cc. of xylene (Na-dried) is added 2.3 g. powd. $NaNH_2$ in 15 cc. xylene, and the mixt. heated 10 min. in a 145–50° bath. After the addn. of 0.04 mole of an anil $ArCH:NAr'$, heating is continued 3–4 hrs., cold H_2O (150 cc.) is added, and the aq. layer Et_2O-washed, treated with C, and acidified (with dil. HCl). The acrylic acid (I), $ArCH:CHCO_2H$, is pptd. and a small addnl. amt. is extd. from the filtrate with Et_2O. Given are Ar, Ar', m.p. of I, % yield: Ph, Ph, 132–3° (H_2O-alc.), 53; Ph, *o*-$MeOC_6H_4$, —, 58; *o*-C_6H_4, Ph, 204–6° (alc.), 55; *o*-C_6H_4, *o*-$MeOC_6H_4$, —, 65. The reaction mechanism is discussed. G. L. Sutherland

(1)

POPOV, D.

"Improving the work with titanic enamels."

p.22 (Leka Promishlenost, Vol. 7, no. 3, 1958, Sofiia, Bulgaria)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 8, August 1958

BULGARIA / Chemical Technology. Chemical Products and Their Applications. Chemical Processing of Natural Gases and Petroleum. Motor and Rocket Fuel Lubricants. H-23

Abs Jour: Ref Zhur-Khimiya, No 3, 1959, 9646.

Author : Popov, D.
Inst : Not given.
Title : Normal Paraffin Hydrocarbons, Decalin and its Homologues in the Kerosene Fraction of Tyulenev Petroleum.

Orig Pub: Izv. Khim. in-t Bulg. AN, 1957, 5, 453-473.

Abstract: A study was conducted of the kerosene fraction (200-300°, d_4^{20} 0.8725) dispersed into 6 narrow fractions, which were treated by Silica gel to remove the aromatic hydrocarbons (H). By treat-

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Their Applications. Glass.

Abs Jour: Ref Zhur-Khimiya, 1959, No 4, 12599.

Author : Popov, D.
Inst : Not given.
Title : On the Improvement of Work with Titanium Enamels.

Orig Pub: Leka promishlenost, 1958, 7, No 3, 22-24.

Abstract: No abstract.

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Distr: 4E2c

The electrolytic and chemical polishing of aluminium. I. Zagorov and Dim. Popov. *Leka Prom.* (Sofia) **8**, No. 11, 18–20(1959).—The chem. polishing method employs 2 kinds of solns. The 1st, contg. 70 vol.-% H_3PO_4, is used on Al with degree of purity <99.5%. An example is H_3PO_4 (d. 1.5) 895, concd. HNO_3 35, and H_2O 160 cc. The temp. is 80° and polishing lasts from 15 sec. to 5 min. depending on the shape of the Al pieces. The 2nd bath, contg. <70 vol.-% H_3PO_4 is used on Al purer than 99.5%. An example is H_3PO_4 (d. 1.5) 700, concd. HNO_3 30, AcOH 120, and H_2O 150 cc. The temp. is 100–20°, and polishing time is 2–6 min. Electrolytic polishing of Al gives more reflectance. Electropolishing in an alk.-type bath is done in 2 baths. The 1st contains 15% Na_2CO_3 and 5% Na_3PO_4 and is used at 80°, 12–15 v., and c.d. 5–6 amp./sq. dm. for 5–8 min. The 2nd bath is 20% $NaHSO_4$, and is used at 80°, 12 v., and c.d. 0.6–0.8 amp./dm. for 20–30 min. The acid-type bath is more important than the alk. bath and contains H_3PO_4 (d. 1.5) 400, EtOH 380, and H_2O 250 cc. and is used at 42–5°, 50–60 v., and c.d. 35 amp./sq. dm. for 3–4 min. Several variants of this acid-type soln. are described. This method is used for polishing Al with degree of purity 99.2–99.9%.

M. Bedikian

POPOV, D., polkovnik; TERENT'YEV, G., podpolkovnik

Squad in an attack. Voen. vest. 42 no.1:50-55 Ja '63. (MIRA 17:4)

NANOV, D., inzh., n. sutrudnik; POPOV, D., n. sutrudnik

Line production in machine construction, basic method for the organization of production. Tekh delo no. 456: 2 22 D '62.

POPOV, D.

Vocal spectrographs. Nauka i tekh mladezh 15 no.10:29 O'63.

SOMLEV, P., inzh.; VULEV, A.; TERZIISKI, Iv.; SIMEONOV, St.; POPOV, D.

Discontinuation and redistribution of the obsolete lathes S5A and S8. Mashinostroene 11 no.5:3-5 My '62.

1. Postoianen konsultant, "Mashinostroene" (for Somlev).

POPOV, D., insh.

Testing the ventilators in the new aerodynamic laboratory of the Spartak State Machine-Building Plant. Mashinostroene 11 no.7/8: 57-58 Jl-Ag '62.

1. Gl. konstruktor na Durzhavniia mashinostroitelen zavod "Spartak", Burgas.

POPOV, D., polkovnik; SVIRYAYEV, I., podpolkovnik

Forms for recording combat training. Voen.vest. 42 no.5:61-65 My '62. (MIRA 15:11)

(Military education--Records)