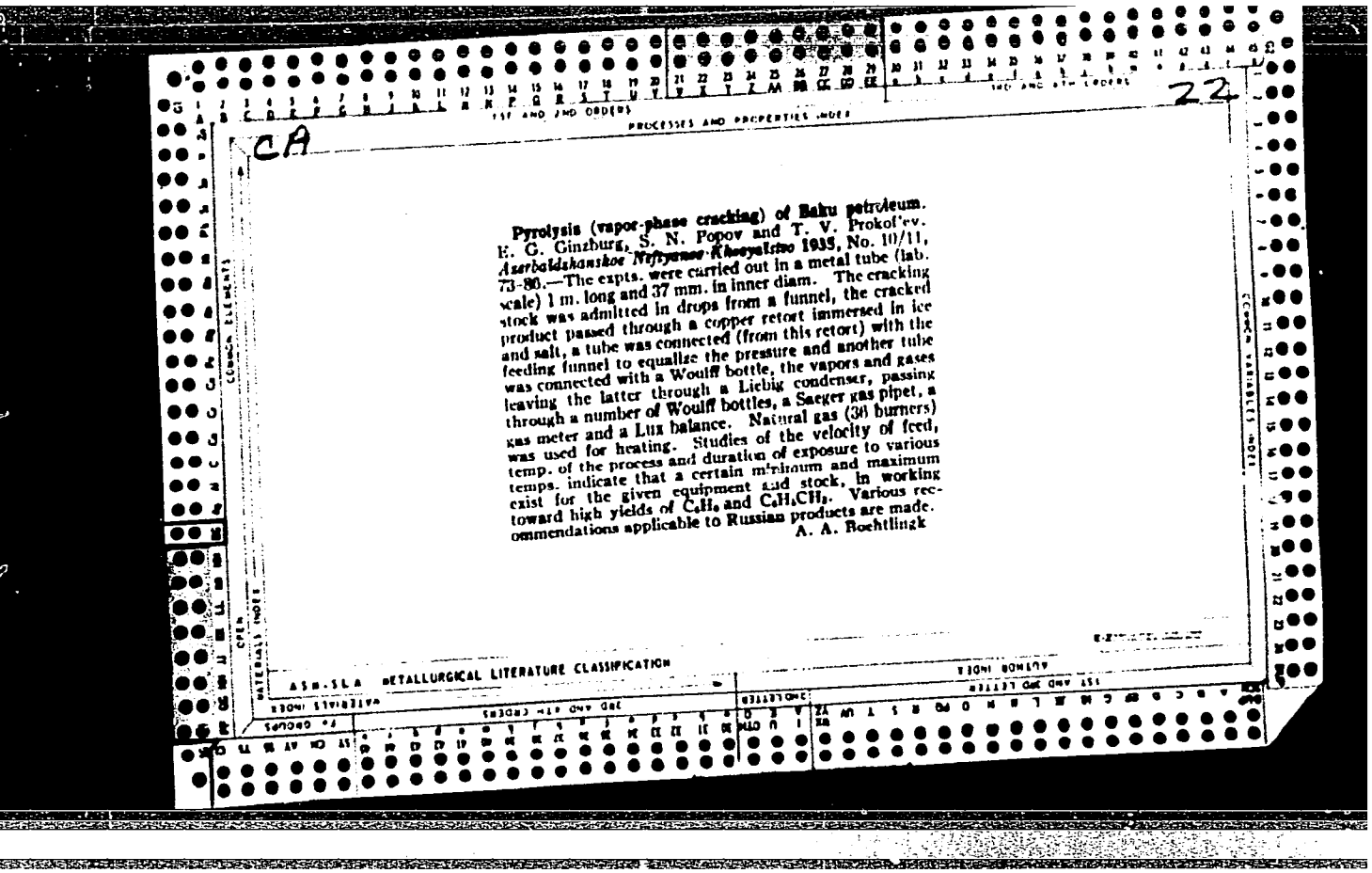


CA

22

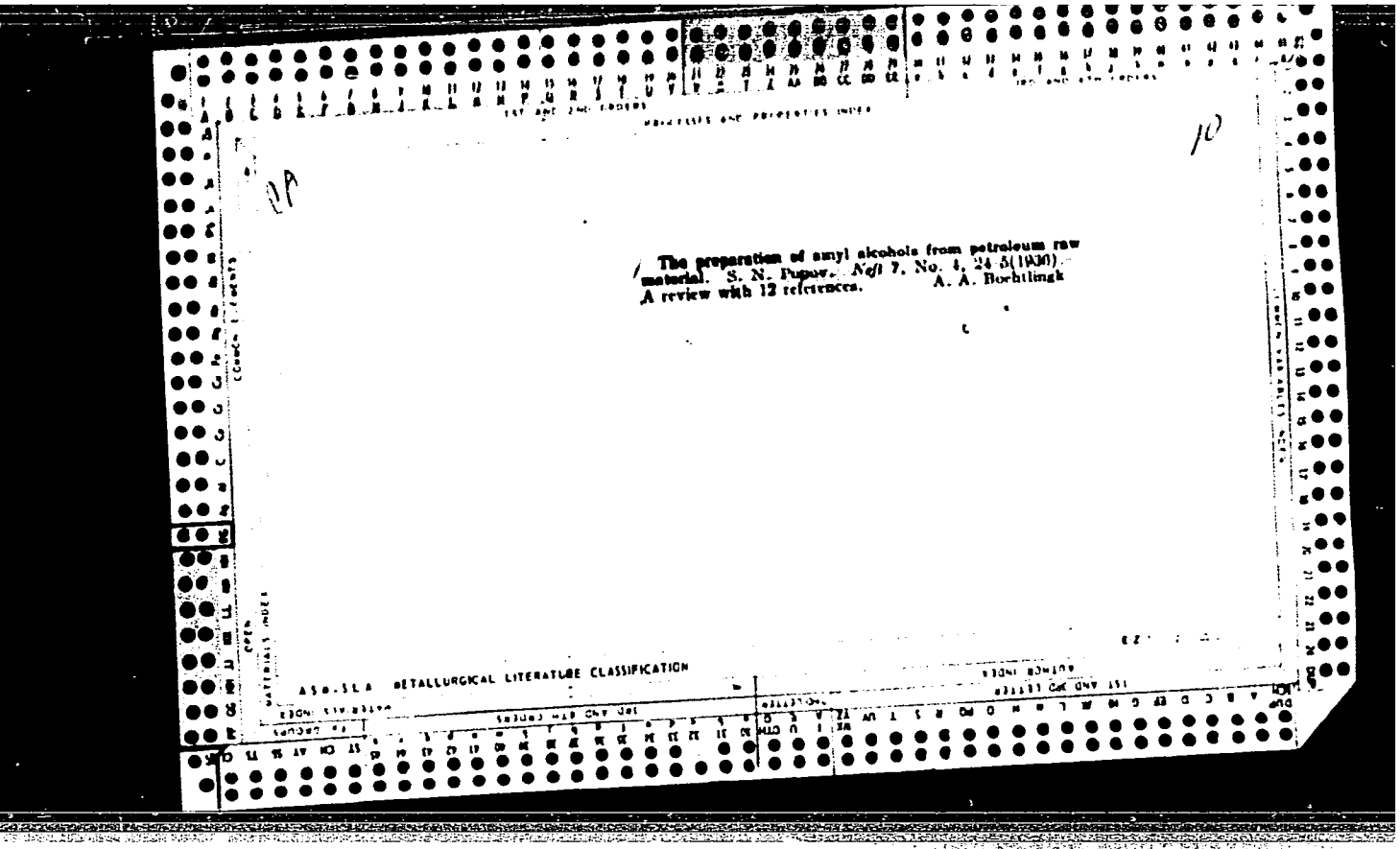
PROCESSES AND PROPERTIES INDEX

Pyrolysis (vapor-phase cracking) of Baku petroleum. E. G. Ginzburg, S. N. Popov and T. V. Prokof'ev. *Azerbaidzhanskoe Neftyanoe Khozyaistvo* **1935**, No. 10/11, 73-80.—The expts. were carried out in a metal tube (lab. scale) 1 m. long and 37 mm. in inner diam. The cracking stock was admitted in drops from a funnel, the cracked product passed through a copper retort immersed in ice and salt, a tube was connected (from this retort) with the feeding funnel to equalize the pressure and another tube was connected with a Woulff bottle, the vapors and gases leaving the latter through a Liebig condenser, passing through a number of Woulff bottles, a Saeger gas pipet, a gas meter and a Lux balance. Natural gas (30 burners) was used for heating. Studies of the velocity of feed, temp. of the process and duration of exposure to various temps. indicate that a certain minimum and maximum exist for the given equipment and stock, in working toward high yields of C_2H_4 and $C_6H_5CH_3$. Various recommendations applicable to Russian products are made.

A. A. Boehtlingk

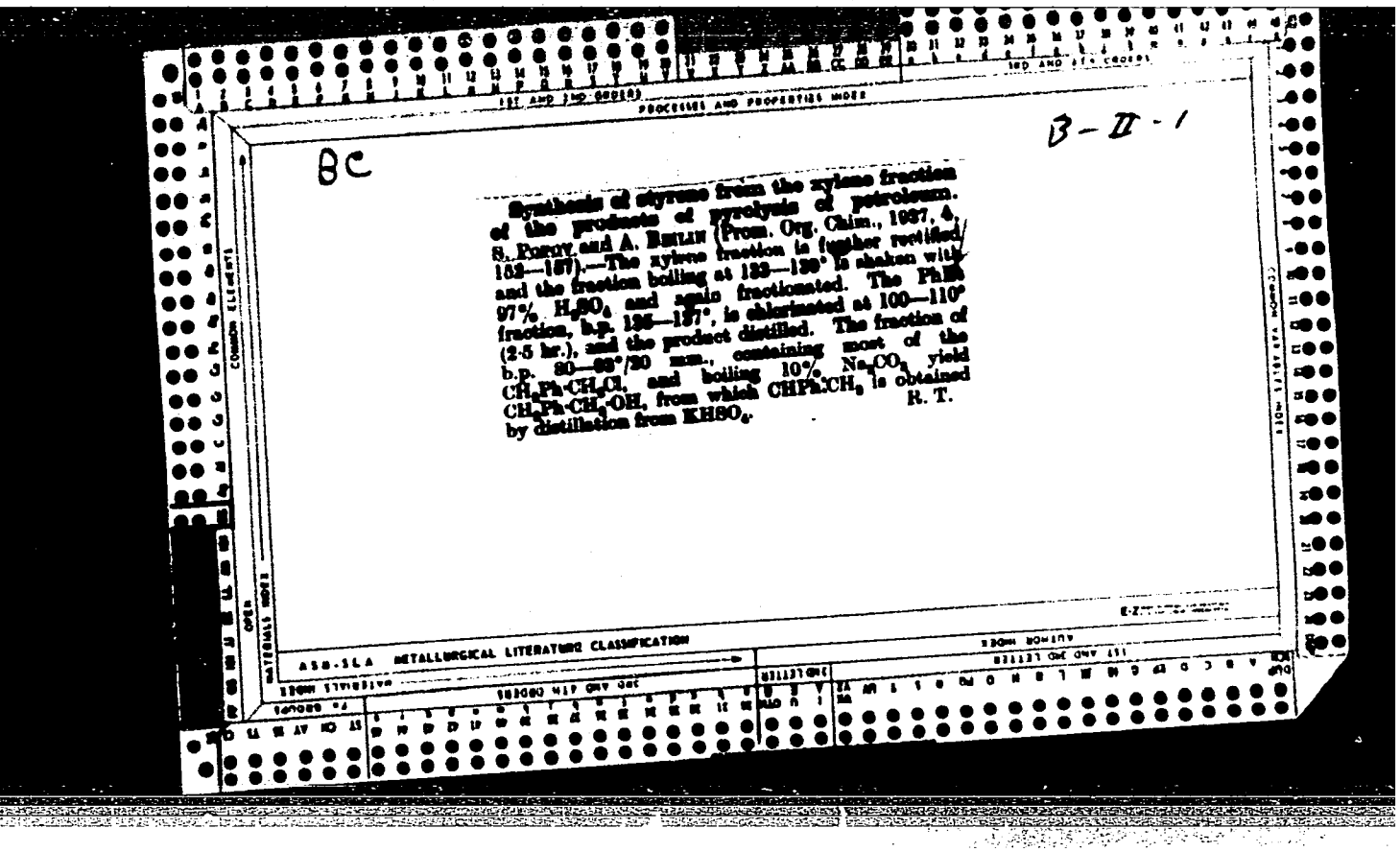
A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

Pyrolysis of Baku petroleum. H. S. Popov, F. Prokof'eva and E. Ginzburg. *Azerbaidzhanskoe Neftyanoe Khoz.* **1936**, No. 4, 59-67; cf. *C. A.* **30**, 8587[1].—The pyrolysis of naphthenic gas oil at 700° and a feeding velocity of 204 g./hr. (in a lab. retort) give a max. yield of the "toluene fraction" of 5.45% at a "benzene fraction" yield of 8.8%, this being accompanied by the formation of 0.8% coke, precluding a commercial-scale processing. The max. "toluene" yield is obtained at a pyrolysis temp. of 675° and a velocity of feed of 175 g./hr.; this produces 5.4% "toluene" and 7.4% "benzene," with a potential $C_6H_5CH_3$ content of 5.24% and a C_6H_6 content of 6.8% of the raw material. The aromatization of gas oil needs a much higher temp. when the time is decreased. Some of the C_6H_6 is formed from its homologs. The thermal stability of cracked polymers is slightly lower than that of naphthenic gas oil. The highest yield of "toluene" from cracked polymers contg. 9% of fractions b. below 200° was obtained at 675°. An increase in the content of cracked polymer fractions b. below 200° from 1 to 16% raises the yield of "benzene" by 15.6% and that of "toluene" by 44.3%. Surakhany topped crude oil yielded about 10% more "toluene" than that from Bibi-Eibat, but the coke formation was excessive. The gas oil from the above crude oils behaved in a manner similar to that of the corresponding topped crude oils and the Surakhany gas oils yielded slightly more "benzene" and the same amts. of "toluene" at a lower coke formation. The fractional compn. of the gas oils has little effect on the yields. The high yields of the aromatized fractions from light petroleum distillates are explained by dehydrogenation processes which proceed vigorously with six-member methylated rings. The relation between mol. wt. and the yields of aromatic hydrocarbons in the pyrolysis is a valuable criterion for the evaluation of raw material resources. In the pyrolysis of a paraffinic raw material the yield of gases and of ethylene is higher than from naphthenic products by 15-20%. The fractional compn. of the raw material has little influence on the yield of C_6H_6. A detailed description of the experimental procedure is presented. A. A. B.



The preparation of amyl alcohols from petroleum raw material. S. N. Pupov. *Neft* 7, No. 4, 24-5(1930). A review with 12 references. A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



B-II-1

BC

Synthesis of styrene from the xylene fraction of the products of pyrolysis of petroleum. S. Popov and A. Berlin (Prom. Org. Chim., 1937, 4, 153—157).—The xylene fraction is further rectified, and the fraction boiling at 135—139° is shaken with 97% H_2SO_4 and again fractionated. The PhMe fraction, b.p. 135—137°, is chlorinated at 100—110° (2·5 hr.), and the product distilled. The fraction of b.p. 80—88°/30 mm., containing most of the $CH_2Ph{\cdot}CH_2Cl$, and boiling 10% Na_2CO_3 yield $CH_2Ph{\cdot}CH_2{\cdot}OH$, from which $CHPh{:}CH_2$ is obtained by distillation from $KHSO_4$.

R. T.

FOKOV, S. N.

"On the Interaction of B, B'-Dichlorodiethyl Ether With Dimagnesiumdibromoacetylene." Zhur. Obshch. Khim., 10, No. 12, 1940. Inst. of Chemistry Azerbaydzhan Affiliate, Academy of Sciences USSR. Received 23 November 1939.

[redacted] Report U-1627, 11 January 1952.

POPOV, S. N.

POPOV, S. N. - "Investigation of the Chemical Nature of Ozokerite, Its Genetic Connection With Petroleum, and the Catalytic Role of the Rocks in Which It is Found." Sub 30 Oct 52, Inst of Petroleum, Acad Sci USSR. (Dissertation for the Degree of Doctorates in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

SOV/81-59-16-58517

Translation from: Referativnyy zhurnal.. Khimiya, 1959, Nr 16, p 412 (USSR)

AUTHORS:: Agroskin, I.I., Popov, S.N.

TITLE: The Development of a Process of Crystallizing Solid Hydrocarbons From Ozocerite and Petrolatum in the Deoiled State

PERIODICAL: Nauchn. zap. L'vovsk. politekhn. in-ta, 1958, Nr 50, pp 181-186

ABSTRACT: It has been established that the separation of high-molecular solid hydrocarbons from solutions of ozocerite and petrolatum in the form of an easy filtering deoiled powder depends on the content of resinous-asphaltic substances (RAS) in them, principally asphaltenes. Strongly resinified as well as light ozocerite which has been sufficiently purified by silicagel gives at filtration a pasty, difficultly filtering precipitate. At a content in Borislav ozocerite of ~6% RAS the latter precipitates at room temperature from 5 and 20%-solutions in the form of a quickly filtering dry powder (high-melting fraction of ozocerite). The same effect is obtained by adding 1.5% RAS to petrolatum. For this purpose Al stearate (I) can also be used instead of RAS. Its optimum quantity is 0.025% of the amount of ozocerite or petrolatum. Thus on adding 0.025% I to a 20%-solu-

Card 1/2

POPOV, Sergey Nikolayevich; SEREDA, Ya.I., otv.red.; BLIKH, V.V., red.; KOTLYAROV, Yu.L., red.; SARANYUK, T.V., tekhn.red.

[Chemistry of petroleum and natural gas] Khimiia nefti i gaza. L'vov, Izd-vo L'vovskogo univ., 1960. 377 p. (MIRA 14:2)

1. Chlen-korrespondent AN USSR (for Sereda).
(Petroleum) (Gas, Natural)

AGROSKIN, I.I.; PROKOPETS, M.M.; POPOV, S.N.

Dewaxing filter stock of the refined Surakhany oil in a naphta solution with an aluminum stearate additive. Izv. vys. ucheb. zav.; neft' i gaz 4 no.6:73-80 '61. (MIRA 15:1)

1. L'vovskiy politekhnicheskiy institut.
(Apsheron Peninsula--Paraffins)

L 10405-67 EWT(l)/EWT(m)/EWP(e)/EWP(v)/EWP(j)/EWP(k)/EWP(t)/ETI IJP(c) JD/HM/
ACC NR: AT6033033 AT/RM/WH SOURCE CODE: UR/2504/66/032/000/0029/0038

59
53

AUTHOR: Popov, S. N.

ORG: none

TITLE: Investigation of a titanium plasma source. 1. Construction of the source and main parameters of the plasma

SOURCE: AN SSSR. Fizicheskiy institut. Trudy, v. 32, 1966. Fizika plazmy (Plasma physics), 29-38

TOPIC TAGS: plasma source, titanium, plasma flow

ABSTRACT: The source (see Fig. 1) was in the form of a row of titanium disks 11, with a diameter of 14 x 19 mm and a thickness of 2 mm, fed with hydrogen or deuterium. The distance between the disks was 1 mm. The ohmic resistance of the conducting electrodes did not exceed 0.02-0.03 ohms, and the conductance of the source under operating conditions, assuming that the plasma pinch completely fills the inner channel of the source, was approximately 30 cm. Using the above equipment, studies were made of several parameters of the plasma generated: density, total number of particles generated, mass and energy spectra, temperature of the electrons and the ions, etc. A figure shows the distribution of the ions with respect to transverse velocities, and a table shows the mean free flight path of ions in the plasma. "The author expresses

Card 1/3

L 10405-67

ACC NR: AT6033037

3

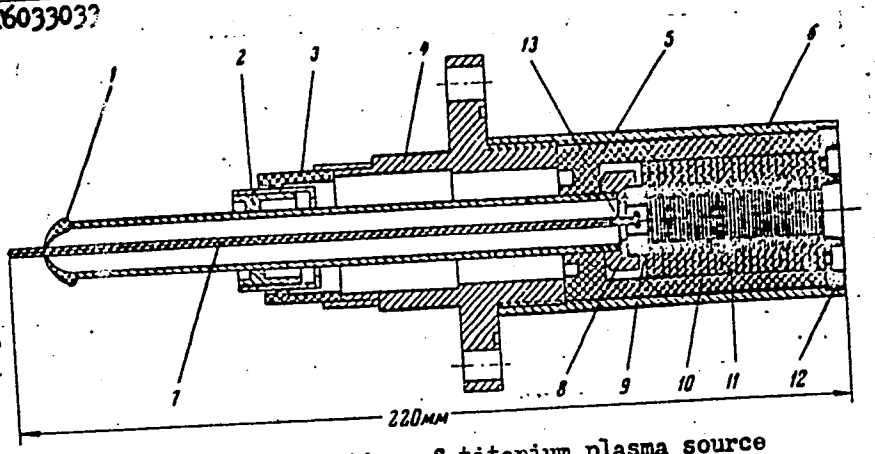


Fig. 1. Construction of titanium plasma source

1—lead for ignition voltage; 2—transition piece; 3—lead for main voltage; 4—flange; 5—steatite or Teflon insulation; 6—conducting copper cylinder; 7—trigger electrode (Kovar tube); 8—copper nut; 9—first titanium disk; 10—steatite or Teflon insulation; 11—titanium disk; 12—last titanium disk; 13—titanium end piece.

Card 2/3

his sincere thanks for helpful discussions to A. A. Rukhadze, O. I. Fedyanin, and I. S. Shpigel'. Orig. art. has: 2 formulas, 9 figures and 1 table.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 003

Card 3/3 bjp

POPOV, S.N., kand.tekhn.nauk

Provide for timely and good-quality maintenance and repair of tracks. Zhel.dor.transp. 46 no.6:44-49 Je '64. (MIRA 18:1)

POPOV, Sergey Nikolayevich, kand. tekhn. nauk; SERGEYEVA, A.I., red.

[Ballast bed of railroad tracks] Ballastnyi sloi zheleznodorozhnogo puti. Moskva, Transport, 1965. 182 p. (MIRA 18:4)

POPOV, S.N., kand.med.nauk

Some problems of primary specialization of radiologists at local bases. Zdrav. Ros.Feder. 7 no.10:28-30 O'63 (MIRA 16:11)

1. Glavnyy rentgenolog Tambovskoy oblasti.

*

POPOV, S.N.; GLEMBOTSKIY, Ya.L.

"Present state and prospective development of animal husbandry in Lena and Olekminisk Districts of the Yakut A.S.S.R."

p. 176 Trudy Akad. Nauk SSSR, Yakutsk Filial, No. 1, 1956.

POPOV, S. N.

"Colonic Lithotomy of Horses"

Bolezni Loshadey (Equine Diseases), Sbornik Rabot (Collection of Work), Ogiz-Sel'khozgiz, Moscow, 1947, Sect. II - Surgical Diseases, p 179 (Tab Con)

A collection of works compiled by A. Yu. Branzburg and A. Ya. Shapiro, under Editorship of A. M. Laktionova, State Press for Agric. Lit. In majority of cases, previously published in journal Veterinariya or one of the manuals issued by the Vet. Admin. of the Armed Forces USSR

-W-9922, 1 May 1950 p 4

m

POPOV, S. N., Cand Med Sci -- (diss) "Oxyhemometry in respiration impairment in the medical-pedagogical supervision of light athletes." Leningrad, 1960. 18 pp; (Leningrad State Order of Lenin Inst of the Advanced Training of Physicians im S. M. Kirov); 300 copies; price not given; (KL, 50-60/136)

POPOV, S.N., kand. med. nauk. (Tambov, ul. Komsomol'skaya, d. 79, kv. 5)
KARMANOVA, Z.Ya.

Chronic antral gastritis as a precancerous state of the stomach. Vest. rent. i rad. 34 no.1:23-29 Ja-F '59. (MIRA 12:3)

1. Iz Tambovskogo oblastnogo onkologicheskogo dispansera (glavnyy vrach - zasluzhennyy vrach RSFSR T.M. Grozdov).
(GASTRITIS
chronic antral as precancerous state (Rus))
(STOMACH NEOPLASMS, etiol. & pathogen.
gastritis, chronic antral (Rus))

POPOV, S.N., kand. med. nauk; GONCHAROV, Ye.S.

Operation of a fluorographic service in conjunction with the general X-ray network. Zdrav. Ros. Feder. 3 no.5:20-22 My '59.
(MIRA 12:7)

1.Iz oblastnoy rentgenologicheskoy stantsii (zav. S.N. Popov). pri Tambovskoy oblastnoy bol'nitse (glavnyy vrach A.I. Yevteyev).
(RADIOGRAPHY)

POPOV, S. N., Cand of Med Sci -- (diss) "Clinico-roentgenological, surgical and pathologicoanatomical parallels in cancer of the stomach." Moscow, 1957, 15 pp (State Scientific Research Institute of Roentgenology and Radiology), 150 copies (KL, 37-57, 104)

POPOV, S.N., kand.med.nauk

Some comments on Docent A.IA. Popov's article "Methods for and objective rating of the gastric mucosa." Vest.rent.i rad. 34 no.2:98-99 Mr-Ap '59. (MIRA 13:4)

1. Iz tambovskoy oblastnoy rentgenostantsii (zav. S.N. Popov) pri Oblastnoy bol'nitse (glavnyy vrach - zasluzhennyy vrach RSFSR Yu. I. Molikov).

(STOMACH) (MUCOUS MEMBRANES)
(POPOV, A.IA.)

POPOV, S.N.; GROZDOVA, A.T.; KHAR'KOVSKAYA, V.P.

Primary multiple gastric cancer. Vest.rent. i rad. 32 no.4:79-80 Jl-Ag '57. (MIRA 10:11)

1. Iz Tambovskogo oblastnogo onkologicheskogo dispansera (glavnyy vrach - zasluzhennyy vrach RSFSR T.M.Grozdov) i Tambovskoy oblastnoy rentgenologicheskoy stantsii (zav. S.N.Popov)
(STOMACH NEOPLASMS, case reports
primary multiple cancer)

USSR/General Problems of Pathology - Comparative Oncology U-1

Abs Jour : Ref Zhur - Biol., No. 18, 1958, 84936

Author : Popov, S. N., Grozdova, A. T., Khar'kovskaya, V.P.
Inst : No institute is given
Title : The Problem of Multiple Primary Cancers of the Stomach

Orig Pub : Vestn. Rentgenol. i Radiol., 1957, No. 4, 79-80

Abstract : Two cases of multiple primary carcinoma of the stomach were seen in patients 51 and 55 years of age. Each patient had three tumors, whereas only two could be demonstrated radiologically, the third being discovered at operation. In the first patient all three tumors were of distinct histological structure - a solid carcinoma, a poorly-differentiated adenocarcinoma, and typical small-celled carcinoma. In the second patient, all the tumors had the structure of adenocarcinoma with foci of aquamous cell carcinoma. Emphasis is given to the difficulty of X-ray diagnosis of multiple carcinoma, as the result of the superposition of shadows of tumors

Card 1/2

USSR/Medicine - Roentgenology

Card 1/1

Authors : Popov, S. N.

Title : Clinical and roentgenological observations on the morphology and function of the stomach and duodenum in gastro-intestinal ulcers

Periodical : Vest Rentgen i Radiol 1, 52-56, 1954

Abstract : Ulcers can be detected in the absence of organic symptoms of "niches" by employing dynamic observation. X-rays can be used as a method of functional diagnosis in the diagnosis of ulcers. 13 references; all USSR Two photographs (X-rays); one table.

Institution : Roentgenology Department (Chief-S. N. Popov), Tambovskaya Oblast Hospital (Chief Physician Yu. I. Melikov)

POPOV, S.N., kand.med.nauk

The X-ray and radiological station (department) as an organizational and consultation center. Vest. rent. i rad. 36 no.5:68-70 S-O '61. (MIRA 15:1)

1. Iz Tambovskoy oblastnoy rentgeno-radiologicheskoy stantsii (zav. S.N.Popov) pri oblastnoy bol'nitsa (glavnyy vrach G.V. Romazanovich).

(RADIOLOGY, MEDICAL)

24(6) SOV/57-28-10-8/40

AUTHORS: Smolenskiy, G. A., Agranovskaya, A. I., Popov, S. N., Isupov, V. A.

TITLE: New Ferroelectric Substances of a Complex Composition (Novyye segnetoelektriki slozhnogo sostava)
II. $Pb_2Fe^{3+}NbO_6$ and Pb_2YbNbO_6 (II. $Pb_2Fe^{3+}NbO_6$ i Pb_2YbNbO_6)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2152-2153 (USSR) 1958

ABSTRACT: This paper covers an account of the synthetic production of polycrystalline samples of $Pb_2Fe^{3+}NbO_6$ and Pb_2YbNbO_6. They were synthetized by a reaction in solid phase according to conventional powder-metallurgical methods. The Pb_2FeNbO_6 samples were sintered at 950°C, the Pb_2YbNbO_6 at 900°C. It was established by X-ray structural analyses that the compounds produced have a perovskite-structure, the niobium-, ytterbium-, and iron ions occupying octahedric positions. The dielectric constant of Pb_2FeNbO_6 samples passes through a maximum at 112°C. Pronounced dielectric hysteresis loops are found at room temperature. Hence

Card 1/2

New Ferroelectric Substances of a Complex Composition, SOV/57-[illegible]-10-8/40

II. $Pb_2Fe^{3+}NbO_6$ and Pb_2YbNbO_6

$Pb_2Fe^{3+}NbO_6$ is a ferroelectric substance. The maximum of the dielectric constant of Pb_2YbNbO_6, which is small, is found at a much higher value, at 280°C. The curve $\varepsilon = f(T)$ exhibits a kink near 240°C. tg δ equals 0.03 at room temperature and a frequency of 1 kcy. It quickly increases at heating, passing through a not very deep minimum at about 240°C, and increasing again henceforth. The dielectric constant versus temperature function typical of antiferroelectric substances, the absence of a hysteresis loop and the sufficiently small geometric criterion t ($t \simeq 0.93$) substantiate the assumption that Pb_2YbNbO_6 is an antiferroelectric substance. There are 1 figure and 7 references, 2 of which are Soviet.

SUBMITTED: May 8, 1958

Card 2/2

New Ferroelectric Substances of a Complex Composition. SOV/57-23-10-8/40
II. Pb_2FeNbO_6 and Pb_2CoNbO_6

Card 3/3

SMOLENSKIY, G.A.; AGRANOVSKAYA, A.I.; POPOV, S.N.

Polarization mechanism in $Pb_3NiNb_2O_9$-$Pb_3MgNb_2O_9$ solid solutions. Fiz.tver.tela 1 no.1:167-168 Ja '59. (MIRA 12:4)
(Solutions, Solid) (Polarization (Electricity))

PHASE I BOOK EXPLOITATION SOV/4379

Vsesoyuznaya konferentsiya po fizike dielektrikov. 2d, 1958

Fizika dielektrikov, trudy vtoroy vsesoyuznoy konferentsii (Physics of Dielectrics. Transactions of the 2d All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1960. 532 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fizicheskiy institut imeni P.N. Lebedeva.

Ed. of Publishing House: Ye.L. Starokadomskaya, Tech. Ed.: I.N. Dorokhina, Editorial Board: (Resp. Ed.) G.I. Skanavi, Doctor of Physics and Mathematics (Deceased), and K.V. Filippova, Candidate of Physics and Mathematics.

PURPOSE: This collection of reports is intended for scientists investigating the physics of dielectrics.

COVERAGE: The Second All-Union Conference on the Physics of Dielectrics held in Moscow at the Fizicheskiy institut imeni P.N. Lebedeva (Physics Institute imeni P.N. Lebedev) in November 1958 was attended by representatives of the principal scientific centers of the USSR and of several other countries. This collection contains most of the reports presented at the conference and summaries of the discussions which followed. The reports in this collection deal with dielectric properties, losses, and polarization, and with specific inductive capacitance of various crystals, chemical compounds, and ceramics. Photoelectrets, ferroelectric crystals, and various radiation and irradiation effects on dielectrics are investigated. The volume contains a list of other papers presented at the conference dealing with polarization, losses, and breakdowns of dielectrics, which were published in the journal Izvestiya AN SSSR, seriya fizicheskaya, Nr. 1 and 2, 1960. No personalities are mentioned. References accompany each report.

Card 11/15

82910

21,2300 S/120/60/000/02/041/052
E140/6335

AUTHORS: Yegorov, V.A., Karetnikov, D.V. and Popov, S.N.

TITLE: Measurement of Ion Current in Ion Accelerators

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 2, pp 146 - 148 (USSR)

ABSTRACT: Electron-optical systems for direct measurement of high-energy ion beams are unsatisfactory because of secondary emission of electrons, ionisation of residual gas, etc. Curves 1 and 3 of Figure 2 give examples of variation of measured current (for fixed true current) against variation of the retarding potential intended to prevent secondary electron emission effects. The authors propose the use of a calorimetric method. The ion collector is cooled by circulating water, the volume and temperature change of which are accurately measured. The energy associated with secondary effects is small in comparison with the energy of the accelerated electrons. Curve 2 of Figure 2 indicates the freedom of this method from secondary emission effects. A precision of 10% is claimed. V. Vasyukov participated in the work.

Cardl/2

82910

S/120/60/000/02/041/052

E140/E335

Measurement of Ion Current in Ion Accelerators

There are 3 figures and 4 references, 1 of which is Soviet and 3 are German.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Chemical Physics Research Institute of the Ac.Sc., USSR)

SUBMITTED: February 3, 1959

4

Card 2/2

S/181/60/002/011/032/042
B006/B060

24,7800 (1035,1142,1162)

AUTHORS: Smolenskiy, G. A., Isupov, V. A., Agranovskaya, A. I., and Popov, S. N.

TITLE: Ferroelectrics With Blurred Phase Transitions

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2906-2918

TEXT: This is the reproduction of a lecture delivered at the All-Union Conference on Ferroelectricity which took place in Moscow in January, 1960. A report was made on studies conducted on polycrystalline specimens of ferroelectrics with blurred phase transition and belonging to the two systems $Pb(Mg_{1/3}Nb_{2/3})O_3$ - $Pb(Ni_{1/3}Nb_{2/3})O_3$ and $Ba(Nb, Ta)_2O_6$ - $Sr(Nb,Ta)_2O_6$. These ferroelectrics exhibit a relaxation polarization in the region of phase transition. The technique of the specimen preparation has already been described by A. I. Agranovskaya (Ref. 6), and the method of measurement in Ref. 2. Investigation results are illustrated in diagrams and are discussed in great detail. Fig. 1 shows ε and $\tan\delta$ as functions of temperature for $Pb(Ni_{1/3}Nb_{2/3})O_3$ in weak fields at frequencies between 1 and

Card 1/

Ferroelectrics With Blurred Phase Transitions S/181/60/002/011/032/042
B006/B060

1500 kc. Both curve groups exhibit a maximum between -150 and -100°C, the precise position and height of which is somewhat frequency-dependent. The maximum loss angle is the larger the higher the frequency. Fig. 2 shows the temperature dependence of ε and $\tan\delta$ on $Pb(Mg_{1/3}Nb_{2/3})O_3$ in weak fields at frequencies between 0.4 and 4500 kc. This compound as well exhibits loss angle maxima, lying between -50 and 0°C and which are the higher, the higher the frequency. The ε-maxima (between 9000 and 12000) are the higher, the lower the frequency. At 0.4, 1, and 45 kc they still lie at negative temperatures, but already at positive ones at 450, 1500, and 4500 kc. The ascending part of the $\varepsilon(t)$ curves is frequency dependent, but not so the dropping part. Figs. 3 and 4 show oscillograms of the hysteresis loops of these two compounds at -90 and -196°C, respectively, taken at varying electric field strengths (E_{max} = 20 kv/cm and 60 kv/cm). Fig. 5 shows the temperature dependence of total polarization on $Pb(Mg_{1/3}Nb_{2/3})O_3$, $Pb(Ni_{1/3}Nb_{2/3})O_3$, and solid solutions $xPb(Mg_{1/3}Nb_{2/3})O_3 + (1-x)Pb(Ni_{1/3}Nb_{2/3})O_3$, the x-values being given near the curves. Fig. 6 shows, for these specimens, the spontaneous polarization as a temperature function, Fig. 7 the

Card 2/8

POPOV, S.N.

Investigating Ardenne's duo-plasmatron. Prib. i tekh.eksp. 6 no.4:20-24 Jl-Ag '61. (MIRA 14:9)

1. Institut khimicheskoy fiziki AN SSSR.
(Ion sources)

POPOV, S.N.

Measuring the sifting of ions on single-potential lenses.
Prib. i tekh.eksp. 6 no.4:69-70 Jl-Ag '61. (MIRA 14:9)

1. Institut khimicheskoy fiziki AN SSSR.
(Ion beams--Measurement)

S/057/61/031/002/010/015
B124/B202

26.2322

AUTHOR: Popov, S. N.

TITLE: Study of the current density distribution over the cross section of an ion beam

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 2, 1961, 217-223

TEXT: The study of the current density distribution in accelerator systems is necessary for the explanation of the propagation dynamics of charged particles in the vacuum as well as for the construction of targets used in nuclear physics. This problem is of special importance when studying accelerators that are used in experimental physics. The experiments were made in an ion tube the scheme of which is shown in Fig. 1. The ion source 1, which is described in Ref. 2, produced about 20 ma of hydrogen ions. The optical ion system (2,3,4) consists of a single-potential lens with full voltage application in the region of ion separation and with the separation voltage constantly amounting to 40 kv. The controlled voltage from 0 to 10 kv was fed into the central electrode 4. The instrument for

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89164

measuring the current density distribution (CDDMU) was attached to the water-cooled beam catcher 5. This instrument consists of a copper plate 6 with a 50 mm long and 1 mm wide cross slit 7 which can be displaced with respect to the optical system by means of a pull rod. Under the plate the full cylinder 8 driven by motor 13 was connected with the 1 mm wide nick 9. Cylinder 8 contained the coaxial receptacle 10 with slit 11 (2 mm wide); slits 7 and 11 were parallel. The system is housed in a vacuum container 14 with a working pressure of $1 \cdot 10^{-5}$ mm Hg and a partial pressure of the residual gases of about $8 \cdot 10^{-6}$ mm Hg. A controlled positive potential of 0 - 500 v with respect to the optical ion system was applied to the beam catcher and the CDDMU. The total current in the beam catcher was measured electrically and calorimetrically. The current density distribution (CDD) was determined as follows: After measuring the entire ion current slit 7 was introduced into the beam. The part of the beam which penetrated the moving slits 7 and 11 entered receptacle 10 from where the signal was conducted to the input of oscilloscope Э0-4 (EO-4), where the CDD was recorded. By displacing the CDDMU the density distribution can be determined on any chord of the cross section of the beam. The maximum pulsation of

voltage during ion separation was 0.5 % and on the central electrode of the optical system 0.15 %, however pulsation of current density in the beam was considerable. Pulsation in the central point of the beam is minutely weak but increases in the direction of the contour. Fig. 2 shows the oscillogram of CDD on one chord near the boundary of the visible radius of the beam. The voltage amplitude of current density increases by almost the 1.5 fold during the half-period of pulsation. Fig. 3 shows the oscillogram of the dependence of CDD on the strength of illumination of the optical ion system. Fig. 4 shows the compensation of the CDD function by means of the Gauss curve. To calculate the oscillogram the empirical Eq.

$$\delta = 40 \exp(-7.6r^2) \text{ma/cm}^2 \qquad (1)$$

is used, where δ current density of the beam (in ma/cm^2) and r the radial coordinate (in •cm). The ion current calculated from (1) was 16.5 ma, whereas the electrically measured values under the same conditions yielded 17.5, and the calorimetrically measured values 15.3 ma. The ion current density near the beam axis attained 38 ma/cm^2 and the mean density in a beam with a diameter of 1 cm was 17 ma/cm^2. With increasing width of the beam

the mean density of the ion current and also the density of the compensation electrons are reduced. With increasing width of the beam the ratio between electron density and hydrogen ion density around the axis increases. Hence, the conditions of compensation of the volume charge are improved and a peak of the current density is formed near the axis. Luminescence near the axis may be caused not only by secondary electrons but also by compensation electrons. It was experimentally proved that in a similar ion source the distribution of ion velocities is not Maxwellian but consists of three discrete groups. In this case the "tails" of CDD would be bound to decrease strongly. Hence, it may be concluded that the "tails" of CDD mainly consist of heavy ions and that the visually observed luminescence of the ion beam corresponds to the actual diameter of the accelerated ion beam. The author thanks V. I. Krasnovskiy for mounting the instrument and assisting in the experimental work, V. Zel'kov for the construction of the CDDMU, and I. F. Slikov and D. V. Karetnikov for valuable advice. There are 4 figures and 11 references: 5 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moskva (Institute of Chemical Physics AS USSR, Moscow)

89164

Study of the current density distribution ... S/057/61/031/002/010/015
B124/B202

SUBMITTED: February 17, 1960

Legend to Fig. 1. Scheme of the device, 1) outlet

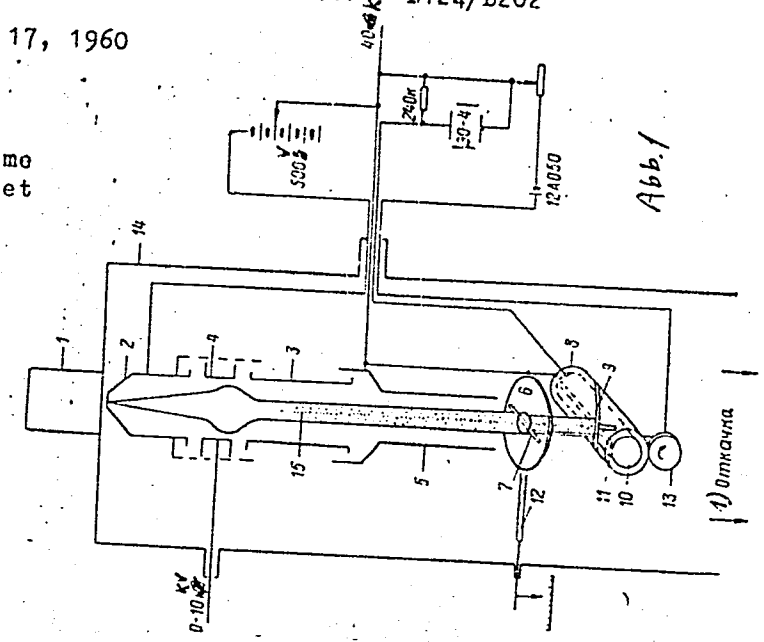

Abb. 1

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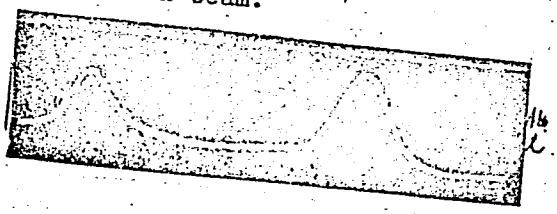
89164

S/057/61/031/002/010/015
B124/B202

Study of the current density distribution ...

Legend to Fig. 2. Pulsation oscillogram of the ion beam.



Legend to Fig. 3. Dependence of the CDD of the beam on the strength of illumination of the lens. U_c - potential of the central electrode of the lens (in kv); a - 4, b - 5, c - 6, d - 7, e - 8, f - 9.

Abb. 3

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31718
S/057/61/031/012/004/013
B108/B138

26.2312

AUTHOR: Popov, S. N.

TITLE: The significance of an emission channel in an ion source

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 12, 1961, 1431-1438

TEXT: The properties of an ion source are largely determined by the shape of the emission channel. Experimental and theoretical results indicate that the ion current from an anode with emission channel is limited by the space charge and that it obeys the "$V^{3/2}$-law". A space charge arises when plasma interacts with the walls. The same is the case at the boundary between plasma and an external magnetic field. However, the field has to be regarded as an elastic wall which gives way under the "pressure" of the plasma field. When the potential drop between the anode and the collector electrode is great enough the plasma will be "pushed back" into the channel, where it forms a pinch. In this case the maximum ion current density will be reached. The experimental arrangement has been described before (PTE, no. 4, 20, 1961). If the plasma density in the emission channel is known, one can approximately calculate the ion current, current density j in the channel, and gas consump-

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B108/B138

The significance of an ...

tion γ for a given channel radius R from the formulas

$$E=\overrightarrow{\operatorname{grad} V_0}=(4.5\pi nkT_e)^{1/2}\left[\ln\frac{m_i}{2\pi m_e}\right]^{1/2}. \quad (7)$$

$$I=\frac{5.45\cdot 10^{-8}}{\sqrt{A}}\frac{v_0^{5/2}\cdot S\beta(R)}{d^2}\sim\beta v_0^{5/2}\sim\beta R^{5/2}, \quad (10)$$

$$j\sim\frac{\beta(R)}{R^{1/2}}, \quad (11)$$

$$\gamma=\frac{I}{Q}\sim\frac{\beta(R)}{R^{1/2}}$$

where n = ion concentration in the plasma, T_e = electron temperature (°K), I = overall current, A = molecular weight of the ions, v_0 = potential at the axis at the channel entrance, d = interelectrode gap, S = emitting area of the cathode (cm^2). $\beta(R)$ accounts for the distribution of the plasma density across the pinch. The author thanks V. I. Krasnovskiy, B. K. Shembel', I. I. Slivkov, D. V. Karetnikov, and N. V. Pleshivtsev for help and advice.

M. D. Gabovich and Ye. T. Kucherenko (ZhTF. 26, 996, 1956; 27, 299, 1957)

Card 2/3

L 21571-66 EWT(1)/EPF(n)-2/EWG(m) IJP(c) AT

ACC NR: AP6011490 SOURCE CODE: UR/0386/66/003/007/0275/0279

AUTHOR: Popov, S. N.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Two operating modes of a plasma source

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 7, 1966, 275-279

TOPIC TAGS: ionized plasma, nomuniform plasma, plasma charged particle, plasma injection, plasma instability, plasma interaction, plasma velocity

ABSTRACT: The author investigated the slow and fast operating modes that can be produced in a plasma, first observed in the experiments of F. H. Coensagen et al. (Phys. Fluids, v. 2, 350, 1959), and the conditions under which they are produced. The measurement procedure and the source model employed are described by the author elsewhere (Collection Fizika plazmy [Plasma Physics], Nauka, M., 1965). The slow mode was realized with discharge capacitors of 7.5, 5.3, and 1.7 μF and a working voltage 4--10 kv. The number of generated particles was proportional to the stored energy and the energy spectrum was practically constant. The fast mode set in when

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the capacitor was reduced from 5.3 to 0.3 μF. The pulse waveforms were different in the two modes. The total number of particles in the fast mode is 1--2 orders of magnitude smaller than in the slow mode. The average energy of the fast-mode ions is one order of magnitude larger than in the slow mode. The plasma resistance at the instant of current maximum is very small in the slow mode (0.05 ohm) and large (about 1 ohm) in the fast one. The source current is 10--12 ka and 4--5 ka in the slow and fast modes respectively, and the current in the fast mode grows more unsteadily. The average field intensity is much larger for the fast mode. In the fast mode, high-velocity electrons are produced together with the plasma. The connection between the fast mode and two-stream instability and the dependence of the mode on the nature of the plasma source are briefly discussed. The author thanks I. S. Danilkin, Ye. K. Zavoyskiy, A. A. Plyutto, and A. A. Rukhadze for useful advice and discussion. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 5Jan66/ ORIG REF: 002/ OTH REF: 001

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"Utilization of Northern Reindeer for Transportation Purposes."
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DLC: QE331.R9P6

SO: LC, Soviet Geography, Part II, 1951/Unclassified

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Structure and kinetics of the growth of the intermediate intermetallic $FeSn_2$ layer formed during the hot tinplating of steel. Mashinostroene 12 no. 11:23-28 N '63.

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Och.po ist.geol.anan. no.11:21-29 '63. (MIRA 16:7)
(Moscow mineralogical research)
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Carbonates and silicates in iron ores of the Kerch Peninsula. Uch. zap. KhGU 61:97-100 '55. (MLRA 10:8)
(Kerch Peninsula--Iron ores) (Carbonates (Mineralogy))
(Silicates)

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Fishery Products - Preservation

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9. Monthly List of Russian Accessions, Library of Congress, July 1952, Uncl.

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Olennyi transport Chekotki /Deer transportation in the Chekchi region/. Khabarovsk, 1953. 104 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 5, August 1953.

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DLC: S13. N24 Slav.

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DLC: S13.N24 Slav.

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DLC: S13.N24.Slav.

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress Reference Department, 1952, Washington, Unclassfied.

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(Continued on next card)

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Y

New data on alushtite. S. P. Popov. *Zapiski Vsesoyuz.*
Mineral. Obshchestva (Mém. soc. russe minéral.) **79**, 298-300
(1950).—Alushtite occurs in veinlets, often with quartz, in
Upper-Triassic slates of the S. Crimea, from Alushta to Cape
Ilaka, in a narrow coastal strip. Alushtite and nacrite
occur in these slates only in the neighborhood of effusive
rocks. The alushtite is dense, soft, of light greenish or bluish
color; scaly microscopic crystals, with γ = 1.562; α =
1.556; $\gamma - \alpha$ = 0.006; angle $c:\gamma$ = 5.7°, elongation neg.;
very similar to nacrite. Chem. analysis gave the formula
(Mg,Ca)0.3(Al,Fe)$_2$O$_3$.6SiO$_2$.6H$_2$O + n H$_2$O; FeO is vari-
able between traces and 1%, it brings about the greenish
staining of the mineral, the previously assumed Cu is ab-
sent. Alkali is always present, replacing MgO. The
CaO content of 1.5 to 2% is remarkable because previously
Prokopenko (*C.A.* **24**, 5258) described a similar nacrite with
8% CaO. The H$_2$O lost below 110° varies greatly; H$_2$O
above 110° was 5 to 6 mols. W. Eitel

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(49-39575)

QE381.R9P6

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35944 O protsessakh oolitizatsii I khloriti zatsii V zheleznykh rhakh osadochnogo proiskhozhdeniya. mineral. sbornik (l'vov), No. 3, 1949, S. 87-98

SO: Letopis' Zhurnal'nykh Statey, No. 49, 1949

POPOV, S.P.

37555 Printsip ustanovleniya rayonnykh norm sanitarnoy otsenki pit'evykh Vod. V. Sb:Xii vsesoyuz s'yezd gigiyenistov, epidemiologov, mikrobiologov I infektsionistov T.I.M. 1949, s 98-101

SO; Letopis'Zhurnal'nykh Statey, Vol. 37, 1949

POPOV, Spiridon Pavlovich; GUROV, S., red.; KUZNETSOVA, A., tekhn.red.

[We shall double the guaranteed life of machinery] Udvoim garantiinyi srok. Moskva, Mosk.rabochii, 1962. 49 p. (MIRA 15:5)

1. Direktor Lyuberetskogo zavoda sel'skokhozyaystvennykh mashin imeni Ukhtomskogo (for Popov).
(Lyubertsy--Agricultural machinery industry--Quality)
(Socialist competition)

[illegible], [illegible]

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SO: [illegible]-3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

POPOV, SERGEY SERGEYEVICH DECEASED 1961/I
1899-1959

see 11c

petroleum industry

L 54952-65 EWT(1)/EWA(j)/EWA(b)-2 BW/JK

ACCESSION NR: AP5014289 UR/0016/65/000/006/0064/0068 21 20 B
576.851.45.097.21.095.58:616.981.452.095.371

AUTHOR: Akimovich, V. V.; Nikolayev, N. I.; Zykin, L. F.; Ponomarev, N. G.; Popov, S. S.

TITLE: In vitro selection of virulent P. pestis variants with vaccinal properties

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 6, 1965, 64-68

TOPIC TAGS: plague vaccination, plague, Pasteurella pestis

ABSTRACT: The first step in obtaining subcultures of *Pasteurella pestis* with vaccinal properties is to select variants with altered virulence on the basis of their ability to form non-pigmented colonies on a medium with hemin (Jackson-Burrows). This criterion indicates only a weakening of virulence; it tells nothing about the degree of virulence needed for development of the vaccinal process. Additional signs for selection of variants are: on Higuchi-Smith magnesium-oxalate agar they form third-order colonies, which consist of bacteria dependent at 37° on calcium and characterized by a "latent" virulence like that of bacteria of the highly immunogenic vaccinal EB strain; they exhibit no tendency to the loss of latent

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L 54952-65
ACCESSION NR: AP5014289

virulence; they are avirulent to mice (in a dose of 1×10^7) but their virulence must increase when administered with iron salts (without restoration of their capacity for pigment formation and without restoration of virulence). In a dose of 5×10^3 these bacteria should produce immunity in 80-90% of white mice and in guinea pigs infected with a massive dose (200 Dcl) of virulent plague bacteria. Orig. art. has: 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy protivochumnyy institut "Mikrob," Saratov ("Microbe" All-Union Plague Scientific Research Institute)

SUBMITTED: 29May64 ENCL: 00 SUB CODE: LS

NO REF SOV: 001 OTHER: 002

Card 2/2

POPOV, Stoian, min. inzh.; RANGELOV, Georgi, inzh.; GENOV, Stefan, inzh.; DODOV, Nikolai, inzh.

Dressing of the lead-zinc ore from the Spoluka and Pechinsko deposits in heavy suspensions. Tekhnika Bulg 13 no.4:23-26

1. NIPRORUDA.
2. Member of the Board of Editors, "Tekhnika" (for Popov).

Popov, St. Inz.

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19

BULGARIA/Chemical Technology - Chemical Products and Their Application. Carbohydrates and Refinement. H-26

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 26703

Author : Popov St.
Inst : Purification of Diffusion Juices with Ionites

Orig Pub : Leka promishlenost, 1956, 5, No 10, 46-47.

Abstract : An elementary description of the original and the modern methods of juice defecation with ion-exchangers to remove mineral and organic non-sugars, and of the extent of utilization of individual methods in different countries.

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(AORTIC ANEURISM, case reports,
dissecting (Bul))

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Synthetic detergents. Khim i industriia 36 no.7:263-264 '64.

Equipment for testing automobile tires. Ibid.:271

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[Manual on the use of electric power in agriculture] Spravochnik po primeneniiu elektorenergii v sel'skom khoziaistve. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 606 p. (MIRA 11:5)
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(5)

BULGARIA

GEORGIEV, Iv., KIRYAKOV, Kr., KOSTOV, N., MOLKHOV, Zh., PETROV, P., IVANCHEV, V., POPOV, St., and VASILEV, Khr.

"Occupational Diseases of the Nervous System and Neurological Medical Aid at Enterprises"

Sofia, Nevrologiya, Psikhiatriya i Nevrokhirurgiya, Vol 5, No 1, 1966, pp 1-11

Abstract: It is brought out that the frequency and gravity of occupational diseases of the peripheral and central nervous system and of psychoneuroses with an occupational background increased in Bulgaria during 1953-1962. This is explained by the accelerated rate of economic development. Statistics of relative severity and of the average number of days lost according to occupations are presented. Conditicns arising as a result of exposure to noise and vibrations are discussed. With respect to neurointoxications, the increase of their incidence among agricultural workers, particularly in connection with the use of organophosphorus compounds, is pointed out. The danger presented by radiation sickness to radiologists, engineers using X-rays in work on metals, persons occupied at the nuclear center, etc., is mentioned. Organization of a more effective neurological medical service at industrial enterprises is proposed. Graphs, 58 references (all Bulgarian). Manuscript received Sep 65.

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POPOV, St.; ANASTASOV, K.

Experimental investigations of functional nerve changes occurring in acute inflammatory processes in connection with novocaine anesthesia. Stomatologiia 38 no.2:26-31 Ap '59 (MIRA 12:7)

1. Iz kafedry farmakologii i toksikologii s laboratoriyey vysshey nervnoy deyatel'nosti Instituta spetsializatsii i usovershenstvovaniya vrachey i Nauchno-issledovatel'skogo stomatologicheskogo instituta (Sofiya)
(NOVOCAINE) (NERVOUS SYSTEM)
(TEETH--DISEASES)

POPOV, S.V. (Bolgariya)

Manufacturing physical instruments for schools. Fiz. v shkole 20 no.5:79-81 S-O '60. (MIRA 13:11)
(Bulgaria--Physical instruments)

BURMISTROV, Aleksandr Georgiyevich,; POPOV, S.V.,red.; GIPP, V.V., red. izd-va,; VOLKOV, S.V., tekhn. red.

[Motor pumpers] Pozharnye motopompy. Moskva, Izd-vo M-va kommun. khoz. RSFSR, 1958. 242 p. (MIRA 11:12)
(Fire departments--Equipment and supplies)

PIGOLEV, Sergey Vasil'yevich; SUKHORUKOV, Fedor Vasil'yevich; POPOV, S.V., redaktor; KONYASHINA, A.D., tekhnicheskiy redaktor

[Fire fighting equipment] Pozharno-tekhnicheskoe vooruzhenie. Moskva, Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1956. 360 p.
(Fire extinction) (MIRA 10:1)

PIGOLEV,S.V., inzhener; POPOV,S.V., inzhener, retsenzent; KRIVOSHEYEVA, Ye.K., inzhener, redaktor; VINOKUROVA,Ye.B., redaktor; KONYASHINA,A., tekhnicheskiy redaktor

[Collection of innovations and inventions for preventing fire] Sbornik ratsionalizatorskikh i izobretatel'skikh predlozhenii po pozharnomu delu. Moskva, Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1955. 72 p. (MLRA 9:4)

1. Russia (1917- R.S.F.S.R.) Glavnoye upravleniye pozharnoy okhrany.

(Fire prevention)

POPOV, S.V.; ZAKHAROV, B.P., inzhener, retsenzent.

[For economy in every productive operation] Za ekonomiiu na kazhdoi proizvodstvennoi operatsii. Sverdlovsk, Gos. nauchno-tekhn. izd-vo mashinostroit.i sudostroit. lit-ry [Uralo-Sibirskoe otd-nie] 1953. 30 p. (MLRA 7:3)

1. Starshiy master sborochnogo uchastka tsekha seriynoy elektricheskoy apparatury zavoda Uralelektroapparat(for Popov). (TSepushtanov, A.A.) (Efficiency,Industrial)

GONCHAROV, Ivan Nikolayevich, nauchnyy sotr.; DOROFEYEV, Yuriy Grigor'yevich, nauchnyy sotr.; MATVEYEV, Vladimir Panteleyevich, nauchnyy sotr.; POPOV, Stepan Nikolayevich, nauchnyy sotr.; PINCHUK, A.P., red.; IVANOVA, R.N., tekhn. red.

[New method for the processing of metal chips] Novyi metod pererabotki metallicheskoi struzhki. Rostov-na-Donu, Rostovskoe knizhnoe izd-vo, 1962. 33 p. (MIRA 15:6)

1. Novocherkasskiy politekhnicheskiy institut (for Goncharov, Dorofeyev, Matveyev, Popov).
(Scrap metal industry)

BONDARENKO, A.V.; POPOV, S.Ya.

Electrocrystallization of copper on a vibrating cathode. Trudy NPI 134: 45-57 '62. (MIRA 17:2)

POPOV, S. YA.

Popov, S. Ya. - "An investigation of the heat content of solutions of sulfuric acid and sulfuric acid salts", Trudy Novocherkas. politekhn. in-ta im. Ordzhonikidze, Vol. XIX, 1948, p. 127-32.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

POPOV, S. YA.

Popov, S. Ya. - "The electromotive force of an element of Na (NaOH, KOH, $NaNH_2$) Na X Hg, in relationship to the concentration of the amalgam and the temperature", Trudy Novocherkas. politekhn. in-ta im. Ordzhonikidze, Vol. XIX, 1948, p. 151-54, - Bibliog: 6 items.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

Popov, D. Ia.

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PH

Influence of Cobalt Sulphate on the Behaviour of Lead Accumulators. L. I. Antropov, S. Ya Popov, T. I. Pochekaeva, and N. N. Romenskaya (*Trudy Soveshchaniya po Elektrokhimii 1950*, 1953, 549–557).—[In Russian]. Addn. of $CoSO_4$ had a beneficial action on the performance of the Pb accumulator; they increased its life (by increasing the corrosion-resistance of the grid) and reduced the charging voltage (by decreasing the potential of the positive plate, and also, in the later stages of charging, by shifting the potential of the negative plate in the positive direction). However, they increased deterioration of the wooden separators, thus reducing the capacity and efficiency of the cell. $CoSO_4$ affected the formation of PbO_2, G, and H. A mechanism of action of $CoSO_4$, based on the relation between the working region of the electrode potentials and the null points of Pb, is proposed. The action of $CoSO_4$ is not connected with adsorption phenomena, but with the oxidizing properties of the system Co^{+3}/Co^{+2} and with the deposition of metallic Co on the negative plate.—G. V. E. T.

USSR

Kinetics of electrode processes. I. Effect of thiourea upon the electrocrystallization of copper. L. I. Antropov and S. Ya. Popov. *J. Appl. Chem. U.S.S.R.* 27, 47–53 (1954) (Engl. translation).—See *C.A.* 48, 0879i. H. I. H.

Popov, S. Ya.

*[Kinetics of Electrode Processes. I.—] Influence of Thiourea on the Electrocrystallization of Copper. L. I. Antropov and S. Ya. Popov (*Zhur. Priklad. Khim.*, 1954, 27, (1), 55–63).—(In Russian.) A. and P. review work on the effect of surface-active substances and other addn. on the electrodeposition process. Cu was deposited on a Ni-coated cathode (placed between two equidistant Cu anodes 5 cm. away) from baths based on the compn.: $CuSO_4.5H_2O$ 200, H_2SO_4 100 g./l.; the electrode potentials, current efficiency, adhesion of the deposit, and its microstructure, brightness, and appearance were determined. At c.d. 0·1–10 amp./dm.², as little as 0·025 g./l. thiourea caused an appreciable reduction in the potential of the cathode, but had little effect on that of the anode. Baths with thiourea addn. gave finer-grained, brighter deposits. Addn. of 0·025 and 0·4 g./l. thiourea increased the hardness of the deposit by 25 and 70%, resp. The mech. properties of the deposits were satisfactory at thiourea concentrations up to 0·2 g./l., but the adherence was best at concentrations <0·025 g./l. With thiourea contents of 0·025–0·1 g./l. and c.d. of 3–4 amp./dm.², thick smooth deposits could be obtained without agitation or filtration, and without previously polishing the Cu undercoat. Both anodic and cathodic current efficiencies increased on addn. of thiourea, attaining limiting values at concentrations of ~0·8 g./l. Thiourea was stable in the baths, being destroyed only at anodic c.d. >6–8 amp./dm.², or on heating the bath to 55°–60° C. During operation, the thiourea content decreased, owing to its inclusion in the deposit; the thiourea was determined by potentiometric titration with ammonium vanadate (a method developed by A. and Sekretova). The adsorption mechanism is discussed, and an equation for the dependence of the electrode polarization on c.d. and thiourea concentration is given.—G. V. E. T.