SVIRIDENKO, F.F.; KIRYUSHKIN, Yu.I.; KAZACHKOV, Ye.A.; LESENKO, I.I.

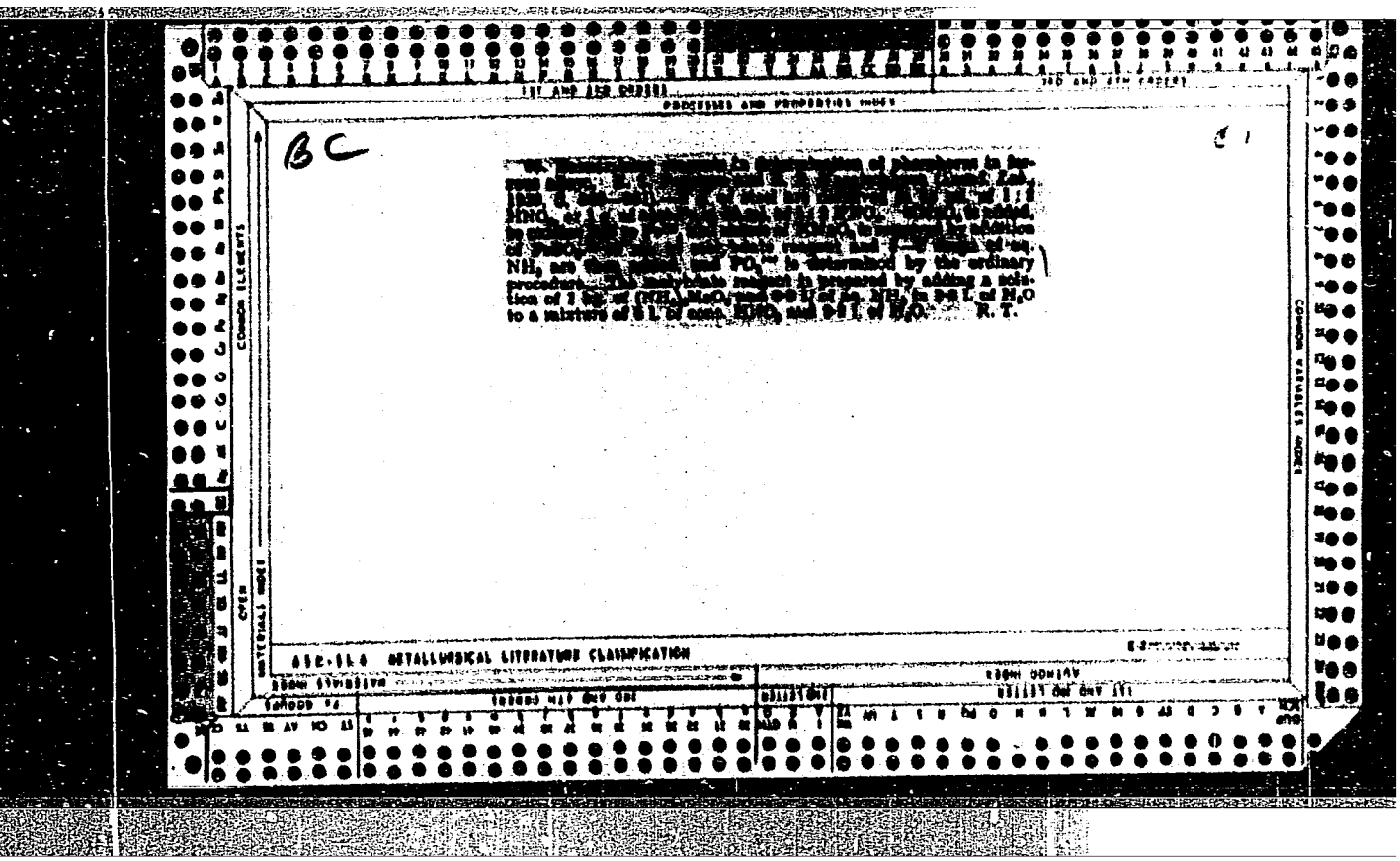
Riser head with a two-layer lining. Metallurg 8 no.2:20 F '63. (MIRA 16:2)

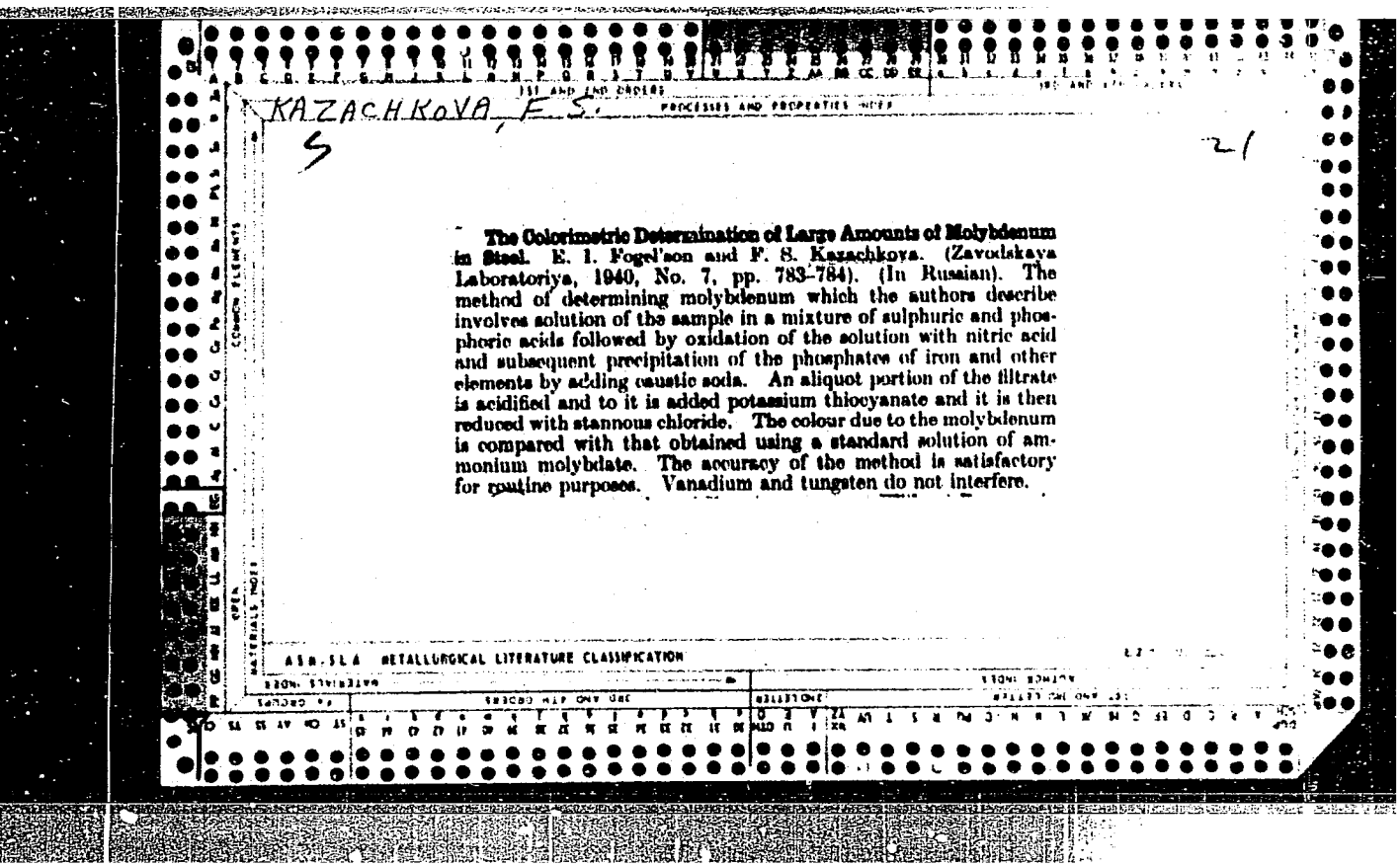
1. Azovskiy staleplavil'nyy zavod im. Sergo Ordzhonikidze v Zhdanove i Zhdanovskiy metallurgicheskiy institut.
(Steel ingots)

KAZACHKOV, Ye.A.; KIRYUSHKIN, Yu.I.; SKOBLO, S.Ya.; BUL'SKIY, M.T. [deceased]; SVIRIDENKO, F.F.; SAPELKIN, N.F.

Formation and heterogeneity of rail ingots cast in ingot molds with a varying wall thickness. Izv. vys. ucheb. zav.; chern. met. 7 no.11:75-80 '64. (MIRA 17:12)

1. Zhdanovskiy metallurgicheskiy institut.





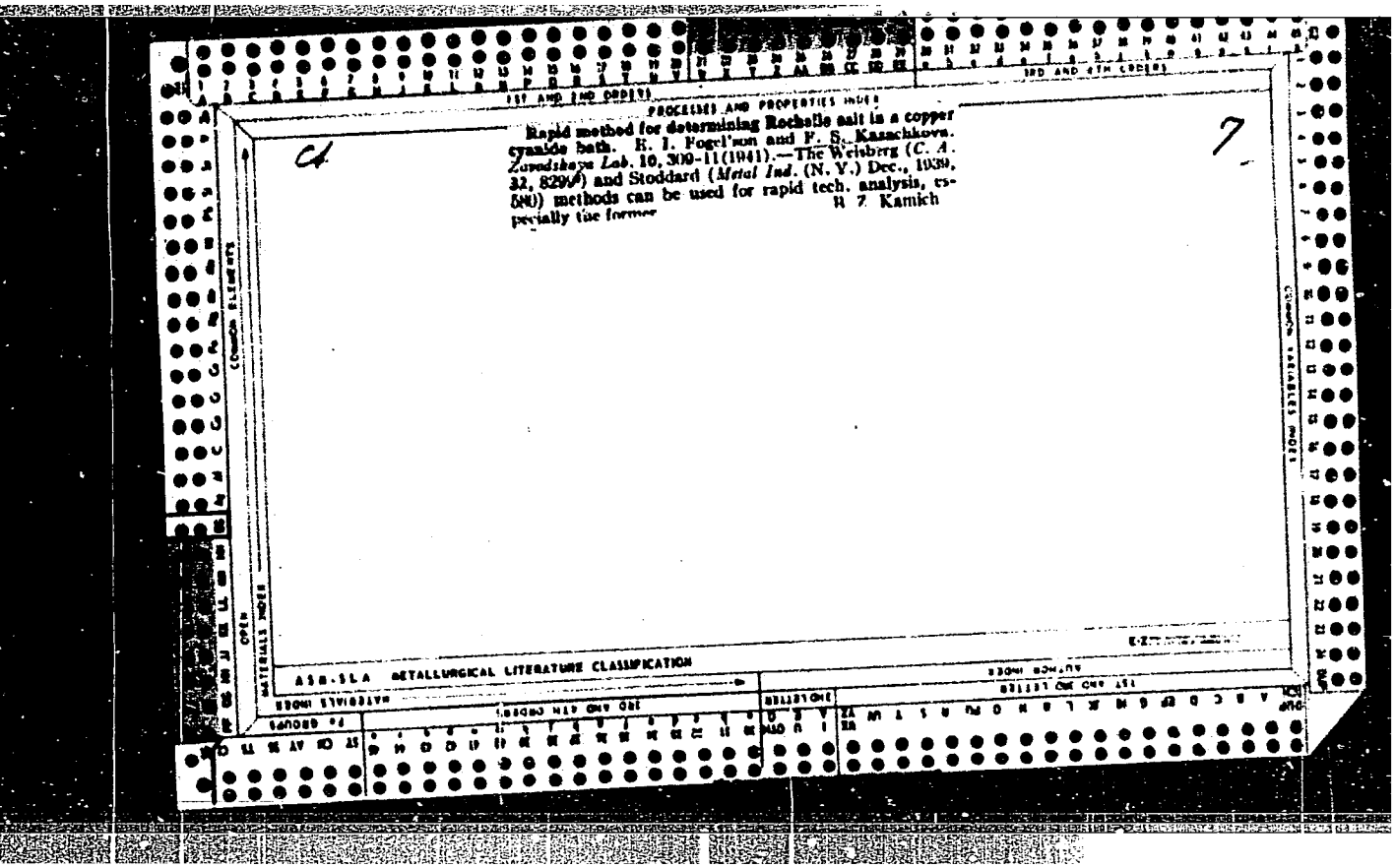
KAZACHKOVA, F. S.

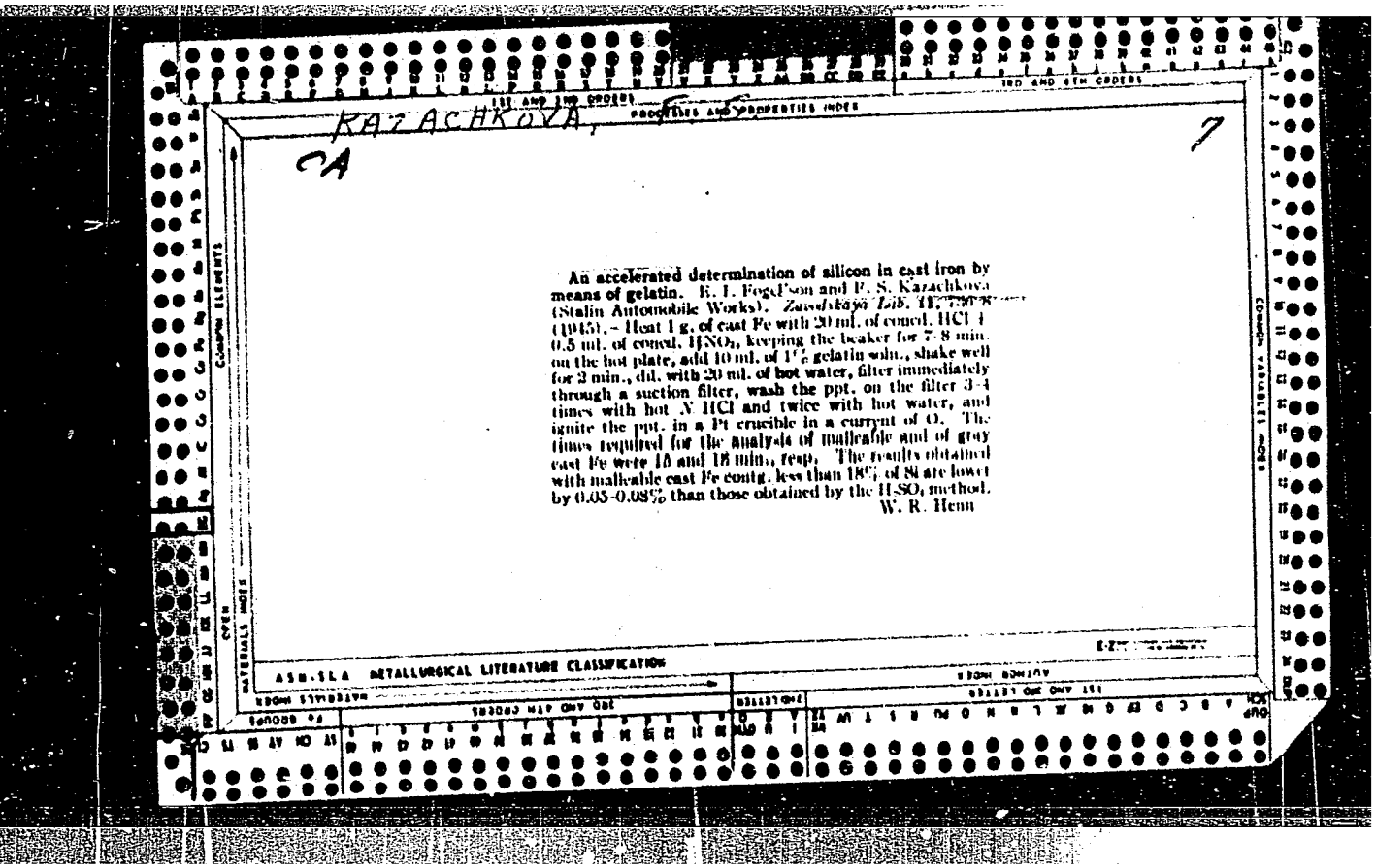
S

21

The Colorimetric Determination of Large Amounts of Molybdenum in Steel. E. I. Fogel'son and F. S. Kazachkova. (Zavodskaya Laboratoriya, 1940, No. 7, pp. 783–784). (In Russian). The method of determining molybdenum which the authors describe involves solution of the sample in a mixture of sulphuric and phosphoric acids followed by oxidation of the solution with nitric acid and subsequent precipitation of the phosphates of iron and other elements by adding caustic soda. An aliquot portion of the filtrate is acidified and to it is added potassium thiocyanate and it is then reduced with stannous chloride. The colour due to the molybdenum is compared with that obtained using a standard solution of ammonium molybdate. The accuracy of the method is satisfactory for routine purposes. Vanadium and tungsten do not interfere.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION





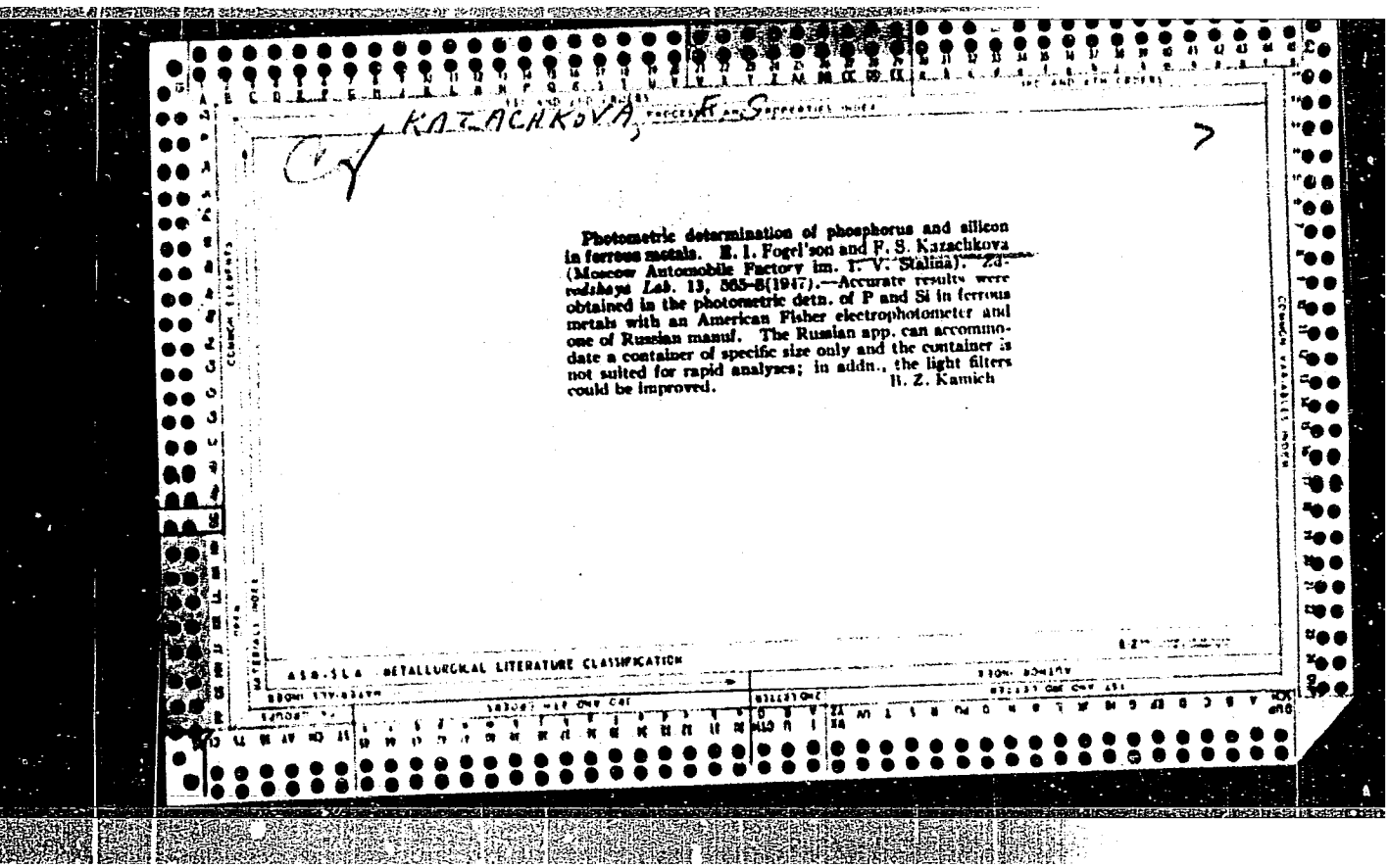
KAZACHKOVA,

CA

7

An accelerated determination of silicon in cast iron by means of gelatin. K. I. Fogel'son and P. S. Kazachkova (Stalin Automobile Works). *Zavodskaya Lab.* 11, [illegible] (1945).—Heat 1 g. of cast Fe with 20 ml. of concd. HCl + 0.5 ml. of concd. HNO_3, keeping the beaker for 7–8 min. on the hot plate, add 10 ml. of 1% gelatin soln., shake well for 2 min., dil. with 20 ml. of hot water, filter immediately through a suction filter, wash the ppt. on the filter 3–4 times with hot N HCl and twice with hot water, and ignite the ppt. in a Pt crucible in a current of O. The times required for the analysis of malleable and of gray cast Fe were 15 and 18 mins., resp. The results obtained with malleable cast Fe contg. less than 1% of Si are lower by 0.05–0.08% than those obtained by the H_2SO_4 method.

W. R. Henn



KAZACHKOVA, F. S.

Photometric determination of phosphorus and silicon in ferrous metals. E. I. Fogel'son and F. S. Kazachkova (Moscow Automobile Factory im. I. V. Stalina). *Zavodskaya Lab.* 13, 565–8(1947).—Accurate results were obtained in the photometric detn. of P and Si in ferrous metals with an American Fisher electrophotometer and one of Russian manuf. The Russian app. can accommodate a container of specific size only and the container is not suited for rapid analyses; in addn., the light filters could be improved. H. Z. Kamich

A50-SLA METALLURGICAL LITERATURE CLASSIFICATION

Kazachkova, F.S.

AUTHORS: Fogel'son, Ye. I., and Kazachkova, F. S.

TITLE: Photocolorimetric Detection of Silicon in High-percentage and Medium-percentage Ferrosilicon (Fotokolorimetricheskoye opredeleniye kremniya v vysokoprotsentnom i sredneprotsentnom ferrosilitsii)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, No. 1, pp. 24-25 (U.S.S.R.)

ABSTRACT: The authors made experiments trying to speed up the gravity method of detecting silicon in ferrosilicon by decomposing a small batch of finely ground material in a 50-percent solution of alkali and making a photocolorimetric analysis of the yellow coloring of the silicon-molybden complex. An iron crucible was used instead of a silver one for the decomposition and the silicon-molybdenum blue was photocolorimetrized on a FEK-M photocolorimeter. Seventeen specimens of high-percentage and three of medium-percentage ferrosilicon were analyzed and respective tables are presented of the results. These tables give the percentages of silicon as shown by the colorimetric and gravity methods of analysis.

Card 1/2

Moscow Automobile Works im I. A. Likhachev

KAZACHKOVA, N.A., dotsent

Chronic inflammatory nonspecific bronchopulmonary processes (chronic pneumonia) in children. Uch. zap. GMI no.8:91-95 '59. (MIRA 14:9)

1. Iz kafedry detskikh bolezney (zav. kafedroy - prof. Agafonov).
(PNEUMONIA) (CHILDREN--DISEASES)

PRAVDUKHINA, V.; KAZACHKOVA, R.

Rapid way of determining the shrinkage of hides resulting from salting. Mias.ind.SSSR 32 no.2:18 '61. (MIRA 14:7)

1. Eksperimental'no-proizvodstvennaya laboratoriya Omskogo sovnarkhoza.
(Hides and skins)

ZAGREBEL'NAYA, V.S., kand.tekhn.nauk; KAZACHKOVA, S.TS.

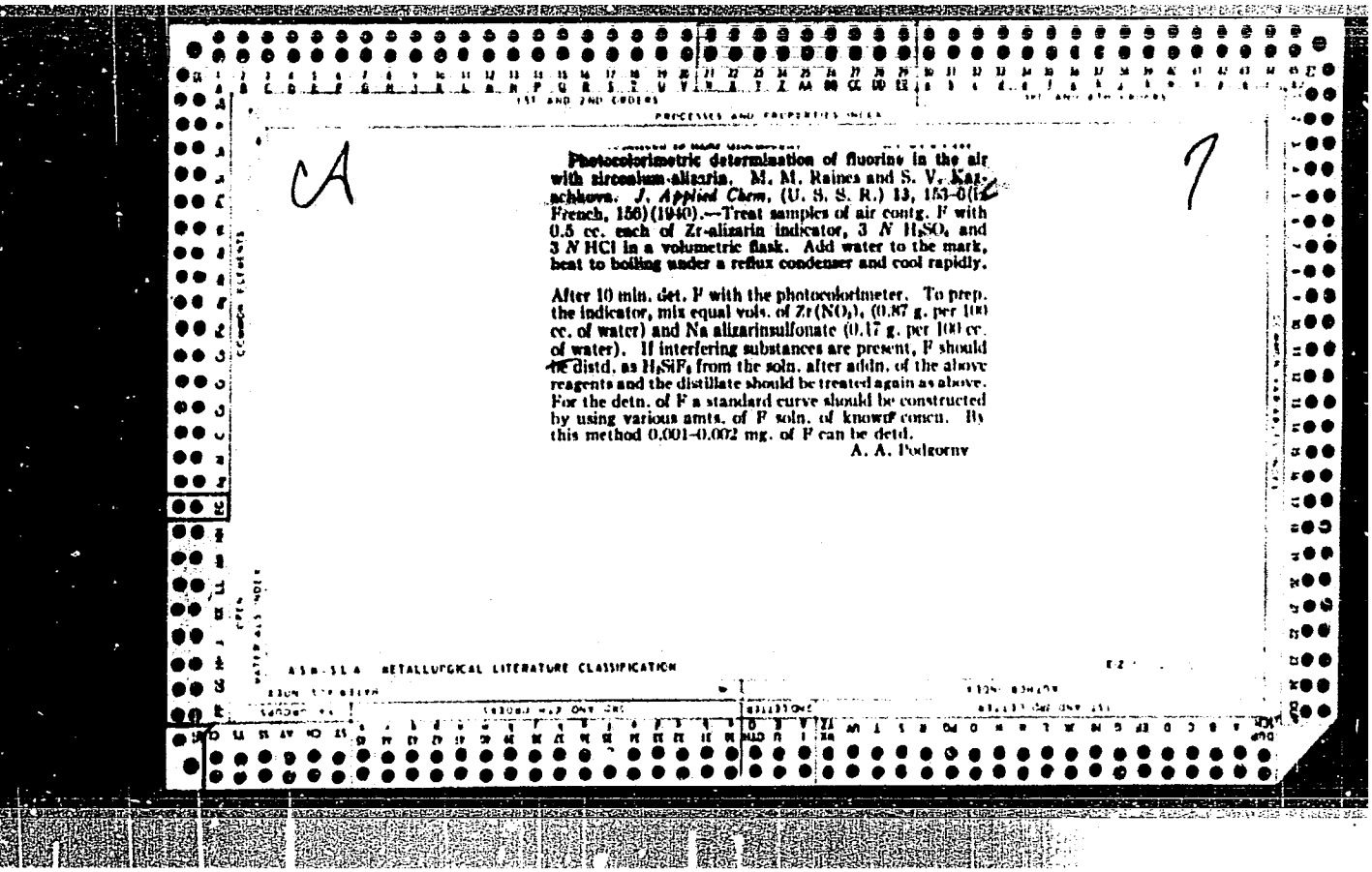
Gasification of coal deposited in enclosing sandrock. Podzem.gaz. ugl. no.2:19-22 '59. (MIRA 12:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut podzemnoy gasifikatsii ugley.
(Coal gasification, Underground)

NUSINOV, G.O., doktor tekhn.nauk; BRUSHTEYN, N.Z., kand.tekhn.nauk; KAZACHKOVA, S.TS.

Unification of the methods of calculating the basic indices of connection linking and coal gasification in the "Podzemgaz" plants. Nauch.trudy VNIIPodzemgaza no.7:33-40 '62. (MIRA 15:11)

1. Laboratoriya gazifikatsii burykh ugley Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.
(Coal gasification, Underground)



CA 7

Photocolorimetric determination of fluorine in the air with zirconium-alizarin. M. M. Raines and S. V. Kaganchikova. *J. Applied Chem.* (U. S. S. R.) 13, 153–6(French, 156)(1940).—Treat samples of air contg. F with 0.5 cc. each of Zr-alizarin indicator, 3 *N* H_2SO_4 and 3 *N* HCl in a volumetric flask. Add water to the mark, heat to boiling under a reflux condenser and cool rapidly.

After 10 min. det. F with the photocolorimeter. To prep. the indicator, mix equal vols. of $Zr(NO_3)_4$ (0.87 g. per 100 cc. of water) and Na alizarinsulfonate (0.17 g. per 100 cc. of water). If interfering substances are present, F should be distd. as H_2SiF_6 from the soln. after addn. of the above reagents and the distillate should be treated again as above. For the detn. of F a standard curve should be constructed by using various amts. of F soln. of known concn. By this method 0.001–0.002 mg. of F can be detd.

A. A. Podgorny

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

1. KAZACHKOVA, T. A.

2. USSR (600)

4. Botany, Medical - Tomsk

7. Cultivating medicinal plants in Tomsk. Trudy Tomsk.un. 114, 1951.

9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

Kazachkova, T.A.

The volatile oil of Chenopodium ambrosioides cultivated in the city of Tomsk. T. A. Kazachkova and I. S. Karpenko. *Novye Lekarstv. Rastitel. Syr'ya, Ikh Lechebnye Preparaty i Primenenie* (Tomsk) 4, 146-7(1963); *Referat. Zhur., Khim., Biol. Khim.* 1965, No. 12570.—The leaves yielded 0.78% and the stems 0.13% of volatile oil. The ascaridol content was 23.3%. B. S. Levin

KAZACHKOVA, T. I.

"The Effect of Certain Opium Alkaloids on the Dynamics of the Electropotential of the Mucuous Membrane of the Stomach, in Relation to Their Effect on its Secretory and Periodic Activity." Cand Med Sci, Turkmen State Medical Inst, Ashkhabad, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

KAZACHKOVA, T. I.

USSR/Pharmacology. Pharmacognosy. Toxicology - Analgesics. T-3

Abs Jour : Referat Zhur - Biologiya, No 16, 1957, 71673

Author : Kazachkova, T.I.
Inst :
Title : The Morphine and Heroine Effect on the Periodic Changes in the Electropotential of the Mucous Stomach Membrane.

Orog Pub : Tr. Turkmen. Med. In-ta, 1955, 5-6, 338-346

Abstract : The stomach content of dogs was collected through a fistula every 15 minutes. The total acidity, free, and bound acidity were determined. The fluctuation of the electropotential (E) of the mucous membrane of the stomach and its motility was registered photographically throughout the procedure. The registering of the electrical flow from the stomach was done with the aid of a mirror galvanometer. The movements of the stomach were recorded by a method of air transmission. Morphine (I) and heroin (II) in doses 0.02-0.05 mg/kg did not produce secretion

Card 1/3

Abs Jour : Referat Zhur - Biologiya, No 16, 1957, 71673

in the stomach, did not influence the periodic contraction of the stomach, and did not change the dynamics of E. I in 0.075-0.2 mg/kg doses and II in 0.075-0.1 mg/kg produced in 2-3 hours a lowering of E; its fluctuation increased and took on a rhythmic character. The periodicity of E fluctuations and stomach contractions was disturbed. A delayed stomach secretion was noted. I in doses of 0.5-1 mg/kg, and II in doses of 0.3-0.5 mg/kg changed the periodicity of E as well as the stomach contractions. A considerable lowering of E and the presence of small fluctuations was noted. The stomach secretions were observed for 10-65 minutes. The author notes that the lowering of E preceeded the appearance of free HCl. There was no strict proportionality between the stomach acidity and its electrical activity. I in doses of 10-20 mg/kg and II in 5-10 mg/kg produced a prolonged inhibition in secretion and with it the rise in E. Thus,

KAZACHKOVA, T. I.

USSR/Pharmacology. Toxicology. Analgesics U-3

Abs Jour : Ref Zhur-Biol., No 7, 1958, 32873

Author : Kazachkova T. I.
Inst : Not given
Title : Effect of Codeine and Dionin on the Electrical Activity of the Gastric Mucous Membrane.

Orig Pub : Tr. Turkm med. in-ta, 1955, No 5-6, 347-352

Abstract : Codeine (1) and dionin (2) in optimal doses of 7.5 to 20 mg/kg induced the secretion of gastric juice, an effect earlier established in regard to morphine and heroin. 1 and II, differing from morphine and heroin did not prolong the latent period. Together with the increase in secretion a drop in the electropotential (EP) of the mucous membrane set in. The maximum drop in EP was observed at the beginning of the secretion and

Card 1/2

KAZACHKOVA, T.I.; KRYLOVA, M.N.

Use of electrogastrography in pharmacology. Farm. toks. 24 no.3: 372-376 My-Je '61. (MIRA 15:1)

1. Kafedry farmakologii Turkmenskogo meditsinskogo instituta.
(ELECTROGASTROGRAPHY) (PHARMACOLOGY)

~~KAZACHKOVSKIY, O.~~ ~~KAZACHKOVSKIY, O.~~ KAZACHKOVSKIY, O.

SUBJECT USSR / PHYSICS
AUTHOR KAZACKOVSKIJ,O.
TITLE The Problems of the Atomic Energetics as Discussed at the 5th World Energy Conference in Vienna.
PERIODICAL Atomnaja Energija, 1, fasc.5, 148-151 (1956)
Issued: 1 / 1957

CARD 1 / 2 PA - 1761

This conference (17. to 23. June 1956) was attended by about 2000 technicians and scientists of 24 countries. The Soviet delegation was under the leadership of the deputy minister for electric power plants, A.S.PAVLENKO. Two sectional conferences were devoted to the problems of atomic energetics. Numerous lectures dealt with atomic power plants both planned and under construction, and further lectures dealt with the following problems: The general description of the development programs of atomic energy in various countries, the evaluation of atomic power plants from the point of view of economy compared to other energy sources, the removal of radioactive residues.
The lecture delivered by the Soviet delegation dealt with the positive experience gathered in the course of two years of operation of the first nuclear electricity works and on the basic features of the development of atomic energetics in the USSR. In this connection above all the program of necessary work to be performed in connection with the equipment of industrial atomic power plants attracted attention. In the course of some lectures delivered by members of the Soviet delegation several problems connected with the economy and the technology of atomic energy were investigated. Nearly all lectures delivered by non-Soviet

AUTHOR LEYPUNSKIY, A.I., BLOKHINTSEV, D.I., ARISTARKHOV, I.N., BONDARENKO, I.I., KAZACHKOVSKIY, O.D., PINKHASIK, M.S., STAVISSKIY, Yu.Ya., STUMBUR, E.A., UKRAINTSEV, F.I., USACHEV, L.N.
TITLE The Experimental Reactor for Fast Neutrons BP - 2. (Eksperimental'nyy reaktor na bystrykh neytronakh BP-2-Russian)
PERIODICAL Atomnaya Energiya, 1957, Vol 2, Nr 6, pp 497-500 (U.S.S.R.)

86-6-21

ABSTRACT This reactor is intended to be used for physical investigations with fast neutrons. At first the active zone of the reactor is discussed. The heat-separating elements of the reactor BP-2 consist of plutonium rods of 10 mm diameter and 130 mm length. Besides the plutonium rods there are similarly constructed rods in the active zone which are made of poor uranium. Altogether there are 108 uranium- and plutonium rods which are mounted in a steel tube with an inner diameter of 130 mm. The reflector of the reactor consists of an uranium layer (outer diameter 700 mm) and a coper layer (outer diameter 1000 mm). The reactor is controlled by a control system and by an emergency system. The operating control organs are part of a screen which are located near the active zone. The control system also contains boron-ionization chambers, an electronic apparatus, and servofeeds. The emergency system enters into operation if the prescribed or assumed power of the reactor is exceeded. Circulating mercury is used for the system of heat conduction. This mercury is then cooled in a heat exchanger with water. The radiation protection of the reactor consists of the following parts: a) a water layer of 300 mm thickness b) a cast iron layer of 400 mm

Card 1/2

A. I., GALKOV, V. I., STAVISKIY, YU. Y., STUMBUR, E. A. and SHERMAN, L. Ye.

"Effective Cross-Section Measurements of Fast Neutron Radiation Capture."

paper to be presented at 2nd UN Intl.' Conf. on the peaceful use of Atomic Energy, Geneva, 1 - 13 Sept 58.

published- Doklady sovetskikh uchenykh; yadernaya fizika (Reports of Soviet Scientists; Nuclear Physics)Moscow, Atomizdat, 1959. 552pp. Vol. 1.

Kazachkovskiy, O.D.

SOV/89-5-3-6/15

AUTHORS: Leypunskiy, A. I., Abramov, A. I., Andreyev, V. N., Baryshnikov, A. I., Bondarenko, I. I., Galkov, V. I., Golubev, V. I., Gul'ko, A. D., Guseynov, A. G., Kazachkovskiy, O. D., Kozlova, N. V., Krasnoyarov, N. V., Kuz'minov, B. D., Morozov, V. N., Nikolayev, M. N., Smirenkin, G. N., Stavisskiy, Yu. Ya., Ukraintsev, F. I., Usachev, L. N., Fetisov, N. I., Sherman, L. Ye.

TITLE: Investigations of the Physics of Reactors With Fast Neutrons. I (Issledovaniya po fizike reaktorov na bystrykh neytronakh)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 3, pp. 277-287 (USSR)

ABSTRACT: Since 1950 experiments have been carried out with fast reactors by the Main Administration of the Use of Nuclear Energy. At the Physics Institute of this organization the fast-neutron reactor [redacted] 1 was put into operation early in 1955, and the reactors [redacted] 2 and [redacted] 3 followed in 1956 and 1957 respectively.

Reactor [redacted] -1:

Power	50 kW
Active zone	diameter and height ~13 cm
Fuel	plutonium diameter ~1 cm
Canning	thin steel tube

Card 1/4

The active zone may be surrounded by 2 mobile shields. Shield 1 consists of depleted uranium, and shield 2 of copper. An additional shield can be fastened on one side on to the shield with a diameter of 70 cm, so that total thickness can be increased to 60 - 100 cm. With this reactor investigations were carried out of: the spatial and energy distribution of the neutrons, of which the results are shown in a table for Pu^{239} (n,f), U^{235} (n,f), U^{235} (n,f), U^{238} (n,f), Np^{237} (n,f), Pu^{240} (n,f), U^{238} (n,γ), Au^{197} (n,γ), U^{238} (n,2n). Measurement of the conversion factor. The latter was determined experimentally as amounting to 2,4 to 2,5. It was also calculated by means of the multi-group computation method in S_4-th approximation (Ref 1). The electronic computer was used under the supervision of Professor Ye. S. Kuznetsov. For computation the experimental values for α of V. I. Kalashnikova (Ref 5), G. N. Smirenkin (Ref 6), B. D. Kuz'minov (Ref 7), and for ν the values obtained by P. Ye. Spivak (Ref 8), V. N. Andreyev (Ref 9) were used. As a result of computations the coefficient was found to amount to 2,6.

Card 2/4

The Distribution of Neutrons in Uranium

The cross sections of the various reactions for the equilibrium spectrum and for the asymptotic spectrum of the depleted uranium was determined both theoretically and experimentally. The asymptotic length of diffusion determined experimentally and theoretically amounts to 9,1 ± 0,1 cm. The average number of fissions of uranium 238 caused by fission neutrons amounts to 0,17 ± 0,01. This is in agreement with the data given by reference 10.
Furthermore, the influence exercised by the resonance structure of the cross sections upon the spatial distribution of the neutrons is investigated. Kh. D. Mishchenko showed that for neutrons with 24 keV the total cross section for copper is reduced by about three times its amount with a modification of target thickness of from 0,5 to 30 mm. There are 12 figures, 7 tables, and 13 references, 9 of which are Soviet.
(Continued on abstract 7/15)

Card 3/4

KAZACHKOVSKIY, O.D.

SOV/89-5-1-7/15

AUTHORS: Lozynskiy, A. I., Abramov, A. I., Andreyev, V. M., Bazhanikov, A. I., Bondarenko, I. I., Galkov, V. I., Golubev, V. I., Gol'tso, A. D., Gusynov, A. G., Kazachkovskiy, O. D., Kozlova, M. V., Krasnoyarov, M. V., Kus'minov, B. D., Morozov, V. M., Nikolayev, M. N., Smirenkin, G. N., Stavisskiy, Yu. Ya., Ukraintsev, F. I., Usachev, L. N., Fetisov, N. I., Sherman, L. Ya.

TITLE: Investigations of the Physics of Reactors With Fast Neutrons.II (Issledovaniya po fizike reaktorov na bystrykh neytronakh) (Continued from abstract 6/15)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 1, pp. 280-293 (USSR)

ABSTRACT: The reactivity and the kinetics of the reactor were measured. It could be shown that in the center of the active zone the weight of the 1 MeV neutrons is higher by ~15% than that of 250 MeV neutrons. The effective yield of the delayed neutrons in the reactor with a uranium shield exceeds that of a reactor with a copper shield by 1,4 times its amount.
Reactor MR-1:
The active, plutonium zone is the same as in reactor BR-1. In the center of the reactor a water-uranium channel is provided, which is separated from the plutonium zone by a uranium layer

Card 1/3

of 8 cm thickness. The uranium-water lattice consists of cylindrical slugs of normal uranium, which have a diameter of 35 mm. The canning material is aluminum. The ratio between water and uranium is 0,35. The lattice spacing is 40 mm. Measurements carried out with the water-uranium lattice instead of with the pure uranium layer showed:
1) The conversion factor is reduced from 2,45 ± 0,10 to 1,7 ± 0,2.
2) In the case of a fixed power output of the active zone the velocity with which the total quantity of plutonium 239 and uranium 235 is formed was increased by 5%.
3) The velocity with which plutonium is produced increased by 1,8 times its amount.
4) In the case of a fixed power output of the active zone the total power output of the reactor is increased by 2,2 times its amount.
Reactor MR-2:
This reactor was described more in detail in references 12 and 13. Its nominal power output is 120 kW, the maximum output is 200 kW. In the active zone of the reactor BR-2, which consists of plutonium rods, mercury is used as a coolant, which takes up

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~17% of the total volume of the active zone. The regulating rods (interior of shield) are made from a copper-nickel alloy. The external shield consists of uranium slugs canned with stainless steel. Thickness ~25 cm. The uranium shield is surrounded by copper of 15 cm thickness.
The presence of mercury in the active zone leads to a decrease of the content of fast neutrons in the spectrum. The conversion factor was 1,6 ± 0,2.
Theoretically the kinetic equation for this reactor was calculated by G. I. Marchuk according to the method developed by V. S. Vladimirov. Theoretical calculation of the critical mass was carried out with an error of 4%, and that of the effectiveness of the regulating rods with an error of 6%. The effective yield of the delayed neutrons was found to amount to 0,47%. While the experimental value was 0,24 ± 0,04%. There are 7 figures, 1 table, and 15 references, 9 of which are Soviet.

Card 3/3

KAZACHKOVSKIY, O.D.

21(4) PHASE I BOOK EXPLOITATION SOV/2533

International Conference on the Peaceful Uses of Atomic Engergy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energetika. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: N.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Novikov, Corresponding Member, USSR Academy of Sciences, and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.P. Alyab'yev; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors, the experiments carried out on them, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Mryakin is the science editor of this volume. See SOV/2081 for titles of all volumes of the set. References appear at the end of the articles.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721230001-5"

KAZACHKOVSKIY, O.D.

21(4) PHASE I BOOK EXPLOITATION SOV/2583

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energetika. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: N.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Novikov, Corresponding Member, USSR Academy of Sciences, and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.P. Alyab'yev; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

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PART II. EXPERIMENTAL AND RESEARCH REACTORS

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KAZACHKOVSKIY, O. D.

"Large-Scale Industrial Experiment of the Soviet Unionf for Seclection of the Most Economic Types of Atomic Power Stations,"

report distributed at the International Seminar on Peasceful Uses of Atomic Energy and the Youth, Aug 1958, Moscow.

published in Neischerpayemyy (The Inexhaustible) Moscow, Atomizdat, 1959. 149p.

This book contains several reports by leading Soviet scientists, specializing in the peaceful uses of atomic energy, at the international seminar on "Youth and Peaceful Use of Atomic Energy," held in August 1958, under the auspices of the Committee on Youth Organizations of the USSR.

21 (9)

AUTHORS: Andreyev, V. N., Kazachkovskiy, O. D., Krasnoyarov, N. V.

SOV/89-7-4-7/28

TITLE: The Behavior of a Reactor With Temperature Auto-regulation

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 363-366 (USSR)

ABSTRACT: An investigation of the physics of fast-neutron reactors indicates the following: The variations of the reactivity with increasing reactor power may be subdivided into comparatively rapid variations (which are essentially connected with the mechanical deformations of the heat-emitting elements and with the expansion of the coolant) and into slow variations (which are connected with the thermal dilatation of the elements of reactor construction). For some processes the power coefficient of reactivity may be subdivided into an instantaneous power coefficient p and a retarded power coefficient k with the average retardation time τ. Such a treatment is suited also for reactors with neutrons having medium and thermal energies. The coefficients p and k may be both positive and negative. The authors investigated the behavior of a reactor, which is connected only with the above-mentioned temperature effects. The neutrons were subdivided into two groups: instantaneous

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neutrons (with the life-time zero) and retarded neutrons (with the life-time τ_o). When the reactor is stopped, the contribution of the retarded power effect decreases exponentially with time. The equation for the reactor kinetics, which corresponds to these conditions is the following:

$$W(t) = \frac{\beta}{\tau_o[\beta-\varrho(t)]}\int_{-\infty}^{t} W(t')\exp\left(-\frac{t-t'}{\tau_o}\right)dt', \left[\varrho(t)<\beta\right]$$

$$\varrho(t) = \varrho_o + pW(t) + \frac{k}{\tau}\int_{-\infty}^{t} W(t')\exp\left(-\frac{t-t'}{\tau}\right)dt'$$

Here $W(t)$ denotes the power of the reactor, $\varrho(t)$ - reactivity, β - the effective contribution of the retarded neutrons, ϱ_o - the reactivity of the cooled reactor (with $W(t) = 0$). This system of equations is reduced to a nonlinear differential equation for $W(t)$ (or for $\varrho(t)$), which, by the substitutions $W(t) = x$, $\tau W'(t) = y$ assumes the form

Card 2/4

$$\frac{dy}{dx} = \frac{A_1y^3 + A_2y^2x + A_3yx^2 + A_4x^3 + A_5y^2 + A_6yx + A_7x^2}{A_8yx^2 + A_9yx}$$

Here A_1 to A_9 are constant coefficients which depend on k, p, τ, τ_0, β, ϱ_c. The authors investigated all 6 singular points of this equation. The most interesting were the points $x = 0$, $y = 0$, and $x = -\varrho_0/(k + p)$; $y = 0$. The surroundings of the first singular point determine the character of the increase of reactor power from zero onwards, and the second singular point determines the behavior of the reactor in the power range near the steady power. In the neighborhood of the steady point the solutions of the above equation are more manifold: There are aperiodically steady and aperiodically non-steady, oscillation-stable and oscillation-unstable solutions. In addition, there is a special type of stable solutions. The ranges within which the solutions enumerated exist are shown by a diagram. Also the behavior of the integral curves on the whole is investigated. The steady point is always

stable. Three diagrams show characteristic cases of the behavior of the integral curves. The authors thank A. I. Leypunskiy for his interest in the present investigation. There are 4 figures and 7 references, 4 of which are Soviet.

SUBMITTED: January 8, 1959

KAZACHKOVSKIY, O.D.

[Research, experimental, and test reactors] Issledovatel'skie, eksperimental'nye i ispytatel'nye reaktory. Research, experimental and test reactors. Vienna, International Atomic Energy Agency, 1960. 56 p. (International Atomic Energy Agency. Review series, no.8) (MIRA 15:4)
(Nuclear reactors)

22873
S/089/61/010/005/001/015
B102/B214

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26.2200

AUTHORS: Blokhin, O. Ye., Blokhintsev, D. I., Blyumkina, Yu. A., Bondarenko, I. I. Deryagin, B. N., Zaymovskiy, A. S., Zinov'yev, V. P., Kazachkovskiy, O. D., Kim Khen Bon, Krasnoyarov, N. V., Leypunskiy, A. I., Malykh, V. A. Nazarov, P. M., Nikolayev, S. K., Stavissky, V. Ya., Ukraintsev, F. I., Frank, I. M., Shapiro, F. L., Yazvitskiy, Yu. S.

TITLE: A pulsed fast reactor

PERIODICAL: Atomnaya energiya, v. 10, no. 5, 1961, 437-446

TEXT: The present paper gives a description of the pulsed fast reactor of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) which became critical in June, 1960. This reactor, called IBR (IBR) reactor, serves as pulsed fast neutron source (mean power ≈1 kw) for physical investigations, particularly for time-of-flight experiments. Its most distinguishing feature is the very small contribution (~10-4) of the delayed neutrons in its normal operation; it is about

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one hundredth of that of the usual steady uranium reactor. The pulses appear because whenever the reactor becomes overcritical a burst of prompt neutrons results. The half width of these pulses is 36 μsec. The frequency with which the pulses are repeated can be varied between 8 and 80 pulses/sec. Fig. 2 shows the construction of this reactor. The periodic change in the reactivity is brought about by the displacement of the two U^{235} blocks placed in two disks that can be rotated. The main block is pressed in the form of a disk, 1100 mm in diameter, and can be rotated with a peripheral velocity of 276 m/sec (at 6000 rpm) during which it passes through the core center. The reactivity change obtainable from the motion of the main block is 7.4 %, that obtainable from the motion of the auxiliary block is 0.4 %. The stationary part of the core consists of plutonium lumps in steel jackets. The reactor is started by a rough regulator, in this case a movable part of the reflector. It gives a reactivity change at the rate of $13 \cdot 10^{-5} - 1.3 \cdot 10^{-5}$ sec^{-1}. The manually operated rod is also a part of the reflector. Two plutonium rods in electromagnetic suspension serve as scram. They can be separated from the core with an acceleration of 20 g. Their separation causes a reactivity

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A pulsed fast reactor

decrease of 2-1.1 %; the rough regulator allows a reactivity change of 2.4 %, the manual regulator 0.1 %, and the automatic regulator 0.036 %. The reactor possesses also a reactivity booster for the production of one intensive pulse. The control and shield system is an automatically functioning electronic arrangement with BF_3 counters and ionization chambers. The whole reactor is placed in a room of size 10·10·7 m whose concrete walls allow complete protection from radiation. The most important experimental arrangement consists of a 1000 m long neutron conductor, a metal tube, 400 mm in diameter in the first part and 800 mm in the second part in which a pressure of 0.1 mm Hg is maintained. This conductor connects a chain of socalled "intermediate pavilions" (at distances of 70, 250, 500, 750, and 1000 m from the reactor) in which experiments can be carried out. There is also an additional neutron conductor of 100 m length. The reactor chamber is joined to an experimental chamber in which four neutron beams of up to 800 mm diameter are available. There is such an experimental chamber also above the reactor chamber. Various experiments were carried out with the reactor and they are described in the present paper. These are experiments with stand

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A pulsed fast reactor

assemblies and slowly moving main block for the determination of the most important parameters of the reactor; experiments with a core assembly (unmoved), experiments with rotating (5000 rpm) main block and a Ra-α-Be source in the core for the investigation of the effect of the multiplication factor, etc. The most important results are represented graphically. For example, Fig. 8 shows the dependence of the half width θ of a pulse on the reactivity; the dashed line holds for the quasistationary case, the dot-dash line for the case of $\theta = K(\tau/\alpha)^{1/3}v^{-2/3}$, where v is the velocity of motion of the (rotating) main block; in the quasistationary case $\theta = 2\sqrt{\varepsilon_m/\alpha v^2}$, where ε_m is the reactivity at the maximal multiplication factor; $\varepsilon = \varepsilon_m - \alpha x^2$, where x is the displacement of the main block. The reactor has been actually used for the measurement of the total, scattering, capture, and fission cross sections by the time-of-flight method. Further experiments will be carried out with a view to obtaining increase of power and decrease of the pulse duration. There are 15 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: J. Orndorf, Nucl. Sci. and Engng, 2, No. 4, 450 (1957).

Card 4/4

27524
S/089/61/011/004/005/008
B102/B138

21.1000

AUTHORS: Leypunskiy, A. N., Kazachkovskiy, O. D., Pinkhasik, M. S.

TITLE: The future of fast reactors

PERIODICAL: Atomnaya energiya, v. 11, no. 4, 1961, 370 - 378

TEXT: The obtaining of a higher conversion ratio, which is only possible with fast reactors, involves serious technical difficulties. One of the main problems is to find a good coolant. At present, sodium is the best of those produced and used on an industrial scale. Economic problems are, however, still unsolved. Since with a reactor of a given power the greater the energy intensity the smaller its size, fuel enrichment should be as high as possible. This requirement causes cooling problems and raises the cost of chemical reprocessing. These disadvantages can be reduced by increasing the burn-up fraction. The production of suitable fuel elements for this purpose presents a further problem. In the USSR these matters are studied on the research engineering reactor БР-5 (BR-5) (coolant: Na, maximum thermal power: 5000 kw, fast neutron flux: 10^{15} n/cm^2·sec) for the industrial development of fast reactors. This

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The future of fast reactors

reactor is designed for the study of: (1) heat transfer problems with radioactive sodium as coolant, (2) tests of specimens and prototype fuel elements, (3) the kinetics of fast reactors with high energy intensity, (4) materials under fast neutron fluxes and nuclear physics under these conditions. Plutonium oxide as a fuel has shown several advantages compared with metallic plutonium. The reactor core consists of 80 rod assemblies (stainless steel tubes filled with PuO_2), additional assemblies of rods of natural uranium and special assemblies with various samples exposed to fast neutron irradiation. The core itself has a cylindrical shape (280 mm high, 280 mm wide). Nickel was chosen as the reflector material. The maximum heat of 220 kw liberated in the reflector was carried off by forced draft air. The core was cooled by sodium flowing at a maximum speed of 5 m/sec (outlet temperature $\sim 500^{\circ}C$); in the second circuit, a eutectic fusion Na+K was used. In both circuits a total quantity of ~ 5 m^3 of liquid metal circulated at a rate of 250 m^3/hr (circulation period ~ 30 sec). One loop of the second circuit was cooled by air, the other incorporated a steam generator. The reactor was started in summer of 1958 (without coolant); in January 1959, the critical state

The future of fast reactors

in the sodium-filled system was attained. Operation commenced in the summer of 1959 (maximum power 5000 kw). Sodium proved to be a very good coolant, better than the Na-K alloy. With the aid of cold traps the oxide concentration in the coolant could be kept at $\sim(1\text{-}3)\cdot10^{-3}$%. By June 1961, a maximum burn-up fraction of more than 4% was reached. The integral fast-neutron flux exceeded $2\cdot10^{22}$ n/cm^2 at that time. No Pu impurities were detected in the cooling system. The advantages of the ceramic fuel (oxide) were confirmed. Stability and safety tests were also made. All experiments indicate that the first future task will be to solve the question of costs in cooperation with industry. The performance of the BR-5 reactor was nearly the same as that of a power reactor. The most important parameters of the BR-5 reactor are compared with those of a 750-Mw fast reactor: Energy intensity 360 (600) kw/liter; coolant temperature at the outlet from the reactor: 500 (550) °C; burn-up fraction $\geq$4 ($\sim$5) %. Since fusion reactors have not yet been achieved, fast reactors are the most promising type for future development in view of their high breeding ratio. For fuel reprocessing, pyrochemical or electrochemical methods should be used. There are 4 figures, 3 tables, and 5 references: 4 Soviet and 1 non-Soviet. The latter reads as

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The future of fast reactors

follows: Directory of Nuclear Reactors, Vol. VI, IAEA, Vienna, 1959.

SUBMITTED: July 17, 1961

Data of USSR Reactors

	Thermal power reactors		Fast power reactors
	Beloyarsk	Novo-Voronezh	Projected reactor (USSR)
Thermal power, Mw	285	710	750
fuel	U^{235}	U^{235}	U^{235}
fuel concentration in the core, g/liter	5	34	625
enrichment, %	1.3	1.5	21.6
coolant	water	water	sodium
energy intensity, kw/liter	1.2	43	600
specific power, kw/kg	250	1200	950

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KAZACHKOVSKIY, O.D.

13

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AUTHORS: Leypunskiy, A. I., Abramov, A. I., Aleksandrov, Yu. A., Anikin, G. V., Bondarenko, I. I., Guseynov, A. G., Ivanov, V. I., Kazachkovskiy, O. D., Kuznetsov, V. F., Kuz'minov, B. D., Morozov, V. N., Nikolayev, M. N., Sal'nikov, O. A., Smirenkin, G. N., Soldatov, A. S., Usachev, L. N., Yutkin, M. G.

TITLE: Investigation of the BR-5 (BR-5) fast reactor (spatial and energy distributions of neutrons)

PERIODICAL: Atomnaya energiya, v. 11, no. 6, 1961, 498 - 505

TEXT: The fast research reactor BR-5 and its experimental equipment is described in brief and some of its neutron spectra are given and discussed. The following data are given: fuel - plutonium oxide; coolant - sodium; reflector - thin layer of natural uranium plus thick layer of nickel; power - 5000 kw. The reactor has many vertical and horizontal holes for technical and physical studies and is well supplied with experimental equipment. Leypunskiy gave a detailed description of the BR-5 reactor at X

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Investigation of the...

the Second Geneva Conference (1958). Inside the core the neutrons have energies of more than 100 kev which they lose almost completely in passage through reflector and shield. In the outer layers of the shield, their mean energy does not exceed some tens of ev. In the kev range (E_n>50 kev) spectra were measured for the most important beams and channels. For the other cases, they were determined from threshold reactions. The soft part of the spectrum within the reflector was determined from the spatial distribution of neutrons with $E_n \approx 5$ ev, recorded with gold resonance indicators. The total neutron flux was determined only at the points where the Pu^{239} fission cross section was constant. Direct neutron spectrum measurements were carried out in a vertical (OK-70) and a horizontal (B-3) channel using (He^3+Ar)-filled ionization chamber in the first case and the neutron transmission method with n-hexane in the second. The neutron spectrum of the horizontal channel was also determined by photoemulsions. From the rates of indicator and fission reactions $Au^{197}(n,\gamma)$, $U^{235}(n,f)$ $Pu^{239}(n,f)$, $Th^{232}(n,f)$, $Na^{23}(n,\gamma)$ $Cu^{63}(n,\gamma)$, and $Al^{27}(n,\alpha)$ the abrupt

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Investigation of the...

drop in neutron energy in the Ni reflector was determined, and the activity caused by resonance neutrons (E_n = 4.9 ev). The fast neutron flux ($E_n > 1.4$ Mev) in the core center was found to be $(2.4 \pm 0.2) \cdot 10^{14}$, and total flux was $(8.2 \pm 0.3) \cdot 10^{14}$. Experimental results were verified by energy-group calculations (18 groups). Good agreement between theory and experiment was also found for the channel spectra. The authors thank D. S. Pinkhasik, N. N. Aristarkhov, and the reactor personnel for assistance. There are 10 figures, 2 tables, and 2 Soviet references.

SUBMITTED: August 17, 1961

Table 1. Reaction cross sections in the core center.

Legend: (1) Reaction; (2) experiment; (3) σ calculated, given in barns.

Fig. 7. Neutron transmission spectrum (n-hexane) for the horizontal channel B-3.

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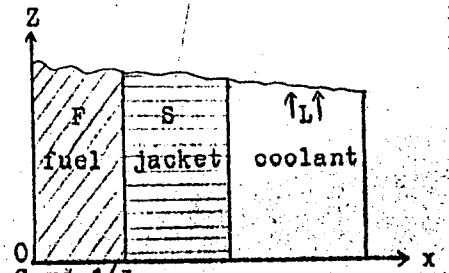
AUTHOR: Kazachkovskiy, O. D.

TITLE: Thermal shocks at the fuel-element jackets

PERIODICAL: Atomnaya energiya, v. 12, no. 3, 1962, 230 - 235

TEXT: It is theoretically studied inhowfar heat shocks at the jacket walls of fuel rods can be dangerous. Such shocks may arise in the regions of the coolant outflow after an emergency shutdown of a reactor. It is also studied how danger depends on the coefficient k_2 of non-uniform heat release along the rod axis. The calculations are carried out with the following simplifying assumptions: (1) Uniform heat release before shutdown, $k_z = 1$; (2) negligible heat capacity of the jacket; (3) thermal conductivity of fuel rod: infinite along x, very small along z; (4) no temperature jumps at the F-S and S-L boundaries; (5) at the moment of reactor shutdown (t=0) heat release shoud immediately be zero; (6)



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Thermal shocks at the fuel-element jackets

the coolant flow rate v should be high. The variation of temperature drop with time in S after the shutdown is described by

$$\frac{\partial^2 T}{\partial z \partial t} + \frac{\lambda}{C_F \delta_F \delta_S} \frac{\partial t}{\partial z} + \frac{\lambda}{v C_L \delta_L \delta_S} \frac{\partial T}{\partial t} = 0. \quad (5);$$

the initial condition (t=0) is $q\delta_F dz = \lambda(T_o/\delta_S)dz$; $T_o = q\delta_F\delta_S/\lambda$, is the initial temperature drop at the jacket. The boundary condition (z=0) is $dQ\delta_F dz = -\lambda \frac{T}{\delta_S} dzdt$, or, $T=T_o \exp(-\lambda t/C_F\delta_F\delta_S)$. The δ denote the thicknesses of F, S, and L; C_F and C_L are the specific heats, λ is the thermal conductivity of S, $T_F=T_F(z,t)$, $T_L=T_L(z,t)$, $T_L(0,t)=0$, $T = T_F-T_L$, $Q = C_F T_F$. The hyperbolic differential (5) equation is solved in the dimensionless variables

$$\frac{\lambda}{vC_L\delta_L\delta_S} z \equiv \zeta, \quad (10) \qquad \frac{\lambda}{C_F\delta_F\delta_S} t \equiv \tau, \quad (11) \qquad \frac{\lambda}{q\delta_F\delta_S} T \equiv \theta. \quad (12)$$

so that

$$\frac{\partial^2\theta}{\partial\zeta\,\partial\tau} + \frac{\partial\theta}{\partial\zeta} + \frac{\partial\theta}{\partial\tau} = 0, \quad (13)$$

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BAGDASAROV, Yu.Ye.; KAZACHKOVSKIY, O.D.

Calculation of the nonstationary temperature field in the reactor channel and thermoelastic stresses in a fuel element can. Atom. energ. 13 no.3:241-249 S '62. (MIRA 15:9)
(Nuclear reactors)

S/030/62/000/006/003/007
I023/I223

AUTHOR: Kazachkovskiy O.D. and Lytkin V.B.

TITLE: The role of plutanium in the development of nuclear energetics

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 6, 1962, 41-49

TEXT: The present article which is a review which analyzes the state and future plans of nuclear energetics, mainly the different possibilities of plutonium breeding and the use of it as a fuel. The amount of uranium-235 is not enough for future demands, therefore uranium-238 and maybe even thorium will have to be used. Various ways of plutonium breeding are described. The breeding of uranium-233 from thorium mixed with uranium-235 and a two-step process through plutonium breeding are described. The physico-chemical properties of plutonium are compared with those of uranium and are found to be worse, which makes plutonium a much harder material to handle. There are 4 figures.

Card 1/1

KALAFATI, Dmitriy Dmitriyevich; SKVORTSOV, S.A., retsenzent; KAZACHKOVSKIY, O.D., retsenzent; BAGDASAROV, Yu.Ye., retsenzent; KUZNETSOV, I.A., retsenzent; KORYAKIN, Yu.I., red.; LARIONOV, G., tekhn. red.

[Thermodynamic cycles of atomic electric power plants] Termodinamicheskie tsikly atomnykh elektrostantsii. Moskva, Gosenergoizdat, 1963. 279 p. (MIRA 16:4)
(Thermodynamics) (Atomic power plants)

6

LEYPUNSKIY, A.I., KAZACHKOVSKIY, O.D., PINKHASIK, M.S., ARISTARKHOV, N.N., KARPOV, A.V., LARIN, YE.P., YEFIMOV, I.A.

Operating experience with the BR-5 reactor.

Report submitted for the Conference on Operating experience with power reactors, Vienna, 4-8 June 63

S/089/63/014/002/007/019
B102/B186

AUTHORS: Belanova, T. S., Kazachkovskiy, O. D.

TITLE: Influence of nucleon parity effect on the radiative capture cross section

PERIODICAL: Atomnaya energiya, v. 14, no. 2, 1963, 185 - 192

TEXT: Hitherto the radiative capture cross sections have been measured mainly for even-even and odd-even nuclei. The present authors have now measured it also for many even-odd nuclei, in order to make comparisons with other parity types and draw conclusions as to the effect of parity. The capture cross sections of even-odd nuclei (σ_c(e-o)) were determined by subtracting the capture cross sections of the even-even isotopes (σ_c(e-e)) from the absorption cross section of the natural isotopic composition σ_a. Since in the natural isotopic composition the even-odd admixture amounts to only a few % the errors are considerable. In all investigated isotopes σ_c(e-o)) $\gg \sigma_c$(e-e). From a comparison of the experimental data of 130 neighboring even-even and odd-even isotopes it was found

Influence of nucleon parity...

that in 60% of the cases $\sigma_c(o\text{-}e) > \sigma_c(e\text{-}e)$, in 22% cases $\sigma_c(o\text{-}e) = \sigma_c(e\text{-}e)$, and in 18% cases $\sigma_c(o\text{-}e) < \sigma_c(e\text{-}e)$. 56 out of 60 cases of even-odd and odd-even pairs had $\sigma_c(e\text{-}o) > \sigma_c(o\text{-}e)$. The proportionality factor of this cross section depends somewhat on the neutron energy. The experimental data were obtained for E_n = 24, 150, 175, 220, and 830 kev. Of the different factors affecting σ_c the most important is the excitation energy on neutron capture which determines the level density ϱ. Two possibilities are considered here: (a) ϱ determines the true excitation energy which is equal to the sum of the binding energy E_b and the kinetic energy E_k of the neutron; (b) the excitation energy is reckoned not from the ground state but from the Hurwitz-Bethe level E_c so that $\varrho = \varrho(E_b + E_k - E_c)$. The effects of the different factors can be represented as follows:

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Influence of nucleon parity...

	(e-e)	(o-e)	(e-o)
Difference in the excitation energy (a)	-	-	+
" " " " (b)	-	+	+
Spin $\varrho \sim (1I+1)$, I being the spin factor of the compound nucleus	-	+	+
Spin factor	+	-	-
Nuclear dimensions	-	+	+
Concurrence by inelastic scattering	-	+	+

The effects with + sign are larger than those with - sign. Similar signs signify that the effects are of about the same magnitude. The data do not agree with the assumptions of Hurwitz and Bethe (Phys. Rev. 81, 898, 1951) about the characteristic levels. There are 3 figures and 5 tables.

SUBMITTED: May 27, 1961

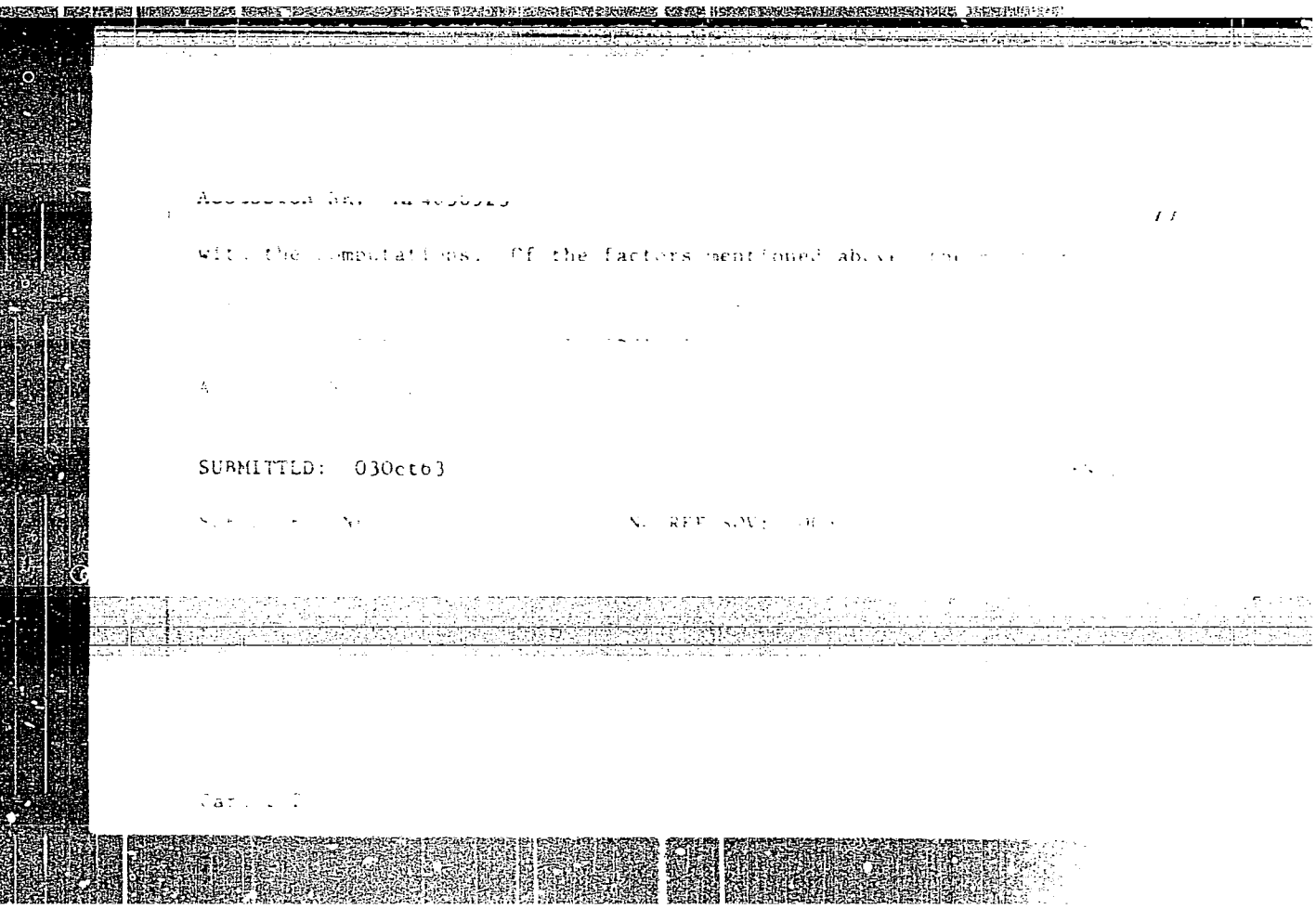
Card 3/3

AUTHOR: Bardasarov, Yu.Ye.; Kazachkovskiy, O.D.; Pinkhasik, M.S.; Pyshin, V.K.

loop designs of nuclear [illegible]/P

[illegible] conditions (emergency shutdown) for natural [illegible]

on an electronic computer. In the computational [illegible] solution, and heat exchange between the steel struct[illegible]



SUBMITTED: 030ct63

KAZACHKOVSKIY, O. D.; ARISTARKHOV, N. N.

"Five-year operation experience on the fast reactor."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

ACCESSION NR: AP4049534 S/0089/64/017/005/[illegible]

[illegible]

Pinkhasik, M. S.; Krasnoyarov, N. V.; Poydo, M. S.

TITLE: Sodium cooled fast reactors

SOURCE: Atomnaya energiya, v. 17, no. 5, [illegible]

TOPIC TAGS: power reactor, liquid metal cooled [illegible]
[illegible]

ABSTRACT: [illegible]

volume of the active zone (~2000 liters) and the power ratio [illegible]
kW/liter) ensure a m[illegible]
[illegible]

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m, H = 1.06 m), the maximum sodium speed is 10 m/sec, the thickness of the breeder zones on the periphery and on the end is 60 cm. The construction permits the active zone size to be varied and [illegible] different [illegible] elements. A [illegible]

[illegible] the arrangement of the active and breeder zones is such as to produce a conversion ratio [illegible]. The internal [illegible]

ments with a reactivity margin of [illegible]

[illegible] the monitoring, control, and safety [illegible] described. The sodium flows through a heat exchanger in which steam [illegible] and [illegible]

ASSOCIATION: None

SUBMITTED: 00

[redacted]. Study of the possibility of using thorium in fast power

reactors and to obtain a system

for a useful discussion of the present results and A. N. Shmelev

ASSOCIATION:

SUBM: [illegible] BRKD: [illegible]

NO REF SOV: 003 OTHER: 000 ATD PRESS: 4008

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721230001-5"

UR/0089/65/

SOURCE: Atomnaya energiya, v. 18, no. 4, 1965, 390-395

TOPIC TAGS: fast reactor, reactor physics, reactor technology

ABSTRACT: review of the papers

the physics and technology of fast reactors. The reviewed papers are Nos. 259, 18, 166, 510, 508, 205, 41, 329, 311, 209,

was the subject of papers

design were the

as well as 166, and

critical assemblies

and the BR-5 reactor

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ACCESSION NR: AP5012575

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ENCL: 00

NR REF SOV:

OTHER: 002

KAZACHKOVSKIY, O.D.

Conference on Fast Reactors in Detroit. Atom. energ. 19 no.5: 476-480 N '65. (MIRA 18:12)

ACC NR: AP7007582 SOURCE CODE: UR/0089/66/021/002/0084/0092

AUTHOR: Leypunskiy, A. I.; Kazachkovskiy, O. D.; Shikhov, S. B.; Yurova, L. N.; Kromov, V. V.; Shmelev, A. N.; Sukhoruchkin, V. K.

ORG: none

TITLE: Use of nonuranium dilutors of plutonium in large, fast breeder reactors

SOURCE: Atomnaya energiya, v. 21, no. 2, 1966, 84-92

TOPIC TAGS: breeder reactor, fast reactor

SUB CODE: 18

ABSTRACT: The physical characteristics of fast breeder reactors with cylindrical and annular active zones have been studied, together with the characteristic of infinite lattices of large fuel elements located in a heterogeneous manner within the material of the breeder zone. The paper presents in tabular form the results of theoretical calculations, discusses the influence of Pu^{240} and Pu^{241}, describes the change in reactivity during the irradiation process, and shows the results of investigation of the sodium temperature coefficient and the Doppler temperature coefficient. An analysis of the results shows that the use of nonuranium dilutors of plutonium in large fast reactors (with a large active volume) results in annular active zones and zones with fuel elements within the breeder composition zones having peculiarities which make them more economical than large cylindrical active zones. The authors thank I. S. Slesarev, A. M. Kuz'min, M. F. Troyanov, and V. M. Murogov for their part in carrying out the research and O. N. Gerasimovaya for helping to compile information in the article. Orig. art. has: 2 figures, 3 formulas and 5 tables. [JPRS: 39,417]

Card 1/1 UDC: 621.039.526: 621.039.543.466

S/183/61/000/001/004/006
B101/B205

AUTHORS: Pakshver, A. B., Kazachkova, T. M.

TITLE: New method of characterizing the structure of polyacryl nitrile fiber

PERIODICAL: Khimicheskiye volokna, no. 1, 1961, 22-24

TEXT: A rapid laboratory method has been worked out for determining the structure of polyacryl nitrile fiber (PAN), i.e., the presence of micropores, loose sites, and other inhomogeneities which affect the behavior of the fiber during treatment and dyeing. Laboratory tests have hitherto been made by simulating the manufacturing process. As the number of inhomogeneities has an effect on diffusion, calorimetric measurement of the amount of heat liberated by PAN swelling in dimethyl formamide within the first five minutes has been suggested. A figure shows that the liberation of heat (0.4-7.2 cal/g after 1 min; 0.7-8.7 cal/g after 2 min; 1.8-13.7 cal/g after 5 min) depends on the method of PAN synthesis and its preliminary treatment. The liberated heat approaches equilibrium: Q_o = 12.5 cal/g (determined in an adiabatic calorimeter). The coefficient Q_1/Q_o (Q_1 = first minute) varied

Card 1/2

New method of ...

from 0.080 to 0.376, depending on the degree of homogeneity of PAN. In addition, the structural density was determined from the specific gravity. Freshly precipitated PAN fiber had a specific gravity of 1.626, which was increased to 1.794 by drawing and oiling. Treatment with water reduced the specific gravity, whereby the micropores were enlarged and new ones were formed. There are 1 figure, 2 tables, and 12 Soviet-bloc references.

ASSOCIATION: VNIISV (All-Union Scientific Research Institute of Synthetic Fiber)

Card 2/2

KAZACHOK, A.A., inzh.

Clamp fixing device for the vulcanizer press for automobile tire treads. Khim.mashinostr. no.6:40 N-D '63. (MIRA 17:2)

KAZACHOK, V.M.

IVANOVA, N.A.; KAZACHOK, V.M.

Indication of pathogenic bacteria in nature with attention to the variability of their properties. Zhur.mikrobiol.epid. i immun. no. 8:43-44 Ag '55. (MLRA 8:11)

1. Iz Gor'kovskogo instituta vaktsin i syvorotok (dir. A.A.Golubev)
(SALMONELLA TYPHOSA, culture,
atypical culture of bact.isolated from water with application of immune serum)
(WATER SUPPLY, bacteriology
Salmonella typhosa, isolation, atypical culture with application of immune serum)
(IMMUNE SERUMS,
isolation of Salmonella typhosa from water)

L 38203-66 FBD/EWT(l)/EEC(k)-2/T/EWP(k) IJP(c) WG

ACC NR: AP6022086 SOURCE CODE: UR/0141/66/009/003/0620/0621

AUTHOR: Kazachok, V. S.

ORG: All-Union Scientific-Research Institute of Physico-Technical and Radio-Technical Measurements (Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radio-tekhnicheskikh izmereniy)

TITLE: Ramsey-type radiation line in a spaced-resonators maser

SOURCE: IVUZ. Radiofizika, v. 9, no. 3, 1966, 620-621

TOPIC TAGS: gaseous state maser, ammonia maser

ABSTRACT: F. Holuj et al. described their $N^{14}H_3$ (j = 3, k = 3)-line maser in which two resonators are phase-coupled by means of an auxiliary resonator. The present article describes a simpler maser in which the resonators are field-coupled through their open radiating ends (see Fig. 1). Here: 1 - beam source; 2 - sorting system; 3 - brass resonator, 4 - pyroceramic resonator, 5 - subcritical-frequency waveguide, 6 - power-output waveguide. Both resonators are designed for the E_{010}-mode; an $N^{15}H_3$ line (j = 3, k = 3) was investigated. The effective Q of the Ramsey-line central maximum was found to be 5 times as high as the

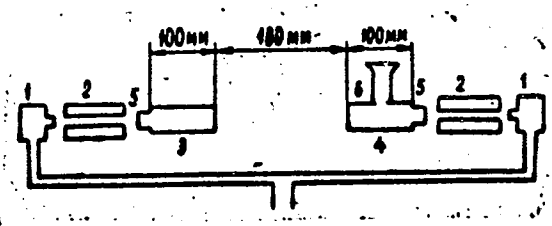

Fig. 1. Two-series-resonator maser

Card 1/2 UDC: 621.378.33

L 38203-66
APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721230001-5"

ACC NR: AP6022086

Q-factor of the radiation line in a single-resonator maser. Orig. art. has: 2 figures. [03]

SUB CODE: 20 / SUBM DATE: 28Sep65 / ORIG REF: 002 / OTH REF: 003/ ATD PRESS: 5046

Card 2/2

TOPIC TAGS: molecular beam, dipole electric moment, [illegible]
inhomogeneous electric field

ACCESSION NR: AP5015641

[illegible] than near the center, and an axially moving molecule

L 54750-65

ACCESSION NR: AP5015641

exponentially reducing a 10^5 V applied potential

3/3

KAZACHOK, V.S.

Electrodynamic method of slowing down molecules. Zhur. tekh. fiz. 35 no.6.1145-1149 Je '65. (MIRA 18:7)

RAKHUBA, K.; LINKEVICH, I.; PROT'KO, S.; KAZACHONAK, V., redaktor; STSYAPANOVA, N., tekhnicheskiy redaktor

[Minsk Province agricultural exhibition of 1954] Minskaia oblasnaia sel'skahaspadarchaia vystauka 1954 goda. Minsk, Dziarzh. vyd-va BSSR, 1955. 133 p. (MLRA 10:1)
(Minsk--Agricultural exhibitions)

KAZACHONAK, Yaugeniya

Growing orchards. Rab. i sial. 32 no.7:6-7 Jl '56. (MLRA 9:8)
(Minsk--Gardening)

AUTHOR: Kazachov, A.I., Kurochkin, F.I., Engineers and Marchenko, E.A., Candidate of Technical Sciences. 104-2-14/38

TITLE: On the conditions of operation of shunting circuit breakers in series compensating installations. (Ob usloviyakh raboty shuntiruyushchikh vyklyuchateley v ustanovkakh prodolnoy kompensatsii)

PERIODICAL: "Elektricheskie Stantsii" (Power Stations), 1957, Vol. 28, No.2, pp. 56 - 60 (U.S.S.R.)

ABSTRACT: Series capacitors in transmission lines have dischargers to protect them from overvoltages when short circuits occur on the lines. The capacitors are provided with a shunting circuit breaker intended for operational switching and for disconnecting the installation for repair or examination. The operating conditions of these circuit breakers have certain special features. The class of insulation can be lower than that of the rest of the system if the breakers are installed on an insulated platform. The rupturing capacity is not very great as the greatest current to be disconnected is the line current in normal overload conditions with a low rate of rise of restriking voltage because of the large capacitance in parallel with the contacts. There are certain additional requirements in that the breakers must withstand the thermal

Card 1/3

On the conditions of operation of shunting circuit breakers in series compensating installations. (Cont.) 104-2-14/38

and dynamic effects of the discharge currents. However, tests carried out with circuit breakers types BBH-110 and BM-35 on a 220 kV installation show that no damage was done to current carrying parts by electro-dynamic forces after multiple passage of discharge currents the amplitude of which was much greater than the normal permissible maximum short circuit current. Tests that were carried out are described and the results are given in the form of oscillograms. It was found that the de-ion grids took no part in the process of arc suppression and may be removed whilst the contact system must be made in such a way that rigidly mounted parts are not in the way of the explosion wave. The contact system was accordingly reconstructed and the way in which this was done is illustrated. Because of removal of potential screens the discharge voltage between bushings and tank was reduced by 10 - 15 kV.

Apart from the danger of dynamic effects of the explosion wave on the contact system the quantity of energy dissipated in the breaker after a large number of repeated discharges of the condenser battery may greatly exceed the energy dissipated during the heaviest short circuit and so the content of

Card 2/3

On the conditions of operation of shunting circuit breakers in series compensating installations. (Cont.) 104-2-14/38

oil deterioration products is high; the oil had to be changed after shunting a few times a 220 kV condenser installation with a line current of 600 A equal to the rated current of the breaker. Contamination of the oil was insignificant at currents up to 450 A. This contamination can be reduced by increasing the speed of separation of the contacts and increasing the damping resistances in the breaker circuits. It would be advisable to develop circuit breakers of light construction specially intended for operation in series capacitor installations. Circuit breaker BM-35 cannot be used without reconstruction of its contact system.

There are 7 figures and 3 references.

AVAILABLE:

Card 3/3

Kazachuk, N.

AID P - 2208

Subject : USSR/Aerodynamics

Card 1/1 Pub. 135 - 9/18

Authors : Kazachuk, N., Eng. Col. and Demchev, I., Lt. Col.

Title : The use of the photo machine gun in air gunnery training

Periodical : Vest. vozd. flota, 6, 48-50, Je 1955

Abstract : The authors discuss the organization of air gunnery training and give some examples of training in units. Names are mentioned.

Institution : None

Submitted : No date

VOROB'YEV, L.; BELAN, S.; KAZACHUK, S.

Kazakhstan pledges a billion poods of grain. Mukh.-elev. prom. 24 no.4:2-3 Ap '58. (MIRA 11:5)

1. Ministerstvo khleboproduktov Kazakhskoy SSR (for Vorob'yev).
2. Direktor Shortandinskogo elevatora, Kazakhstan (for Belan).
3. Upravleniye khleboproduktor Karagandinskoy oblasti (for Kazachuk).
(Kazakhstan--Grain trade)

KAZACHUK, Yu. S.

KISELEVA, A.F., doktor med.nauk; KAZACHUK, Yu.S., kand.med.nauk

Pathogenesis of decompensation of the hypertrophic heart in hypertension. Vrach.delo no.10:1051-1054 O '57. (MIRA 10:12)

1. Kafedra patologicheskoy anatomii (zav. - zasl.deyat.nauki, prof. Ye.I.Chayka) Kiyevskogo meditsinskogo instituta.
(HYPERTENSION) (HEART FAILURE)

KAZACHUK, Yu. S.

Case of two primary cancers developing at different times. Ped., akush. i gin. 20 no.4:62 '58. (MIRA 13:1)

1. Prozektura klinicheskoy bol'nitsy Stalingskogo rayona g. Kiyeva (glavnyy vrach - N.A. Shevchuk).
(CANCER)

KAZADAYEV, S. A.

Country : USSR K
Category: Forestry. Forest Management.

Abs Jour: RZhBiol., No 11, 1958, No 48753

Author : Kazadayev, S.A.
Inst : Voronezh State Forest Preserve.
Title : Experiment with Mineral Top Dressing of the Pine in a 20-Year Old Plantation.

Orig Pub: Tr. Voronezhsk. gos. zapovednika, 1957, vyp. 7, 93-96

Abstract: Experiments were conducted in the pure, 20-year old pine forest on light-brown sandy soil having a humus layer of 10-15 cm. The type of conditions at the place of growth are those of a new pine forest. Fertilizers were applied by means of even broadcasting

Card : 1/2

USSR / Plant Diseases. Forest Trees. 0-1

Abs Jour: Ref Zhur-Biol., 1958, No 17, 77992

Author : Kazadayev, S. A.
Inst : Not given
Title : Infection of Pine Forests of the Voronezh National Forest with Root Fungus and Experiments for Their Protection From Desiccation.

Orig Pub: Tr. Voronezhsk. gos. zapovedinka, 1957, vyp. 7, 133-145

Abstract: Examinations conducted in 1950-1954 show that the most infected trees are 20-50-year plantings, but the 70-80-year-olds are more intensively dried. The disease represents a serious threat, since

Card 1/3

USSR / Plant Diseases. Forest Trees. O-1

Abs Jour: Ref Zhur-Biol., 1958, No 17, 77992

Abstract: 90% of the localized regions - appeared in and affecting only 10% - are dying or have died. Prolonged utilization of tree areas under plowland impairs the structure of the forest soils, and subsequent plantings of pines fall into unfavorable conditions: the dying off of the tree roots favors the infection of root fungus. Fomitopsis annosa (Fr) causes a decrease in tree growth, which then brings on secondary damages. In plantings weakened by unfavorable influences, dessication under the effect of root fungus is reinforced. Infected plantings are met independent of the contour, character and humidity of the soils. Tests conducted showed that raking of the forest undergrowth, with subsequent removal, or leaving it the form of mounds, stops the appearance of new

Card 2/3

KAZADAYEV, S.A.

Effect of supplementary mineral fertilizers on the quantity and dynamics of the litter of needles in Scotch pine plantations. Trudy Vor. gos. zap. no.13:147-164 '61. (MIRA 16:8)

(Voronezh Preserve--Pine--Fertilizers and manures)
(Voronezh Preserve--Forest litter)

USSR/Forestry - Forest Economy.

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10592

the water; this is of great practical significance for pines since they occasionally perish on sandy soils due to the lack of water. The influence of mineral fertilizers on the tree's diameter growth has also been clarified. In plots to which N_{aa} had been added the diameter growth was 12.2% greater than in the control; it was 15.9% greater when N and K were applied together and 29% greater when N was applied together with P or with K and Ca. Growth was as great on plots fertilized with N as on those which had received a full fertilization.

Card 2/2

G

USSR / Zooparasitology. General Problems.

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24180.

Author : Kazadayev, V. I.
Inst : Bashkir Affiliate, Geographical Society USSR.
Title : On the Problem of Parasitofauna of Tinca tinca in the Reservoirs of Bashkiria.

Orig Pub: Zap. Bashkirsk. fil. Geogr. o-va SSSR, 1957, vyp. 1, 163-170.

Abstract: During parasitological dissection in 1952-1953 in two reservoirs of Bashkiria (Lake Urgun and Bel'skaya Staritsa) of 296 specimens of Tinca tinca (223 specimens from Bel'skaya Staritsa, 73 from Lake Urgun), 21 varieties of parasites were discovered. The parasitofauna of Tinca tinka of Bel'skaya Staritsa is richer (17 species) than that of Lake Urgun (13 species). In Bel'skaya

Card 1/2

G

USSR / Zooparasitology. General Problems.

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24180.

Abstract: Staritsa predominate Trichodina domerguei (infection of 94.1%; average intensity of infection is 34.6 specimens per fish); Asymphylodora tincae (89.2%, average intensity 384 specimens), Neascus musculicola (83.4%) and Ergasilus sieboldi (76.3%, average intensity 25.2 specimens). In Lake Urgun in 1952, 100% infection with A. tincae (average intensity 458 specimens, and in 1953 - 95.8% and 114.5 specimens) was observed. The infection with Contracoecum in 1952 was 68 and in 1953 100%, with the average intensity of 44.8% and 294 specimens. -- L. P. Shuvalova.

Card 2/2

G

USSR

Abs Jour : Ref Zhur - Biologiya, No 22, 1958, No 99542

Author : Kazadayev, V.I.
Inst : Bashkir Agricultural Institute
Title : Parasitic Infestation of the Tench with Parasites in Relation to the Age of the Host and the Seasons of the Year

Orig Pub : Tr.Bashkiisk.s.-kh.in-ta,1957,8,No 2,301-312.

Abstract : Tenches from 2 reservoirs of the Bashkir ASSR were investigated during the summer and winter. An increase of infestation of the tench up to the age of 6 years was noted. Older fish were not investigated. The greatest infestation of the tenches was observed during the summer. The intensity of infestation decreased markedly towards the fall and it was only slightly lower in the winter than during the fall.--O.M.Bauer.

Card 1/1

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KAZADAYEVA, Yu.P.

Dissertations presented before the Council of the Chemistry Department at the Tomsk State University. Zhur.neorg.khim. 1 no.10:2428 O '56. (MIRA 10:1)
(Amines) (Hydrates) (Tomsk--Chemistry)

ACC NR: AP6029673 (N) SOURCE CODE: UR/0136/66/000/008/0077/0080

AUTHORS: Krasnikov, N. Ye.; Kushakevich, S. A.; Tokmakov, P. Ya.; Kazadov, K. A.; Shilin, O. K.; Gritsenko, Yu. P.; Matveyev, G. I.

44
34

ORG: none

TITLE: Adoption of rolling large round profiles from titanium alloys

SOURCE: Tsvetnyye metally, no. 8, 1966, 77-80

TOPIC TAGS: titanium alloy, metal rolling, metal forming

ABSTRACT: The rolling of large diameter (25 - 60 mm) titanium alloy stock was studied. Prior to rolling the specimens were heated for 10 min in an induction furnace up to a temperature of 1270--1370K, and for 5 min in a silit furnace at a temperature of 1270--1370K. A schematic of the rolling scheme is presented (see Fig. 1). The rolling margin was calculated after the formula of N. Ye. Krasnikov and N. P. Skryabin (Tsvetnyye metally, 1965, No. 4)

$$\Delta h = \frac{\Delta h \cdot B_0 \sqrt{\Delta h \cdot r}}{(H+h)^2} \times \left[1{,}7 - \frac{B_0 \sqrt{\Delta h \cdot r}}{(H+h)^2}\right],$$

where Δh is the absolute compression, B_0 - width of zone before passage, H and h - height of zone before and after passage respectively, and r - the radius of the working roller. It was found that the experimental data were in good agreement with

 UDC: 669.295-422.1:622.771.2

L 10000-67

ACC NR: AP6029673

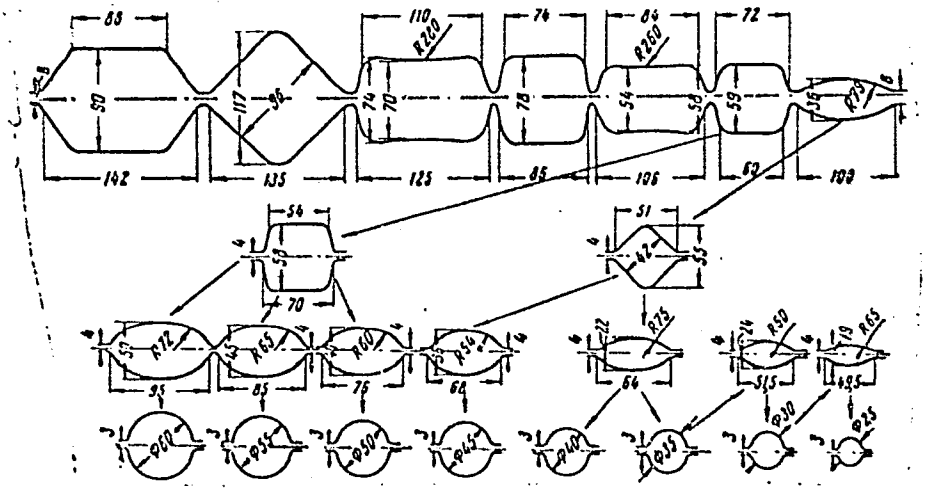

Fig. 1. Schematic for rolling large round profiles on rolling stand 450

the above equation. The degree of mold filling for hexagonal, square, and oval specimens was calculated after I. Ya. Tarnovskiy (Formoizmeneniye pri plasticheskoy obrabotke metallov, Metallurgizdat, 1953). The results are tabulated. It is concluded that rolling of large diameter stock made of titanium alloys VT1-1, VT3-1, OT4, VT5, VT5-1, VT6, VT8, VT15, VT14, and others yields products with satisfactory mechanical properties. Orig. art. has: 1 table, 3 graphs, and 4 equations.

Card 2/2 SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001

KAZADZHAN, L.B., inzh.; PROSKURYAKOVA, A.A.

Effect of phase transformations in electrical steel on the formation of discards because of ragged edges. Stal' 23 no.5:462-464 My '63. (MIRA 16:5)

1. Alapayevskiy metallurgicheskiy kombinat.
(Steel—Metallography)
(Rolling (Metalwork)--Defects)

DRUZHININ, V.V.; KAZADZHAN, L.B.; PRASOVA, T.I.

Dependence of additional losses for eddy currents on grain size in fine-grained electrical steel. Fiz. met. i talloved. 13 no.4:635-636 Ap '62. (MIRA 16:5)

1. Verkh-Isetskiy metallurgicheskiy zavod.
(Steel--Electric properties) (Domain structure)

DRUZHININ, V.V.; KAZADZHAN, L.B.

Comparing the magnetic characteristics of electrical steel measured on entire sheets and Epstein strips. Fiz. met. i metalloved. 13 no.4:639-640 Ap '62. (MIRA 16:5)

1. Verkh-Isetskiy metallurgicheskiy zavod.
(Sheet metal—Magnetic properties)

BERENYI, Denes, dr.; KAZAI, Lajos; SCHARBERT, Tibor; VATAI, Endre

Tests on the decay scheme of Co^{56}. ATOMKI kozl 6 no.3/4:101-103 D '64.

1. Editorial Board Member, "ATOMKI Kozlemenyek" (for Berenyi).

KAZAINOV, V. N., LEMBERG, A. YE., Engineer

Loading and Unloading

Accelerating unloading of loose building materials from platform cars. Mekh. trud. rab 6 no. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

L 00837-66

ACCESSION NR: AP5016081 UR/0302/65/000/002/0017/0019
681.142.642

AUTHOR: Afanas'yev, V. A.; Kazais, E. B.; Plotnikov, A. D.

TITLE: Specialized arithmetic unit

SOURCE: Avtomatika i priborostroyeniye, no. 2, 1965, 17-19

TOPIC TAGS: arithmetic unit

ABSTRACT: The development of a specialized few-digit arithmetic unit based on three-cycle ferrite-diode logical elements is briefly reported. The use of a table of binary logarithm-antilogarithms has simplified the logical circuit of the unit and has accelerated the multiplication, division, and evolution operations. The unit performs addition and subtraction of numbers, yields logarithms, and can add, subtract, and shift the logarithms. The number code has 17 binary digits; the mantissa significant part has 11 digits; order, 4 digits; order sign and mantissa sign, 1 digit each. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: DP, EC

Card 1/1 NO REF SOV: 001 OTHER: 001

AFANAS'YEV, V.A.; ITENBERG, I.I.; KAZAIS, E.B.; SMELKOV, V.A.

Network for program interruption. Avtom. i prib. no.1: 40-43 Ja-Mr '65. (MIRA 18:8)

VASIL'YEVA, A.V.; KAZAK, A.P.

Experience in typhoid fever control. Zdrav. Turk. 3 no.6:33-35 N-D '59. (MIRA 13:5)

(TURKMENISTAN--TYPHOID FEVER)

YERMOLENKO, N.F.; POPKOVICH, G.A.; KAZAK, A.F.

Structure and sorption activity of silica gel aminated by the coprecipiation method. Vestsi AN BSSR.Ser.khim.nav. no.2:99-102 '65. (MIRA 18:12)