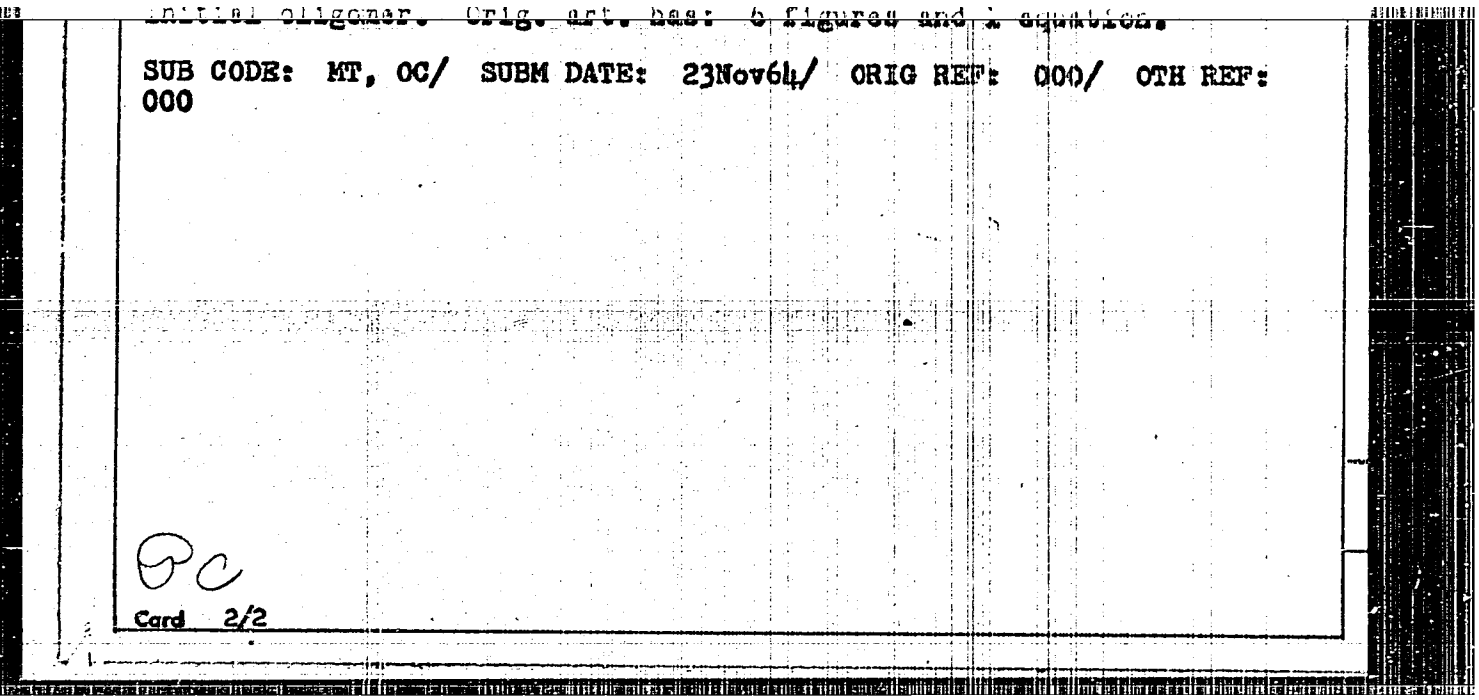

initial oligomer. Orig. art. has: 6 figures and 1 equation.

SUB CODE: MT, OC/ SUBM DATE: 23Nov64/ ORIG REF: 000/ OTH REF: 000

OC

Card 2/2

RAPOPORT, R.I.; KOKOVIKHINA, K.I.; VARSHAVER, N.B.; YERMAKOVA, M.N.; KOLESOV, I.M.; ROZINA, N.Ye.

Cultivation of a strain of diploid cells of the lungs of a human embryo. Vop. virus. 10 no.2:187-191 Mr-Ap '65.
(MIRA 18:10)

1. Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov.

20951
S/079/61/031/004/005/006
B118/B208

5.3700 2209, 1274, 1282

AUTHORS: Andrianov, K.A., and Yermakova, M.N.

TITLE: Formation reactions of triethyl-siloxy-borosiloxanes

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 4, 1961, 1310 - 1312

TEXT: For the purpose of synthesizing triethyl-siloxy-diethoxy-boron, the authors of the present paper studied the reaction of triethyl-hydroxy--silane with boric acid ethyl ester. Experiments disclosed that tris--triethyl-siloxy-boron is formed even by reacting boric acid ethyl ester with triethyl-hydroxy-silane in a molar ratio; triethyl-siloxy-diethoxy--boron could not be separated. The latter is probably subjected to disproportionation during distillation, forming a stable compound, namely tris-triethyl-siloxy-boron. In subsequent experiments, boric ester was first condensed with triethyl-hydroxy-silane, combined with a distillation of the alcohol separated during the reaction:

$$2(C_2H_5)_3SiOH + B(OC_2H_5)_3 \longrightarrow \left((C_2H_5)_3SiO\right)_2B(OC_2H_5) + 2C_2H_5OH \quad (1).$$

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B118/B208

Formation reactions of ...

Then, diethyl-diacetoxy-silane was added, and the reaction mixture heated again to expel the ethyl acetate:

$$2\left((C_2H_5)_3SiO\right)_2B(OC_2H_5)+(C_2H_5)_2Si(OCOCH_3)_2 \longrightarrow 2C_2H_5OCOCH_3+$$

$$+(C_2H_5)_3SiO-B-O-\underset{\displaystyle (C_2H_5)_3SiO}{\overset{\displaystyle (C_2H_5)_2}{Si}}-O-B-OSi(C_2H_5)_3 \qquad (2)$$

. Twofold vacuum distillation gave 1.5--bis(triethyl-siloxy-boro)-3-diethyl-diborosiloxane in a yield of 24.7% 1.5-bis(triethyl-siloxy-boro)-3-dimethyl-diborosiloxane is easily obtained according to reaction (2), if dimethyl-diacetoxy-silane is used instead of diethyl-diacetoxy-silane. Reaction of the condensation product of triethyl--hydroxy-silane with the boric ester of diethyl-silanediol gives also easily 1.5-bis(triethyl-siloxy-boro)-3-diethyl-diborosiloxane:

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S/079/61/031/004/005/006
B118/B208

Formation reactions of ...

$$2\left[(C_2H_5)_3SiO\right]_2B(OC_2H_5)+(C_2H_5)_2Si(OH)_2 \longrightarrow 2C_2H_5OH +$$

$$+ (C_2H_5)_3SiOB(OSi(C_2H_5)_3)-O-Si(C_2H_5)_2-O-B(OSi(C_2H_5)_3)$$

. There are 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences USSR)

SUBMITTED: March 16, 1960

Card 3/3

ANDRIANOV, K.A.; YERMAKOVA, M.N.

Polycondensation reaction of α, ω-dihydroxydimethylsiloxane oligomers with phenylaminomethylmethyldiethoxysilane. Izv.AN SSSR.Otd. khim.nauk no.9:1577-1580 S '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Siloxanes) (Silane)

ANDRIANOV, K.A.; YEMMAKOVA, M.N.

Synthesis and polymerization of bis and tris (trialkylsiloxy) tin methacrylate. Vysokom.soed. 5 no.2:217-221 F '63. (MIRA 16:2)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Tin organic compounds) (Methacrylic acid)
(Polymerization)

ACCESSION NR: AP4025009 S/0062/64/000/003/0454/0457

AUTHOR: Andrianov, K. A.; Kuznetsova, L. K.; Yermakova, M. N.

TITLE: Polydimethylsiloxanes containing tris(trimethylsiloxy) and dimethylphosphinoxy terminal groups

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 454-457

TOPIC TAGS: liquid polydimethylsiloxane, terminal polymer group, tris(trimethylsiloxy) group, dimethylphosphinoxy group, viscous flow activation energy, polymer viscosity, polydimethylsiloxane viscosity, condensation synthesis, polymer synthesis, polymer molecule number

ABSTRACT: New liquid polydimethylsiloxanes containing the above terminal groups were synthesized by condensation of α, ω-dihydroxydimethylsiloxanes with the dimethylethoxysilylmethyl ester of dimethylphosphinic acid or tris (trimethylsiloxy) ethoxysilane, and some of their properties (molecular weight, glass-forming temperature, activation energy) studied. The reaction formula is

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ACCESSION NR: AP4025009

presented and properties tabulated. In the end products, n, denoting the number of polymer molecules, was equal to 9, 13, 42, 45, 75 and 120. Viscosity in the 20-120C range was higher in polymers with terminal tris (trimethylsiloxy) groups than in those with the dimethylphosphinoxy group for the same degree of polymerization. The logarithm of viscosity, inversely dependent upon temperature, is also figured. The activation energy of viscous flow, calculated according to experimental data in the range studied, decreased upon increasing the distance between the terminal groups, which may point towards a comparatively great influence of these groups, as against that of the dimethylsiloxane groups of the backbone. The synthesis is described. Orig. art. has: 2 formulas, 2 tables and 4 figures.

ASSOCIATION: Institut elementoorganicheskikh soedinennly Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

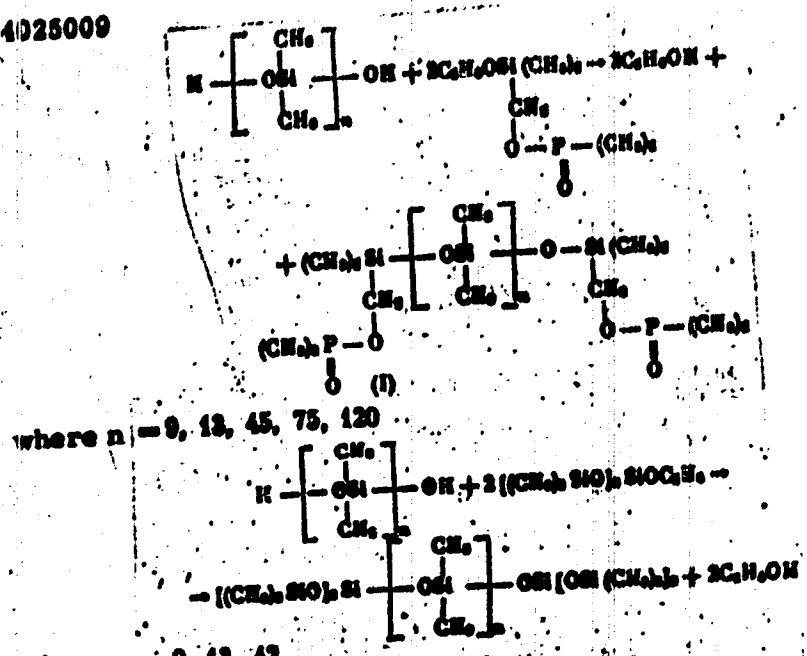
SUBMITTED: 10Oct62 DATE ACQ: 17Apr64 ENCL: 01

SUB CODE: CH NO REF SOV: 005 OTHER: 001

Card 2/3

ENCLOSURE:01

ACCESSION NR: AP4025009



where n = 9, 13, 45, 75, 120

where n = 9, 13, 42.

Card 3/3

NOVIKOV, I.T.; PAVLENKO, A.S.; SMIRNOV, M.S.; CHIZHOV, D.G.; LAVRENENKO, K.D.; NEKRASOV, A.M.; NOSOV, R.P.; TARASOV, N.Ya.; ZHIMERIN, D.G. UGORETS, I.I.; DMITRIYEV, I.I.; DROBYSHEV, A.I.; YERMAKOV, V.S.; SAPOZHNIKOV, F.V.; BOROVOY, A.A.; BANNIK, V.P.; DASKOVSKIY, Ya.M.; ROGOVIN, N.A.; PETROV, A.N.; MEL'NIKOV, B.V.; LATYSH, D.I.; KONIN, F.P.; DYDYKIN, P.Ye.; BONDAREV, I.I.; GUMENYUK, D.L.; POBEGAYLO, K.M.

Ol'ga Sergeevna Kalashnikova; obituary. Elek.sta. 30 no.2:95 F '59. (MIRA 12:3)
(Kalashnikova, Ol'ga Sergeevna, 1914)

YERMAKOV, V.S., kand. tekhn. nauk; PEKELIS, G.B., inzh.

Method for selecting a version for the introduction of new power into the power system. Elek. sta. 30 no.3:6-11 Mr '59. (MIRA 12:5)

(Power engineering)

YERMAKOV, V.S.

Unsteady temperature field in the heat-producing elements of a reactor. Inzh.-fiz.zhur. no.5:115-118 My '60. (MIRA 13:8)

1. Institut energetiki AN BSSR, Minsk.
(Nuclear reactors)

S/170/60/003/04/24/027
B007/B102

AUTHOR: Yermakov, V. S.

TITLE: The Nonsteady Temperature Field in Heat Liberating Reactor Elements

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 4, pp. 127-131

TEXT: Equation (2) for the heat conductivity of the fuel elements in the case of nonsteady operation of a nuclear reactor is written down (Ref. 3). The boundary conditions (3) and (4) for equation (2) are given and the solution of the latter under these boundary conditions yields formula (5). The function $Q(z, \tau)$ must be known in order to calculate the integrals in formula (5). $Q(z, \tau)$ stands for the specific power of the internal heat source. This function is determined by the propagation of neutrons in the core of the reactor. Formula (16) is derived for this function. This formula holds for supercritical reactor operation without consideration of the influence of the negative temperature coefficient. Formula (16) is substituted in formula (5) which yields formula (17). However, if $Q(z, \tau)$ varies with varying neutron flux according to formula (12) formula (18) is obtained. This is the case with the reactor being supercritical with respect to the delayed neutrons. The distribution of the mean temperature along the rod

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The Nonsteady Temperature Field in Heat Liberating Reactor Elements

S/170/60/003/04/24/027
B007/B102

of fuel elements at various moments in nonsteady reactor operation can be determined by means of formulas (17) and (18). L. S. Leybenzon (Ref. 2) is mentioned. There are 5 references, 4 of which are Soviet.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering of the AS Belorusskaya SSR, City of Minsk)

Card 2/2

S/170/60/003/010/022/023
B019/B054

AUTHORS: Yermakov, V. S., Perel'man, T. L.

TITLE: Problems of Nuclear Physics (II All-Union Conference on Low- and Medium-energy Nuclear Reactions)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 10, pp. 139-143

TEXT: The II Vsesoyuznaya konferentsiya po yadernym reaktsiyam pri malykh i srednikh energiyakh (II All-Union Conference on Low- and Medium-energy Nuclear Reactions) was organized in Moscow by the AS USSR on July 21-28, 1960. I. M. Frank, Corresponding Member of the AS USSR, headed the organizing committee. In his opening speech, he pointed out that the investigation of low-energy nuclear reactions quite naturally deals with the problems of nuclear structure. N. A. Vlasov gave a survey of experimental investigations of systems containing less than eight nucleons in the nucleus. Among other things, this report dealt with the existence of a tetraneutron, the isotope H^8, and some hydrogen isotopes, as predicted by Ya. B. Zel'dovich, V. I. Gol'danskiy, and A. I. Baz'. A. I. Baz'

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Problems of Nuclear Physics (II All-Union Conference on Low- and Medium-energy Nuclear Reactions)

S/170/60/003/010/022/023
B019/B054

gave a survey of theoretical investigations of these systems. He mentions the investigation of the three-particle problem for short-range forces carried out by G. V. Skornikov and K. A. Ter-Martirosyan (Ref. p. 140). L. D. Landau made some critical remarks during the subsequent discussion, mainly on missing levels in one of the mirror nuclei. Further, Ya. B. Zel'dovich stated that the existence of H^8 is very likely. V. I. Gol'danskiy suggested the hypothetical reaction $Be^9(\pi^-,p)He^8$ for the experimental proof of the existence of H^8. I. S. Shapiro showed in his report that the π-meson capture does not only supply information on elementary particles, but also on the structure of light nuclei. A. A. Ogloblin and V. G. Neudachin gave a survey of experimental and theoretical investigations on direct interactions of nuclei. A. P. Klyucharev (Khar'kov) spoke about elastic proton scattering. P. E. Nemirovskiy dealt with inelastic nucleon scattering. In the discussion of this report A. S. Davydov discussed the use of the optical model for light nuclei. I. Kh. Lemberg reported on investigations of the Coulomb excitation of nuclear levels by multiply charged ions. These investigations were carried out at the Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad

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Problems of Nuclear Physics (II All-Union Conference on Low- and Medium-energy Nuclear Reactions)

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Institute of Physics and Technology of the AS USSR). In the discussion of this report, experimental results obtained in Dubna were given on the excitation of rotational levels by μ-mesonic transitions of U^{238} atoms. V. I. Gol'danskiy reported on the possibility of a two-proton activity of some nuclei. In an attempt made to explain theoretically the results obtained by Almquist, A. S. Kompaneyets suggested the model of a two-nucleus quasimolecule C^{12}-C^{12}. A. I. Baz' reported on his calculations of a nuclear molecule model. L. D. Landau and A. I. Alikhanov took part in the discussion of R. Moessbauer's report. F. L. Shapiro gave a survey of experimental and theoretical investigations of the resonance scattering of γ-quanta carried out by A. I. Alikhanov et al. Investigations carried out at the FIAN and MGU are also considered. L. Ye. Lazarev and A. M. Baldin reported on experimental inveatigations of photonuclear reactions, L. V. Groshev and S. P. Tsytko on the radiation capture of nucleons. A. S. Davydov reported on non-axially symmetric nuclei, Yu. T. Grin on the superfluidity of nuclear substance which he had discovered together with A. B. Migdal. Reports delivered by American, Canadian, British, German, and Italian scientists are also discussed. There is 1 Soviet reference.

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88273

21.1200
26.2231

S/170/61/004/001/015/020
B019/B056

AUTHORS: Yermakov, V. S., Zhuk, I. P., Yaroshevich, O. I.

TITLE: Calculation of Temperature in Fuel Elements of a Nuclear Reactor in Transient Conditions

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1961, Vol. 4, No. 1, pp. 104-108

TEXT: The temperature distribution in fuel elements of a water-moderated water-cooled reactor in transient conditions is investigated. The authors proceed from the known set of differential equations for the temperature field of a cylindrical fuel element consisting of rod, airgap, and jacket. This nonlinear differential equation is simplified by assuming mean values of the thermal conductivity coefficient λ being a temperature function, for various temperature zones of the fuel element. This simplified linear differential equation reads:

$c_i \gamma_i \frac{\partial t_i}{\partial \tau} = \lambda_{ik} \nabla^2 t_i + Q_i (r,\tau)$, where i = 1, 2, 3, corresponding to the

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Calculation of Temperature in Fuel Elements of a Nuclear Reactor in Transient Conditions

S/170/61/004/001/015/020
B019/B056

rod, the airgap or the jacket, and k is the k-th temperature zone. By means of this equation the fuel elements of a BBP (VVR) reactor with a power efficiency of 760 megawatts is investigated. The thermal capacity of the airgap and the jacket are neglected, and the He and Al-mass is assumed to be small compared to the UO_2-mass; furthermore, the temperature drop in the Al-jacket is neglected. For the temperature of the core, the following expression is obtained by means of a Hankel-transformation:

$$t(\varrho,\tau) = qT\left[1 - \frac{hl_o\left(\frac{\varrho}{\sqrt{aT}}\right)}{\frac{1}{aT}\,I_1\left(\frac{1}{\sqrt{aT}}\right) + hl_o\left(\frac{1}{\sqrt{aT}}\right)}\right] e^{\tau/T} - \frac{2qh}{a}\sum_{i=1}^{\infty} \frac{e^{-a\mu_i^2\tau}}{(\mu_i^2+h^2)\left(\mu_i^2+\frac{1}{aT}\right)} \frac{J_o(\mu_i\varrho)}{J_o(\mu_i)} \qquad (15)$$

μ_i are the positive roots of the equation $\mu J_1(\mu) = hJ_o(\mu)$ (16). For

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Calculation of Temperature in Fuel Elements of a Nuclear Reactor in Transient Conditions

S/170/61/004/001/015/020
B019/B056

calculating with (15) it is now necessary to know the reactor period as well as the time within which the reactor attains a certain power output. Table 1 shows the results. There are 1 table and 7 references: 5 Soviet, 1 British, and 1 US.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering of the AS BSSR, Minsk)

SUBMITTED: August 16, 1960

Legend to Table 1: 1) Time from the beginning of the reactor startup onward. 2) Core radius in mm. t*) Temperature, calculated by means of a hydrointegrator. t**) Temperature calculated analytically.

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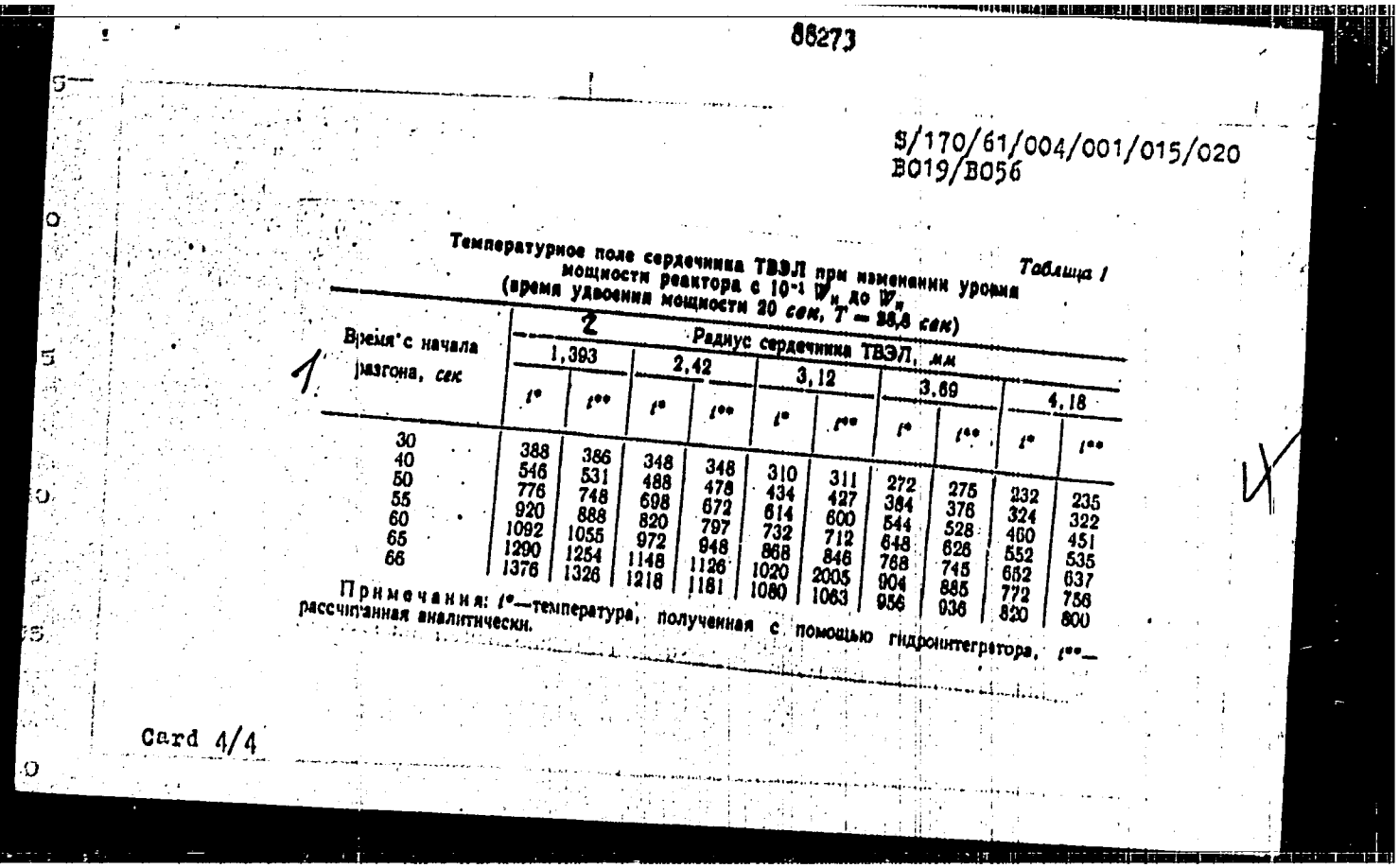

86273

S/170/61/004/001/015/020
E019/E056

Температурное поле сердечника ТВЭЛ при изменении уровня мощности реактора с 10^{-1} $W_н$ до $W_н$ (время удвоения мощности 20 сек, T — 28,8 сек)

Таблица 1

Время с начала разгона, сек	2 Радиус сердечника ТВЭЛ, мм									
	1,393		2,42		3,12		3,69		4,18	
	t°	t°°	t°	t°°	t°	t°°	t°	t°°	t°	t°°
30	388	386	348	348	310	311	272	275	232	235
40	546	531	488	478	434	427	384	376	324	322
50	776	748	698	672	614	600	544	528	460	451
55	920	888	820	797	732	712	648	626	552	535
60	1092	1055	972	948	868	846	768	745	652	637
65	1290	1254	1148	1126	1020	2005	904	885	772	756
66	1376	1326	1218	1181	1080	1063	956	936	820	800

Примечания: t°—температура, полученная с помощью гидроинтегратора, t°°— рассчитанная аналитически.

Card 4/4

S/170/61/004/005/011/015
B111/B214

26.2230

AUTHORS: Yermakov, V. S., Zhuk, I. P., Yaroshevich, O. I.

TITLE: The problem of nonstationary heat transmission in the fuel elements of a nuclear reactor

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 5, 1961, 96-99

TEXT: The problem of nonstationary heat transmission in the fuel elements of a nuclear reactor is solved in this paper. For this purpose, the simplifying assumptions made in Ref. 1 (IFZh, v. IV, no. 1, 1961) are not taken into account. It is assumed that the temperature distribution at the beginning of the transient $t(0, r) = \psi(r)$ is nonuniform and that the intensity of the heat production is time dependent as obtained by the solution of the dynamic reactor equation. The solution of the dynamic reactor equation in one-group approximation with a decay constant τ is found to be:

$$n = n_0 \left[\frac{\beta}{\beta - \rho} e^{\frac{\bar{\tau}\rho}{\beta - \rho}} - \frac{\rho}{\beta - \rho} e^{-\frac{\beta - \rho}{L}\tau} \right], \quad (1),$$

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The problem ...

where n_0 is the density of thermal neutrons at the beginning of the transient ϱ .. the reactivity of the reactor, β the fraction of slowed down neutrons, and L the mean lifetime of neutrons. For the production of heat $Q(\tau)$ in a thermal reactor one may write:

$$Q = Q_0 (A_1 e^{\alpha_1 \tau} - A_2 e^{-\alpha_2 \tau}), \qquad (2).$$

where

$$A_1 = \frac{\beta}{\beta - \varrho}; \quad A_2 = \frac{\varrho}{\beta - \varrho}; \quad \alpha_1 = \frac{\bar{\tau}\varrho}{\beta - \varrho}; \quad \alpha_2 = \frac{\beta - \varrho}{L}.$$

The problem of the radial temperature distribution inside a fuel element may be mathematically formulated in the following manner:

$$\frac{\partial t(r,\tau)}{\partial \tau} = a \left(\frac{\partial^2 t(r,\tau)}{\partial r^2} + \frac{1}{r} \frac{\partial t(r,\tau)}{\partial r} \right) + \frac{Q_0}{c\gamma} (A_1 e^{\alpha_1 \tau} - A_2 e^{-\alpha_2 \tau}), \qquad (3) \text{ to } (6)$$

Card 2/6

The problem ...

Equation (3) under the conditions (4) and (6) may be solved with the help of a Laplace transform. The solution is obtained in the following form:

$$t = \frac{Q_0 A_1}{c\gamma a_1}\left(1 - \frac{h I_0\left(\sqrt{\frac{a_1}{a}}r\right)}{h I_0\left(\sqrt{\frac{a_1}{a}}R\right) + \sqrt{\frac{a_1}{a}} I_1\left(\sqrt{\frac{a_1}{a}}R\right)}\right) e^{a_1 \tau} +$$

$$+ \frac{Q_0 A_2}{c\gamma a_2}\left(1 + \frac{h J_0\left(\sqrt{\frac{a_2}{a}}r\right)}{h J_0\left(\sqrt{\frac{a_2}{a}}R\right) - \sqrt{\frac{a_2}{a}} J_1\left(\sqrt{\frac{a_2}{a}}R\right)}\right) e^{-a_2 \tau} - \quad (7).$$

$$- \left[\frac{Q_0}{h}(1 + hR) + \frac{2Q_0 h}{c\gamma R}\left(\frac{A_1}{a_1} + \frac{A_2}{a_2}\right) - \frac{2hT}{R}\right] \times$$

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The problem ...

$$\times \sum_{\mu_i} \frac{J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{(\mu_i^2 + h^2) J_0(\mu_i R)} +$$

$$+ \frac{2Q_0 A_1 ah}{c\gamma a_1 R} \sum_{\mu_i} \frac{\mu_i^2 J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{(\mu_i^2 a + a_1)(\mu_i^2 + h^2) J_0(\mu_i R)} +$$

$$+ \frac{2Q_0 h}{\lambda R} \sum_{\mu_i} \frac{J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{\mu_i^2 (\mu_i^2 + h^2) J_0(\mu_i R)} -$$

$$- \frac{2Q_0 A_2 ah}{c\gamma a_2 R} \sum_{\mu_i} \frac{\mu_i^2 J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{(a_2 - \mu_i^2 a)(\mu_i^2 + h^2) J_0(\mu_i R)} + \theta. \qquad (7)$$

Here, μ_i are the positive roots of the equation $\mu_i I_1(\mu_i R) = h I_0(\mu_i R)$. The solution of (7) can be considerably simplified. The first, second, and sixth terms of (7) vanish almost completely 1 second after the beginning of the transient if the temperature field differs only slightly from the stationary value. The simplified expression is:

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The problem ...

$$t = \frac{Q_0 A_1}{c\gamma a_1}\left[1 - \frac{h I_0\left(\sqrt{\frac{a_1}{a}}r\right)}{h I_0\left(\sqrt{\frac{a_1}{a}}R\right) + \sqrt{\frac{a_1}{a}} I_1\left(\sqrt{\frac{a_1}{a}}R\right)}\right] e^{a_1 t} -$$

$$- \left[\frac{Q_0}{\lambda}(1 + hR) + \frac{2Q_0 h}{c\gamma R}\left(\frac{A_1}{a_1} + \frac{A_2}{a_2}\right) - \frac{2hT_0}{R}\right] \frac{J_0(\mu_1 r) e^{-\mu_1^2 a t}}{(\mu_1^2 + h^2) J_0(\mu_1 R)} +$$

$$+ \frac{2Q_0 A_1 a h}{c\gamma a_1 R} \frac{\mu_1^2 J_0(\mu_1 r) e^{-\mu_1^2 a t}}{(\mu_1^2 a + a_1)(\mu_1^2 + h^2) J_0(\mu_1 R)} +$$

$$+ \frac{2Q_0 h}{\lambda R} \frac{J_0(\mu_1 r) e^{-\mu_1^2 a t}}{\mu_1^2 (\mu_1^2 + h^2) J_0(\mu_1 R)} + \Theta. \qquad (9)$$

The numerical calculations were made for the fuel elements of the reactor of type BBP (VVR) and compared with the calculations made earlier for an analogous problem with the help of an analogous computer. The values were

Card 5/6

The problem ...

found to be practically coincident so that both methods can be applied. The solution obtained describes the nonstationary temperature field of the fuel elements of a reactor with constant rate of starting up. There are 1 table and 3 Soviet-bloc references.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering, AS BSSR, Minsk)

SUBMITTED: February 14, 1961

Card 6/6

30000

S/170/61/004/012/010/011
B104/B138

21.1000

AUTHORS: Yermakov, V. S., Sokol'chik, V. A.

TITLE: The experimental organic loop of the ИРТ-2000 (IRT-2000) reactor of the Academy of Sciences Belorusskaya SSR

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 12, 1961, 109 - 117

TEXT: This is a report delivered at the Mezhdunarodnoye soveshchaniye po eksperimental'nym petlyam yadernykh reaktorov (International Conference on Experimental Loops of Nuclear Reactors) at Dubna on the ИРТ-2000 (IRT-2000) research reactor of the Institut energetiki Akademii nauk Belorusskoy SSR (Institute of Power Engineering of the Academy of Sciences Belorusskaya SSR), recently put in operation. An experimental loop with an organic coolant was installed in the reactor. The loop is designed for studying organic compounds as to their applicability as coolants. Polyphenyls are also to be examined for their resistance to temperature effects and radiation, and also for their heat-transfer properties. An experimental channel 60 mm in diameter and having a maximum neutron flux was installed in the core center for this purpose. The fuel assembly, which can be exchanged at any time, is shown in Fig. 1. The seven fuel elements

Card 1/6

The experimental organic loop of ...

(10 mm in diameter) are housed in stainless steel tubes (40 mm in diameter, wall thickness 0.5 mm). The coolant passes along the gap between tube 1 rods, cooling the latter. Neutron absorption is highest in the core center. The reactivity of the reactor was computed with the aid of the two-group theory, using the digital computer of the Institut atomnoy energii imeni I. V. Kurchatova AN SSSR (Institute of Atomic Energy imeni I. V. Kurchatov AS USSR) and allowing for modifications of design. Results are presented in Fig. 2. The computations were performed by Yu. G. Nikolayev, A. A. Chervyatsov (IAE AN SSSR), and O. I. Yaroshevich (IE AN BSSR) following a program worked out by V. A. Khodakov. Details of the design (Fig. 4) are finally discussed. There are 4 figures.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering AS BSSR, Minsk)

SUBMITTED: August 12, 1961

Fig. 1. Center of the core assembly.
Fig. 2. Neutron distribution along the reactor radius (burnup of U^{235}: 20%). Legend: (a) fast neutrons; (b) thermal neutrons; (1) with loop;

Card 2/[redacted]

FYI (2816, 9910)

S/170/62/005/008/009/009
B104/B102

AUTHOR: Yermakov, V. S.

TITLE: Start of the first Belorussian nuclear reactor

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 8, 1962, 138-139

TEXT: In May 1962 an VPT-2000 (IRT-2000) reactor was put into operation at the Energeticheskiy institut Akademii nauk BSSR (Power Engineering Institute of the Academy of Sciences BSSR). The reactor develops 2000 kw. Its moderator, coolant and top shielding are ordinary distilled water. The fuel elements consist of UO_2 with 10% U^{235}. Zero-power reactors, accelerators and laboratories are planned in addition. The reactor has ten horizontal and nine vertical holes. It is available to other institutes also. The following alterations were made as compared with the conventional reactor design of this type: (1) a power loop was built into the vertical core hole, is provided with leads to a shielded working place; (2) A second hot cell was built into the concrete of the biological shield; (3) Some of the service stands and workshops were transferred from the main building to other buildings; (4) control and shielding

Card 1/2

system were improved; (5) the horizontal holes and the core were also modified. There are 2 figures.

Card 2/2

40374
S/170/62/005/009/002/010
B108/B104

26.2223

AUTHORS: Yermakov, V. S., Kondrashov, N. G., Perel'man, T. L., Romashko, Ye. A., Ryvkin, V. B.

TITLE: Temperature field in a cylindrical reactor fuel element cooled by a turbulent flow of liquid

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 9, 1962, 38-43

TEXT: The temperature field of a cylindrical rod heated from inside and cooled at the outside was studied theoretically in order to gain insight into the processes of heat transfer within a reactor core. For simplicity the heat transfer between rod and coolant is assumed to be convective, the coolant flow to be turbulent (heating of the entire liquid flow), and the heat conductivity as well as all parameters of the problem to be constants. The problem of stationary heat transfer is then

Card 1/4

Temperature field in a cylindrical...

$$\lambda\left[\frac{1}{r}\frac{\partial}{\partial r}\left(r\frac{\partial t}{\partial r}\right)+\frac{\partial^2 t}{\partial z^2}\right]=-Q(r,z), \qquad (1)$$

$$\gamma c S v\frac{\partial\theta}{\partial z}=P_1\alpha_1(t|_{r=R}-\theta)+P_2\alpha_2(t_0-\theta), \qquad (2).$$

$$0<z<L;\ 0\leq r\leq R.$$

$t(r,z)$ - temperature in the fuel element, $\theta(z)$ - temperature in the liquid, t_0 - temperature of channel wall, γ and c - density and specific heat of coolant, P_1 and P_2 - perimeters of fuel element and channel. $Q(r,z)$ can be found from the neutron diffusion equation. The boundary conditions are

$$\lambda\frac{\partial t}{\partial r}\Big|_{r=R}=\alpha_1\left(t_{r=R}-\theta\right),$$

$\theta|_{z=0}=0$, $t_{z=0}=0$, $\partial t/\partial z|_{z=L}=0$. The approximate solution of this

problem has the form

$$\tilde{t}(r,z) = \sum_{k=0}^{n} (r/R)^{2k} a_k(z).$$

Q and $\nabla^2 t$ are approximated by a polynomial of (n-1)-st degree. This leads to a system of n equations for the (n+1) functions $\{a_k(z)\}$. As $\tilde{t}(r,z)$ in general does not satisfy the boundary conditions it is necessary to minimize the unknowns when these conditions are satisfied. The error of this method is made up only of the errors in the heat conduction equation and in the boundary conditions. The problem was solved numerically for various actual parameters. There are 1 figure and 1 table.

ASSOCIATION: Energeticheskiy institut AN BSSR, g. Minsk (Power Engineering Institute AS BSSR, Minsk)

Temperature field in a cylindrical ... S/170/62/005/009/002/010
B108/B104

SUBMITTED: February 28, 1962

Card 4/4

L 30237-66

ACC NR: AP6020150 SOURCE CODE: UR/0250/65/009/011/0722/0724

AUTHOR: Yermakov, V. S.; Soshina, N. V.

ORG: Belorussian State University im. V. I. Lenin (Belorusskiy gosudarstvennyy universitet)

TITLE: Determination of uniformity of distribution of activity over a plane source with a large surface

SOURCE: AN BSSR. Doklady, v. 9, no. 11, 1965, 722-724

TOPIC TAGS: mathematics, absorption coefficient

ABSTRACT: The article considers the question of the determination of the uniformity of distribution of activity over the surface of a plane source. When A(x, y) const, this value can be taken out of the integral sign, and the line of equal intensity can be found by solving the equation

$$A(\xi, \eta) = \iint_{(s)} A(x, y) \frac{\exp(-\mu r)}{r^2} dxdy.$$

Then, if several identical detectors are placed on this line, the uniformity of the distribution of activity in a given plane can be judged by comparing the intensities recorded by these detectors. The problem of the authors was to determine lines of equal intensity $A(\xi, \eta)$ const, given the absorption coefficient value μ const for a plane rectangular source of the size $2x_0 2y_0$. This article was presented by Academician AN BSSR, A. N. Sevchenko. Orig. art. has: 13 formulas. [JPRS]

SUB CODE: 12, 07/ SUBM DATE: 15Jun64/

Card 1/1 nc

YERMAKOV, V.S.; SOSHINA, N.V.

Determining the uniformity of the distribution of activity over a two-dimensional source having a large surface. Dokl. AN BSSR 9 no. 11:722-724 N '65 (MIRA 19:1)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

YERMAKOV, V.S., kand. tekhn. nauk; MINKOV, V.A., kand. tekhn. nauk

Regulation of the load graph of a power system by industrial consumers. Elek. sta. 36 no.6:56-59 Je '65. (MIRA 18:7)

AUTHORS: Al'tman, E.A. and Yermakov, V.S. SOV/46-4-4-2/20

TITLE: The Effect of Ultrasound on Ageing of a Nickel--Chromium--Titanium Alloy (Vliyaniye ul'trazvuka na stareniye nikel'-khrom-titanovogo splava).

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol 4, Nr 4, pp 307-314 (USSR)

ABSTRACT: First studies of the effect of elastic vibrations of sonic and ultrasonic frequencies on the internal transformations in metals and alloys, including processes of dispersion hardening, were carried out by Gorskiy and Yefremov (Ref 1). They showed that ultrasonic vibrations of 30 kc/s frequency and 10 W/cm^2 accelerate natural ageing of duralumin by a factor of 63. This effect was confirmed by Gudtsov and Gavze (Refs 2, 3) and Pogodina-Alekseyeva and Eskin (Ref 5) who investigated dispersion ageing of aluminium and ferrous alloys. Herman-Schenck and Schmidtmann (Ref 4) found a 430 kc/s, 6.5 W/cm^2 ultrasonic beam to be ineffective as an accelerator of ageing of steels with 0.06% of carbon, possibly because the ultrasonic power was too low. The present authors studied the effect of 20-26 kc/s ultrasonic vibrations on the process of ageing of the KhN.80.T nickel--chromium--titanium alloy. Lower frequencies, of 8-16 kc/s, were found to fatigue

Card 1/4

the operating personnel. Cylindrical samples of the alloy (Fig 1) were used. The apparatus is shown in Fig 2. It consisted of an electric oscillator 1, a selenium rectifier 2, an ultrasonic generator 3, an electric furnace 4 with a thermocouple 5 and a thermostat 6. A sample 7 was attached to the ultrasonic generator by means of an extension rod 8 onto which the sample was screwed. The ultrasonic generator consisted of a magnetostriction vibrator a, a transmitting rod b and a casing v. The system consisting of the vibrator, transmitting rod and extension rod together with the sample had dimensions which produced resonance at frequencies of 23-25 kc/s. The sample was placed into the furnace and was heated for 10-15 minutes until an appropriate temperature was reached. Then the sample was aged with the ultrasonic generator switched on. A standing wave was excited in the system consisting of the vibrator, transmitting rod, extension rod and sample. The largest stresses and deformations occurred in the middle portion of the sample where the hardness resulting from the ageing process was measured. Ageing was carried out using ultrasound of 23-25 kc/s with 5 μ amplitude of the displacement of the end of the sample. Temperatures of 700, 750 and 800°C and various durations of

Card 2/4

the treatment were used. Some samples were irradiated with ultrasound at 700°C, 20-21 kc/s frequency and the displacement amplitude of 8 μ. At the latter amplitude the acoustic energy dissipated in the sample was approximately twice as high as in the case of displacement amplitude of 5 μ. The stresses in the samples aged at 700°C were 2.3-2.7 kg/mm^2 for the displacement amplitude of 5 μ and 3.3-3.7 kg/mm^2 for the displacement amplitude of 8 μ. The increase of the ultrasound energy by a factor of two increased the accelerating effect of ultrasound on the ageing process very considerably; at the higher ultrasound intensity ageing was 40-50 times as rapid as the ageing without ultrasound. The increase of the ageing temperature (from the standard temperature of 700°C) to 800°C and simultaneous application of ultrasound was found to produce a further increase in the rate of ageing without lowering the maximum hardness achieved by this process. The results obtained are given in Figs 3-5 and Table 1. These figures

show duration of the ageing process against hardness achieved by it. The ageing process was taken to be complete when the sample reached the hardness obtainable after 16 hours at 700°C without ultrasound. Ageing with ultrasound makes it possible to obtain a more highly disperse state of the second phase without any change of its total amount in the alloy. There are 5 figures, 1 table and 8 references, 7 of which are Soviet and 1 German.

ASSOCIATION: Voyenno-vozdushnaya inzhenernaya akademiya im. Mozhayskogo, Leningrad (Air Force Engineering Academy imeni Mozhayskiy, Leningrad).

SUBMITTED: October 8, 1957 - June 5, 1958.

Yermakov, V. S.

AUTHOR: Yermakov, V.S., Engineer. 96-1-22/31

TITLE: The Production of Germanium from Fuel Ash (Polucheniye germaniya iz zoly topliva)

PERIODICAL: Teploenergetika, 1958, Vol.5, No.1, pp. 80 - 81 (USSR)

ABSTRACT: This article gives a brief account of studies made in Great Britain on the germanium content of fine dust from power stations. General information on the distribution of germanium in particular parts of different types of boilers, is given in Tables 1 and 2. The object of the tests was to determine the most suitable type of boiler and ash arrester for trapping ash containing germanium. Experiments showed that variations in the temperature of combustion of fuel and the size of the boiler do not play an important part in increasing the quantity of germanium in the dust. It was also shown that an economic method of extracting germanium from the fine dust in boilers has not yet been developed.
There are 2 tables and 3 non-Slavic references.

AVAILABLE: Library of Congress

Card 1/1

AUTHORS: Yermakov, V.S., Engineer and Al'ftan, E. A. 129-58-7-5/17

TITLE: Accelerated Ageing of the Heat Resisting Nickel Alloy EI437B Subjected to the Effect of Ultrasonics (Uskorennoye stareniye zharoprochnogo nikelevogo splava EI437B pod vozdeystviyem ul'trazvuka)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 22-27 (USSR)

ABSTRACT: Gudtsov, N.T. and Gavze, M. N. (Ref.1) investigated the effect of ultrasonics of 300 - 1500 kc/sec on the dispersion hardening of duraluminium and some ferrous alloys. Schenk, G. and Schmidtmann, O. (Ref.2) studied the influence of ultrasonics of 430 kc/sec with a specific power of 6.5 W/cm^2 on the ageing of basic Thomas steel containing 0.06% C at 20°C. Goreskiy, F.K. and Yefremov, V. I. (Ref.3) stated that ultrasonics of 30 kc/sec and a specific power of 10 W/cm^2 accelerate 63-fold the natural ageing of an alloy containing 4.5% Cu, 0.8% Mg and 0.5% Si. Pogodina-Alekseyeva, K. M. and Eskin, G. I. (Ref.4) found that duraluminium ages at room temperature 20 to 25 times faster in an ultrasonics field of 1 Mc/sec with a specific power of 1.6 W/cm^2 than without

Card 1/3

Accelerated Ageing of the Heat Resisting Nickel Alloy EI437B Subjected to the Effect of Ultrasonics

using ultrasonics. According to Gudtsov and Gavze (Ref.1) the effectiveness of ultrasonics as regards ageing is independent of the frequency of oscillation in the range of 300 to 1500 kc/sec and it is this conclusion which forms the basis of the investigations of the authors of this paper, who believed that it is advisable to apply apparatus ensuring a maximum intensity of ultrasonics. In the experiments they used a magnetostriction ultrasonics generator (20 to 26 kc/sec), a sketch of which is shown in Fig.1, p.23. The regimes and the results of ageing in an ultrasonic field of the Soviet alloy EI437B are entered in a table, p.25. The graphs, Figs.2-4, show the change in hardness of the EI437B alloy at various temperatures with and without the use of ultrasonics. On the basis of the obtained results the following conclusions are arrived at: ultrasonics of 20 to 26 kc/sec accelerate ageing of the alloy EI 437B; doubling of the intensity of the ultrasonics in the specimen brings about a considerable increase in the effect of the ultrasonics on the process of ageing and permits reducing the duration

Accelerated Ageing of the Heat Resisting Nickel Alloy EI437B Subjected to the Effect of Ultrasonics

of ageing 40 to 50 times compared with the standard regime; application of even very weak ultrasonics during ageing at 800°C eliminates the influence of coagulation and produces the required hardening of the alloy 15 to 20 times faster than in the case of the standard hardening regime.
There are 4 figures, 1 tables and 6 references, 5 of which are Soviet, 1 German.

ASSOCIATION: Leningradskaya voyenno-vozdushnaya inzhenernaya akademiya (Leningrad Military Aviation Engineering Academy)

Card 3/3

YERMAKOV, V.S.

AUTHOR: Yermakov, V.S. 32-1-48/55

TITLE: A Rotating Accessory to the Metallographic Microscope Type MIM-7 (Povorotnoye prisposobleniye k metallograficheskomu mikroskopu tipa "MIM-7").

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 112-112 (USSR)

ABSTRACT: The accessory attachment to the aforementioned microscope consists of a pair of gear wheels, of which the larger serves as the movable table for the microscope, and the smaller serves the purpose of driving the former, one of the holes of the fastening screws of the microscope support being used as a lower bearing. The samples are placed upon the movable plate (larger gear wheel) in such a manner that, by moving the driving shaft with the small gear wheel they can, one by one, be brought before the objective, or, if the sample is in the center of the movable plate, it is caused to perform circular movements and is alternatingly illuminated and exposed in various of its parts in polarized light. A uniform (shock-free) motion of the object to be investigated is assured. The circular motion of the sample may also be limited to

Card 1/2

A Rotating Accessory to the Metallographic Microscope Type MIM-7 32-1-48/55

a certain angle. For this purpose the angular degrees are marked on the edge of this movable plate, and an indicator is mounted in a suitable position. The said movable plate (large gear wheel) has its own ground plate, which is fastened to the table of the microscope. There is 1 figure.

AVAILABLE: Library of Congress

Card 2/2 1. Microscopes-Adapters-Test methods

AUTHOR: Yermakov, V. S.

S07/32-24-7-24/65

TITLE: The Metallography of Non-Ferrous Metals in Polarized Light (Tsvetnaya metallografiya v polyarizovannom svete)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7, pp. 838 - 838 (USSR)

ABSTRACT: This investigation was conducted with a metallographic microscope of the type MIM-7 to which a polarizer and an analyzer were mounted. A cellophane foil with a thickness of 0,05 mm was used as "color sensitive film". A number of colored microphotographs of the alloy EI 437 in various azimuthal positions are reproduced. It may be seen that different grains with a differing crystallographic orientation are differently colored. When the stage of the microscope is rotated the color changes and then returns to the original tinge. By means of some other microphotographs it is shown that this method permits microscopic determinations not only with small, but also with more powerful optical magnifications (1:1530). The contrast in color, however, is reduced. In investigations of cast alloys the dendrite

Card 1/2

formations which exhibit a different crystallographic orientation can be sharply distinguished. Some microphotographs of cast aluminium, copper alloys and zinc are given as well. It can be easily distinguished, which crystallites belong to a certain dendrite. There are 5 figures and 6 references, 2 of which are Soviet.

YERMAKOV, V.S.

PHASE I BOOK EXPLOITATION SOV/3559

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. 5 (Investigations of Heat-Resistant Alloys, Vol 5) Moscow, Izd-vo AN SSSR, 1959. 423 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V.A. Klimov; Tech. Ed.: I.F. Kuz'min; Editorial Board: I.P. Bardin, Academician, G.V. Kurdyumov, Academician, N.V. Ageyev, Corresponding Member, USSR Academy of Sciences (Resp. Ed.), I.A. Oding, I.M. Pavlov, and I.F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgical engineers, research workers in metallurgy, and may also be of interest to students of advanced courses in metallurgy.

COVERAGE: This book, consisting of a number of papers, deals with the properties of heat-resisting metals and alloys. Each of the papers is devoted to the study of the factors which affect the properties and behavior of metals. The effects of various elements such as Cr, Mo, and V on the heat-resisting properties of various alloys are studied. Deformability and workability of certain metals as related to the thermal conditions are the object of another study described. The problems of hydrogen embrittlement, diffusion and the deposition of ceramic coatings on metal surfaces by means of electrophoresis are examined. One paper describes the apparatus and methods used for growing monocrystals of metals. Boron-base metals are critically examined and evaluated. Results are given of studies of interatomic bonds and the behavior of atoms in metal. Tests of turbine and compressor blades are described. No personalities are mentioned. References accompany most of the articles.

4/5

AUTHOR: V.S. Yermakov (Engineer) SOV/129-59-4-3/17

TITLE: Cyclic Ageing of Refractory Steels of the Type EI437 (Tsiklicheskoye stareniye zharoprochnykh splavov tipa EI437)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov, 1959, Nr 4, pp 14-19 (+ 1 plate) (USSR)

ABSTRACT: The method of cyclic ageing consists in combining the effect of temperature on a hardened alloy with cyclically varying stresses produced artificially in the alloy. This is done to accelerate ageing. Various authors studied the combined influence of temperature and static stresses on the process of decomposition of solid solutions of alloys (Refs 3-5) and also the influence on these processes of internal stresses which are generated during decomposition of solid solutions (Refs 6,7). Some of the authors pointed out that static stresses accelerated the decomposition of solid solutions. The author investigated the influence of cyclic stresses on the process of ageing of alloys of the type EI437. The cyclic stresses during ageing can be produced thermally by subjecting the alloy to repeated cyclic heating and cooling in a certain range of temperatures. Due to

Card 1/5

Cyclic Ageing of Refractory Steels of the Type EI437

non-uniform deformation in the individual layers considerable thermal stresses will occur, the magnitude of which will depend primarily on temperature gradient and also on the coefficient of linear expansion and the modulus of elasticity of the alloy concerned. A characteristic feature of "thermal cycle ageing" is that it proceeds at a variable temperature. The experiments were carried out using flat and cylindrical laboratory specimens, sketches of which are reproduced in Fig 1, made of deformable refractory nickel-chromium alloys EI437, EI437A and EI437B. To achieve various heating speeds the specimens were heated by various methods: in salt baths, by direct passage through them of an electric current, by high frequency current, and in an ordinary electric furnace which was considerably hotter than the specified maximum temperature of cyclic ageing. A batch of specimens were quenched in water at room temperature; another batch were cooled by air compressed to 3 - 4 atm. In Fig 2 (p 15) the standard 700°C, 16 hours ageing curve is graphed for the alloy EI437A, and also the ageing curve for thermal cycle ageing at 700 ± 20°C, (quenching in water). For the cyclic ageing

Cyclic Ageing of Refractory Steels of the Type EI437

the heating was effected in a salt bath with a heating duration of 60 sec and a cooling duration of 5 sec. In Fig 3 (p 16) the dispersion hardening curves are graphed for the alloy EI437 in the case of thermo-cyclic ageing at 700 ± 20°C with quenching in water, using various methods of heating of the specimen. As compared to ordinary ageing, heating by passage of an electric current brings about a 50-fold acceleration of the hardening of the alloy; high frequency heating results in a 100-fold acceleration of the hardening. In Fig 4 the variation is graphed in the quantity of the intermetallide phase of the alloy EI437A during thermo-cyclic ageing as a function of the ageing time. In Fig 6 the variation is graphed of the hardness along the cross-section of a cylindrical EI437 specimen of 7 mm diameter after thermo-cyclic ageing. In Fig 7 the dependence is graphed of the long duration heat resistance of the alloy EI437A on the type of thermal cycle ageing and on the number of cycles. In Fig 8 the dependence on the number of cycles is graphed of the long duration heat resistance of the alloy EI437B after thermal cycle ageing with

Cyclic Ageing of Refractory Steels of the Type EI437

heating in an electric furnace. In Fig 9 the dependence on the number of cycles and on the type of thermo-cyclic ageing is graphed of the long duration heat resistance of the alloy EI437. On the basis of the obtained results the following conclusions are arrived at: 1) Thermal cycle ageing of type EI437 refractory alloys enables obtaining tens of times more rapidly at the surface of the specimen, the same degree of hardness as is obtained during ordinary ageing. 2) During thermal cycle ageing only the surface layer of the specimen will be subjected to accelerated hardening whilst the core will only become partially hardened. As a result of this the strength of the specimen will usually be lower than in the case of ordinary heat treatment. 3) The heat resistance of EI437 type alloys after thermal cycle treatment will in a number of cases be lower than the current value of the heat resistance. 4) Thermal cycle ageing can be applied only if the components manufactured from such an ageing

Cyclic Ageing of Refractory Steels of the Type EI437

alloy need not have a high surface strength combined with a relatively tough core.
There are 9 figures and 8 Soviet references.

Card 5/5

YERMAKOV, V.S., kand. tekhn. nauk, glav. red.; LEONKOV, A.M., red.; MINKOV, V.A., red.; PEKELIS, G.B., kand. tekhn. nauk; RESHETNIKOV, D.V., red.

[Coverage of fluctuating electrical loads in electric power systems] Problemy pokrytiia peremennykh elektro-nagruzok v energosistemakh. Minsk, Nauka i tekhnika, 1965. 144 p. (MIRA 18:10)

1. Nauchno-tekhnicheskaya konferentsiya po problemam pokrytiya pikovykh nagruzok obʺyedinennoy energosistemy Severo-Zapada. Minsk, 1963.

YERMAKOV, V.T., inzhener.

Operation of the high-frequency generator manufactured by the Swedish firm ESAB. Prom.energ.11 no.12:12-13 D '56. (MLRA 10:1)
(Electric generators)

AUTHOR: Yermakov, V.T. (Engineer) 133-8-16/28

TITLE: Piercing of stainless steels at an insufficient capacity of the induction motor. (Proshivka nerzhaveyushchikh staley pri nedostatochnoy moshchnosti asinkhronnogo dvigatelya).

PERIODICAL: "Stal'" (Steel), No.8, 1957, p.732 (USSR).

ABSTRACT: A feeding installation for the motor of the piercing mill on the Yuzhnotrubny Works (two reactive feeders operated by closing sectional disconnecting switch) which permits short time overloading of the motor, is described (Fig.1). This prevents cutting off of the motor during the piercing of stainless steel billets. The latter steel is particularly sensitive to changes in temperature during the piercing period, e.g., piercing of a billet of 215 mm dia. at 1200 C takes place at a load of 4000 Kw and at 1180 C the load increases to 5000 Kw.

There is 1 figure.

ASSOCIATION: Yuzhnotrubnyy Zavod . (Southern Pipe Works)

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Yermakov, V.T. (Engineer) SOV/04-58-9-7/30

TITLE: The use of synchronous motor drive on pipe mills. (Primeneniye sinkhronnogo dvigatelya dlya privoda truboprokatnykh stanov.)

PERIODICAL: Promyshlennaya Energetika, 1958, No.9. pp. 20. (USSR)

ABSTRACT: The production of seamless steel tubes is briefly described. At the Southern Pipe works the automatic pipe mill was driven by a wound rotor induction motor of 800 kW and 600 r.p.m. A flywheel was used. It was decided to replace the induction motor by a synchronous motor partly because the old induction motor needed a major overhaul and partly to increase the output. The starting conditions are not easy even after the flywheel was removed, nevertheless they were found acceptable for use with a synchronous motor type DSZ-1707-8, of 825 kW, 1100 kVA. The starting period was 3 - 4 seconds and the mill could be stopped in 17 seconds. As a result of installing the synchronous motor the power factor was changed from 0.7 lagging to 0.8 leading and the increase in motor speed from 600 to 750 r.p.m. increased

Card 1/2

The use of synchronous motor drive on pipe mills. SOV/94-58-9-7/30

the mill output. The motor is working satisfactorily.

ASSOCIATION: Nikopol'skiy yuzhnotrubnyy zavod (Nikopol' Southern Pipe Works)

1. Electric motors--Applications 2. Electric motors--Performance

Card 2/2

S/133/60/000/011/016/023
A054/A029

AUTHOR: Yermakov, V.T., Engineer

TITLE: Modernized Power Line of the Automatic Mill in the 400-mm Tube Rolling Installation

PERIODICAL: Stal', 1960, No. 11, p. 1025

TEXT: In July 1959 the drive of the automatic mill of the 400-mm tube rolling installation of the Yuzhnotrubnyy Plant was reconstructed: the flywheels having a total weight of 30 tons essential for operating the slip regulator of the asynchronous motor were removed, the asynchronous motor (capacity 1,325 kilowatts) was replaced by a synchronous motor of 2,300 kilowatt capacity at 500 rpm and producing a rolling speed of 4 m/sec. It will no doubt be known that the automatic mill works irreversibly and the load - at the start of rolling - is taken over by the rollers with a certain impact, after which follows the rolling of the tube on the mandrel for 2.5-3 seconds. When measuring the moments of resistance in the spindles by the tensiometric method this impact can be observed very clearly in the initial stage of the operation, whereas it was found from oscillographic observations of the synchronous motor that the peak load, when rolling is started, is not reached instantly, but

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Modernized Power Line of the Automatic Mill in the 400-mm Tube Rolling Installation

after 0.15 sec. Experiments show that the removal of flywheels promote a smooth operation of the power line and extends the useful life of some important parts of the equipment, especially that of the bronze bushes of the Ortmann coupling and its protecting pins, as well as that of the hinged couplings of the spindles. However, when removing the flywheels from the drive, the capacity of the Bibby coupling connecting the drive and the reduction gear of the mill must be increased. The use of synchronous motors in the drive of the automatic tube rolling mill improves the economic-technical indices of this aggregate and reduces the cost of the electric installation in this type of tube rolling mills. There are 3 figures.

ASSOCIATION: Yuzhnotrubnyy zavod (Yuzhnotrubnyy Plant)

YERMAKOV, V.T.

Replacement of asynchronous motors with synchronous motors for driving pipe-rolling mills and methods for selecting their power rating. Prom. energ. 16 no.4:14-16 Ap '61. (MIRA 14:9)
(Rolling mills--Electric driving)

1. YERMAKOV, V. V.

2. USSR (600)

4. Technology

7. Principles of computing hydraulic drive. Moskva, Mashgiz, 1951

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

YERMAKOV, V. V.

"Investigation of the Stability of Telegraphic Communication During Work on Channels of Tonal Telegraphy." Cand Tech Sci, Moscow Electrical Engineering Inst of Communications, Min Communications, Moscow, 1955. (KL, No 10, Mar 55)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

YERMAKOV, V.V., kandidat tekhnicheskikh nauk, dotsent.

Design of passage cross sections in governors used in machine tools with hydraulic drive. Issl. v obl. metallorezh. stan. no.3:134-144 '55. (MLRA 10:2)

(Machine tools--Hydraulic driving)
(Valves)

YERMAKOV, VLADIMIR VIKTOROVICH

AMAN'IN, Sergey Grigor'yevich, professor; ACHERKAN, Naum Samoylovich, professor, doktre tekhnicheskikh nauk; BOGUSLAVSKIY, Boris L'vovich, professor; YERMAKOV, Vladimir Viktorovich, dotsent; IGNAT'YEV, Nikolay Vasil'yevich, dotsent; KUDRYASHOV, Aleksandr Alekseyevich, dotsent; PUSH, Valentin Ervinovich, dotsent; FEDOTENOK, Aleksey Antonovich, dotsent; KHRYKOV, Aleksandr Nikolayevich, dotsent; ROSTOVTSEV, I.A., inzhener, retsenzent; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine tools] Metallorezhushchie stanki. Pod red. N.S.Acherkana. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 1015 p. (MLRA 10:6)
(Machine tools)

SOV/123-59-16-64504

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 16, p 122 (USSR)

AUTHOR: Yermakov, V.V.

TITLE: Heat Treatment in the Flux During Drop Forging

PERIODICAL: Tr. Taganrogsk. radiotekhn. in-ta, 1957, 3, Nr 2, 297 - 304

ABSTRACT: Conditions of isothermic treatment are established, which is recommended instead of the labor-consuming annealing and normalizing operations after drop forging. The tests were carried out with the steel grades: 40, 40Kh, U8A. The isothermic treatment was effected at a temperature of 500-650°C in the course of from 10 seconds to 2 minutes. Samples of steel 40, with a diameter and height of 20 mm, were subjected to deformation after heating them at 800°C. The degree of deformation was regulated from 12 to 40%. Intervals of the decomposition of austenite were established, C-shaped diagrams for details of small size were drawn up, and the influence of deformation on the kinetics of the austenite conversion was studied. As a result of deformations, the conversion of austenite in an isothermic medium slows down and the curves of the termination of decomposition on the C-shaped

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diagram shift to the right. For the cases investigated a temperature of the medium of 550°C is recommended. At this temperature the decomposition time of austenite is 2.5 - 3.0 minutes. The important economic effectiveness of the isothermic treatment process in the flux during drop forging is emphasized. 6 figures.

O.B.M.

YERMAKOV, V.V.

ACHERKAN, N.S.; YERMAKOV, V.V.; IGNAT'YEV, M.V.; KAUFMAN, L.M.; PUSH, V.E.; FEDOTENOK, A.A.; KHARIZOMENOV, I.V.; KHRYKOZ, A.M.; VLASKIN, P.S.; kandidat tekhnicheskikh nauk, dotsent; GANDLER, A.V.; kandidat tekhnicheskikh nauk, dotsent; ALEKSEYEV, P.G., kandidat tekhnicheskikh nauk.

"Machine tools" by V.A.Bravichev and others. Reviewed by N.S. Acherkan and others. Vest.mash. 37 no.5:87-91 My '57. (MLRA 10:5)

1.Kafedra "Metallorezhushchiye stanki" Moskovskogo stankoinstrumental'nogo instituta (Acherkan, Yermakov, Ignat'yev, Kaufman, Push, Fedotenok, Kharizomenov, Khrykoz)
(Machine tools)

RYBKIN, Yevgeniy Aleksandrovich; USOV, Anatoliy Antonovich; YERMAKOV, V.V., kand.tekhn.nauk, retsenzent; BAYDAKOV, G.I., red.izd-va; GORBUNOVA, L.P., tekhn.red.

[Gear pumps for machine tools] Shesterennye nasosy dlia metalloreshushchikh stankov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 186 p. (MIRA 13:7)
(Oil hydraulic machinery)

YERMAKOV, V.V., kand.tekhn.nauk, dotsent

Investigating the reversing process in a rotary hydraulic drive.
Issl.v obl.metallorezh.stan. no.4:187-207 '61. (MIRA 14:12)
(Oil hydraulic machinery--Testing)

YEREMAKOV, V.V.; LESHCHENKO, V.A., kand. tekhn. nauk, retsenzent; [redacted]ERENDIN, A.F., red.izd-va; EL'KIND, V.[illegible]., tekhn. red.

[Hydraulic drive of machine tools; some problems in the design and construction] Gidravlicheskii privod metallo-reshushchikh stankov; nekotorye voprosy rascheta i konstruirovaniia. Moskva, Mashgiz, 1963. 323 p. (MIRA 16:8)

(Machine tools—Hydraulic drive)

ACHERKAN, Naum Samoylovich, zasl. deyatel' nauki i tekhniki RSFSR, dokter tekhn. nauk, prof.; GAVRYUSHIN, A.A.; YERMAKOV, V.V.; IGNAT'YEV, N.V.; KAKOYLO, A.A.; KUDINOV, V.A.; KUDRYASHOV, A.A.; LISITSYN, N.M.; MIKHEYEV, Yu.Ye.; PUSH[redacted]; TROFIMOV, O.N.; FEDOTENOK, A.A.; KHOMYAKOV, V.S.; ABANKIN, V.I., inzh., retsenzent

[Metal-cutting machines in two volumes] Metallorezhushchie stanki. [v dvukh tomakh]. Pod red. N.S.Acherkana. Moskva, Mashinostroenie. Vol.2. 2. perer. izd. 1965. 628 p. (MIRA 18:12)

ACHERKAN, N.S., doktor tekhn. nauk, prof., zasl. deyatel' nauki i tekhniki RSFSR; GAVRYUSHIN, A.A., kand. tekhn. nauk; YERMAKOV, V.V., kand. tekhn. nauk, dots.; IGNAT'YEV, N.V., kand. tekhn. nauk, dots.; KAKOYLO, A.A., inzh.; KUDINOV, V.A., kand. tekhn. nauk; KUDRYASHOV, A.A., kand. tekhn.nauk, dots.; LISITSYN, N.M., kand. tekhn. nauk, dots.; MIKHEYEV, Yu.Ye., dots.; PUSH, V.E., doktor tekhn. nauk, prof.; TRIFONOV, O.N., kand. tekhn. nauk, dots.; FEDOTENOK, A.A., doktor tekhn. nauk, prof.; KHOMYAKOV, V.S., kand. tekhn. nauk; ABANKIN, V.I., inzh., retsenzent

[Metal cutting machines] Metallorezhushchie stanki. Moskva, Mashinostroenie. Vol.1. 1965. 764 p. (MIRA 18:10)

L 08999-67 EWT(m)/EWP(w)/EWP(v)/EWP(j)/EWP(k) IJP(c) FDH/WW/EM/RM

ACC NR: AP6012124 SOURCE CODE: UR/0413/66/000/007/0043/0044

AUTHORS: Leont'yev, N. N.; Malakhovskiy, A. E.; Zakharov, M. A.; Pershutov, G. G.; Petrov, S. P.; Yermakov, V. V.; Komkov, A. N. 54

ORG: none

TITLE: A blower blade. Class 27, No. 180289

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 43-44

TOPIC TAGS: blade profile, rotor blade, industrial blower, ventilation fan

ABSTRACT: This Author Certificate presents a blower blade 2/0 fastened by a shaft and a coupling section to the sleeve of the driving wheel. The design increases the operating reliability under alternating loads. The shaft, at the point of fastening to the blade, has a longitudinal cross section made up of two frustums of a cone, combined along the smaller bases. These frustums are coated together with the entire blade by an overall layer of glass-reinforced plastic. This layer is tightly drawn together by means of a split tapered metal bushing and a disengaging coupling section (see Fig. 1). These units are coated with a subsequent

UDC: 621.631.4-253.5

Card 1/2

L 08999-67

ACC NR: AP6012124

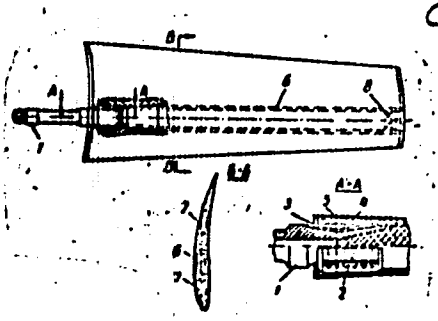

Fig. 1. 1 - shaft; 2 - disengaging coupling section; 3 - glass-reinforced plastic layer; 4 - tapered split bushing; 5 - subsequent layer of glass-reinforced plastic; 6 - power spar; 7 - auxiliary spars; 8 - disks

layer of plastic deposited on the framework to produce the operating profile of the blade. The blade framework includes a power spar and auxiliary spars which form (in the transverse cross section) the operating profile. The blade carries on its end part a set of balancing disks. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 12Feb65

Card 2/2 mat

YERMAKOV, V.V.; BRONNIKOV, I.S.

Selenium content in the pasture vegetation and feeds of Ulety District, Chita Province. Zap. Zabaik.otd. Geog. ob-va SSSR no. 18:86-94 '62. (MIRA 17:6)

YERMAKOV, V. V.

Ostetrics

Dissertation: "Birth by Brow Presentation." Cand Med Sci, Second Moscow Medical Inst imeni I. V. Stalin, 8 Mar 54. (Meditsinskiy Rabotnik, Moscow, 2 Mar 54).

SO: SUM 213 20 Sep 1954

TIKOTIN, M.A., dots., YERMAKOV, V.V.

Pages from the story of the role of medicine in the defense of Sevastopol; on the 100th anniversary of the defense of Sevastopol. Trudy LMI 2:313-322 '55 (MIRA 11:8)

1. Kafedra istorii meditsiny (zav. - dots. M.A. Tikotin) Pervogo Leningradskogo meditsinskogo instituta imeni akademika I.P. Pavlova.
(SEVASTOPOL--HISTORY)
(MEDICINE, MILITARY)

YERMAKOV, V.V., kandidat meditsinskikh nauk

Biomechanics of birth in cases of brow presentation. Akush. i gin. no.4:32-35 Jl-Ag '55. (MLRA 8:11)

1. Iz kafedry akusherstva i ginekologii (zav.prof. I.F.Zhordania) lechebnogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V.Stalina.

(LABOR, PRESENTATION
brow, biomechanics)

YERMAKOV, V.V.

Plea for improvement in training pharmacists with higher education. Apt.delo 4 no.5:27-30 S-O '55 (MLRA 8:12)

1. Kandidat meditsinskikh nauk sam.nach. GUUZ Ministerstva zdravookhraneniya SSSR V.V.Yermakov.
(PHARMACY, education in Russia)

YERMAKOV, V.V., kandidat meditsinskikh nauk; SAVCHENKO, M.G.

Institutes for postgraduate training of physicians and their role in specialising and advanced training for physicians in the U.S.S.R. Sov.med. 19 no.6:68-76 Je '55. (MLRA 8:9)

1. Iz Glavnogo upravleniya uchebnymi zavedeniyami Ministerstva Zdravookhraneniya SSSR.

(EDUCATION, MEDICAL,
in Russia, postgraduate training)
(SPECIALISM,
in Russia, postgraduate training)

YERMAKOV, V.V.

YERMAKOV, V.V., kandidat meditsinskikh nauk

Etiology of brow presentation in labor. Sov.med.19 no.8:45-51 Ag '55. (MLRA 8:10)

1. Iz kafedry akusherstva i ginekologii (zav.-prof. I.F.Zhordania) lechebnogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V.Stalina.

(LABOR PRESENTATION, brow, etiol.)

YERMAKOV, V.V., kandidat meditsinskikh nauk (Moskva); SOVCHENKO, M.G. (Moskva)

Advanced training by correspondence for directing personnel in the public health service. Sov.med. 20 no.7:74-77 Jl '56. (MLRA 9:10)
(PUBLIC HEALTH, educ. in Russia, correspondence courses for leading teams)

YERMAKOV, V. V.

3-5-14/38

AUTHORS: Yermakov, V.V., Doctor of Medical Science, Dotsent and Starobinskiy, I.M., Professor

TITLE: To Solve in a More Active Way the Tasks Set by "The Letter I-100" (Aktivneye reshat' zadachi, postavlennyye "Pis'mom I-100") Success Depends on the Initiative of the Chairs (Uspekh zavisit ot initsiativy kafedr)

PERIODICAL: Vestnik vysshey shkoly, 1957, Nr 5, pp 38-41 (USSR)

ABSTRACT: The author states that measures taken in accordance with the instructions of "Letter I-100" are now beginning to show results.

The schedule of the first Medical Institute of Moscow provides 5 days school work and one day practical work at chairs, clinics and laboratories. At the clinic of Professor N.N. Yelanskiy, for instance, (IVth course of the medical faculty) there were 39 operations performed in three days, in which students assisted. 14 operations were carried out by the students under the direct supervision of the professor.

There are, however, medical institutes, which do not comply with the "Letter I-100". G. Savastenko, Dotsent at the Minsk Medical Institute states in the newspaper "The Soviet

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To Solve in a More Active Way the Tasks Set by "The Letter I-100". Success Depends on the Initiative of the Chairs

Medical Man" (Sovetskiy Medik) No 6-7, 1957, that some chairs still do not take these instructions seriously enough.

This is true of the Voronezh Medical Institute. The collective of this Institute consisting of 100 Professors, Dotsents and Candidates of Science, and 180 Teachers and Assistants, do not show enough interest in this very important document.

The author believes that a number of lectures can be reduced for various disciplines, such as "Physiology" (132 hours), "Anatomy of Man" (118 hours) "Biology" (86 hours). There is also the possibility of reducing the group practical work. The author proposes to divide the practical work into three sections. First: work of demonstrative character, e.g. practical work on physiology and pathological physiology; second: more active, but supervised work (e.g. surgical obstetrics, surgery); third: independent work. Students of the VIth course should not take part in the clinical work of the IInd and IVth course, as is done at the Ist Medical Institute of Moscow. Attention is invited to the work of the Minsk, Vitebsk, Stavropol' and Stalino Medical In-

To Solve in a More Active Way the Tasks Set by "The Letter I-100". Success Depends on the Initiative of the Chairs

stitutes which prepare students for their future working conditions and practical work.

The system of examinations on practical work must be carefully considered. The author suggests the teacher examine the student on his work but not by a systematic test. The introduction of intermediate examinations in the IInd course on anatomy, hystology, physiology and biological chemistry was made for the purpose of improving the quality of training and permitting the Vuzes to expell unsuccessful or lazy students. This right, however, is not efficiently utilized.

The author states that a new system of distribution of scholarships will systematize the evaluation of a student's knowledge and increase the requirements in examinations. Because of the increased independence in their instruction and more free time for this work, the students need good manuals. The activity of professors and teachers in this matter must be increased to assure the success of "Letter I-100".

It appears that many medical institutes neglect instructive-methodic work. This, however, is not the case with the Riga Institute of Medicine, where good results have been obtained.

3-5-14/38

To Solve in a More Active Way the Tasks Set by "The Letter I-100". Success Depends on the Initiative of the Chairs

ASSOCIATION: The Administration of Staff and Educational Institutions of the Ministry of Health, USSR (Upravleniye kadrov i uchebnykh zavedeniy Ministerstva zdravookhraneniya SSSR)

AVAILABLE: Library of Congress

Card 4/4

JERMAKOV, V.V.; SAVCHENKO, M.G. (Moskva).

Graduate studies by correspondence of the leaders of public health workers. Sovet. zdravoot. 5 no.1:42-45 Jan 57.

(PUBLIC HEALTH, educ.
graduate studies by correspondence (Cs))

YERMAKOV, V.V., dotsent; STAROBINSKIY, I.M., prof.; KOZLOV, A.M., dotsent

Forty years of higher medical education in the U.S.S.R. Sov.zdrav. 16 no.10:19-24 O '57. (MIRA 10:12)
(EDUCATION, MEDICAL, hist.
in Russia)

YERMAKOV, V.V.

YERMAKOV, V.V., dotsent; STAROBINSKIY, I.M., prof.

Problems of prophylaxis in higher medical education. Sov.med. 21 no.10:119-127 O '57. (MIRA 11:1)

1. Iz Upravleniya kadrov i chebnykh zavedeniy Ministerstva zdravookhraneniya SSSR.
(EDUCATION, MEDICAL) (MEDICINE, PREVENTIVE, educ.)

YERMAKOV, V.V., dotsent., SAVCHENKO, M.G.

The present status and the future of regular and advanced training for physicians in public health work. Sov.zdrav. 17 no.10:7-10 0 '58 (MIRA 11:11)

1. Iz Upravleniya kadrov i uchebnykh zavedeniy Ministerstva zdravookhraneniya SSSR.
(SANITATION, educ.
in Russia (Rus))

YERMAKOV, V.V.

State of industrial practice of students in medical institutes.
Sov.med. 22 no.7:145-150 Jl '58 (MIRA 11:10)

1. Zamestitel' nachal'nika Upravleniya kadrov i uchebnykh zavedeniy Ministerstva zdravookhraneniya SSSR.
(SCHOOLS, Medical
med. student train. in indust. practice (Rus))
(INDUSTRIAL HYGIENE,
same (Rus))

YERMAKOV, V.V., dotsent, SAVCHENKO, M.G.

A brief historical sketch on the training of obstetricians and gynecologists in the USSR. Akush. i gin. 34 no.2:96-100 Mr-Ap '58. (MIRA 11:5)

(OBSTETRICS, educ
in Russia (Rus))
(GYNECOLOGY, educ.
same)

YERMAKOV, V.V.; MIL'NICHENKO, A.K.; POPOV, G.A.

Status and prospects for the training of pharmaceutical personnel in the U.S.S.R. Apt.delo 8 no.3:31-38 My-Je '59. (MIRA 12:8)

(PHARMACY--STUDY AND TEACHING)

YERMAKOV, V. V., dotsent (Moskva)

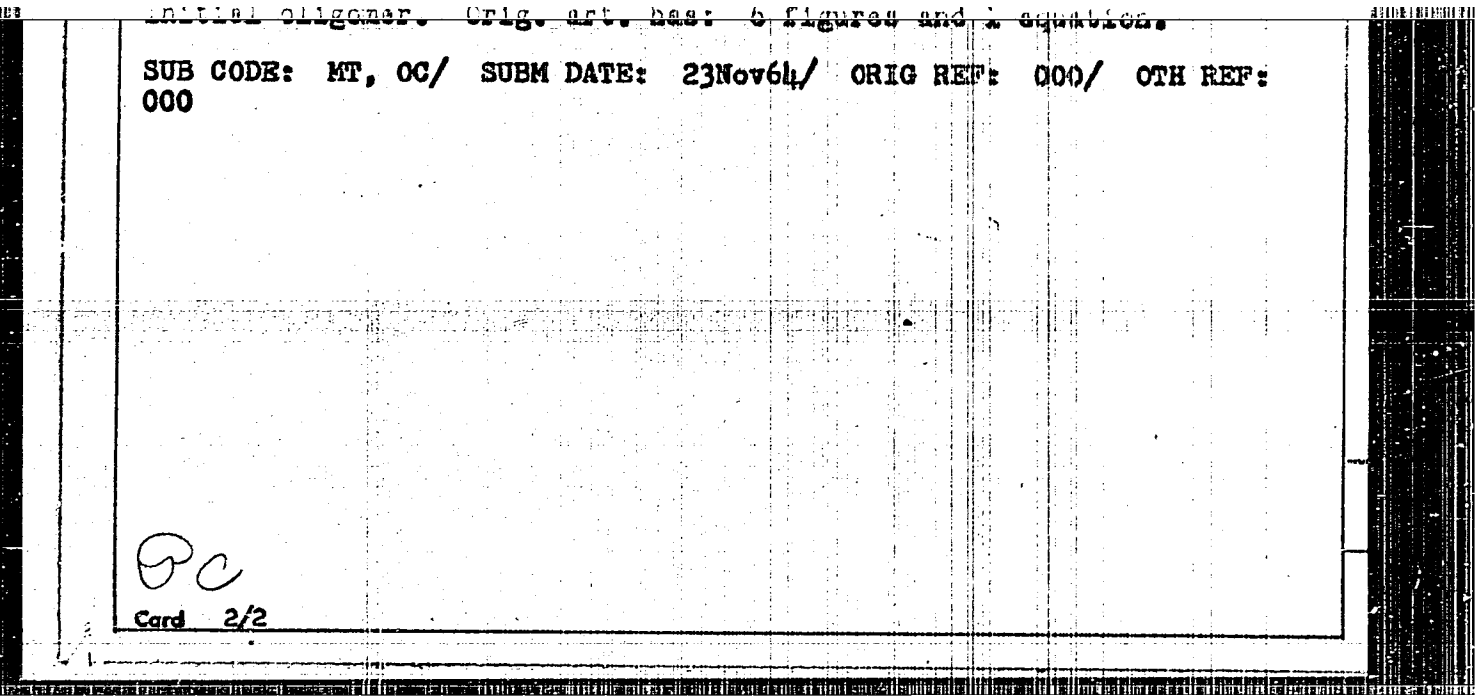
The certification of the physician is an important problem of the state. Klin. med. no.8:144-145 '61. (MIRA 15:4)

1. Iz otdela meditsinskikh uchebnykh zavedeniy i kadrov (nach. - dotsent V. V. Yermakov) Ministerstva zdravookhraneniya SSSR.

(MEDICAL LAWS AND LEGISLATION)

YERMAKOV, V.V., dotsent; BARAKOVSKIY, V.V.

Immediate tasks in the advanced training of subprofessional medical personnel. Med. sestra 20 no. 2:10-14 F '61. (MIRA 14:4)
(MEDICINE—STUDY AND TEACHING)



initial oligomer. Orig. art. has: 6 figures and 1 equation.

SUB CODE: MT, OC/ SUBM DATE: 23Nov64/ ORIG REF: 000/ OTH REF: 000

OC

Card 2/2

RAPOPORT, R.I.; KOKOVIKHINA, K.I.; VARSHAVER, N.B.; YERMAKOVA, M.N.; KOLESOV, I.M.; ROZINA, N.Ye.

Cultivation of a strain of diploid cells of the lungs of a human embryo. Vop. virus. 10 no.2:187-191 Mr-Ap '65.
(MIRA 18:10)

1. Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov.

20951
S/079/61/031/004/005/006
B118/B208

5.3700 2209, 1274, 1282

AUTHORS: Andrianov, K.A., and Yermakova, M.N.

TITLE: Formation reactions of triethyl-siloxy-borosiloxanes

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 4, 1961, 1310 - 1312

TEXT: For the purpose of synthesizing triethyl-siloxy-diethoxy-boron, the authors of the present paper studied the reaction of triethyl-hydroxy--silane with boric acid ethyl ester. Experiments disclosed that tris--triethyl-siloxy-boron is formed even by reacting boric acid ethyl ester with triethyl-hydroxy-silane in a molar ratio; triethyl-siloxy-diethoxy--boron could not be separated. The latter is probably subjected to disproportionation during distillation, forming a stable compound, namely tris-triethyl-siloxy-boron. In subsequent experiments, boric ester was first condensed with triethyl-hydroxy-silane, combined with a distillation of the alcohol separated during the reaction:

$$2(C_2H_5)_3SiOH + B(OC_2H_5)_3 \longrightarrow \left((C_2H_5)_3SiO\right)_2B(OC_2H_5) + 2C_2H_5OH \quad (1).$$

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B118/B208

Formation reactions of ...

Then, diethyl-diacetoxy-silane was added, and the reaction mixture heated again to expel the ethyl acetate:

$$2\left((C_2H_5)_3SiO\right)_2B(OC_2H_5)+(C_2H_5)_2Si(OCOCH_3)_2 \longrightarrow 2C_2H_5OCOCH_3+$$

$$+(C_2H_5)_3SiO-B-O-\underset{\displaystyle (C_2H_5)_2}{Si}-O-B-OSi(C_2H_5)_3 \qquad (2)$$

$$\qquad\quad (C_2H_5)_3SiO \qquad\qquad OSi(C_2H_5)_3$$

. Twofold vacuum distillation gave 1.5--bis(triethyl-siloxy-boro)-3-diethyl-diborosiloxane in a yield of 24.7%
1.5-bis(triethyl-siloxy-boro)-3-dimethyl-diborosiloxane is easily obtained according to reaction (2), if dimethyl-diacetoxy-silane is used instead of diethyl-diacetoxy-silane. Reaction of the condensation product of triethyl--hydroxy-silane with the boric ester of diethyl-silanediol gives also easily 1.5-bis(triethyl-siloxy-boro)-3-diethyl-diborosiloxane:

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B118/B208

Formation reactions of ...

$$2\left[(C_2H_5)_3SiO\right]_2B(OC_2H_5)+(C_2H_5)_2Si(OH)_2 \longrightarrow 2C_2H_5OH +$$

$$+ (C_2H_5)_3SiOB(OSi(C_2H_5)_3)-O-Si(C_2H_5)_2-O-B(OSi(C_2H_5)_3)-OSi(C_2H_5)_3$$

. There are 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences USSR)

SUBMITTED: March 16, 1960

Card 3/3

ANDRIANOV, K.A.; YERMAKOVA, M.N.

Polycondensation reaction of α, ω-dihydroxydimethylsiloxane oligomers with phenylaminomethylmethyldiethoxysilane. Izv.AN SSSR.Otd. khim.nauk no.9:1577-1580 S '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Siloxanes) (Silane)

ANDRIANOV, K.A.; YEMMAKOVA, M.N.

Synthesis and polymerization of bis and tris (trialkylsiloxy) tin methacrylate. Vysokom.soed. 5 no.2:217-221 F '63. (MIRA 16:2)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Tin organic compounds) (Methacrylic acid)
(Polymerization)

ACCESSION NR: AP4025009 S/0062/64/000/003/0454/0457

AUTHOR: Andrianov, K. A.; Kuznetsova, L. K.; Yermakova, M. N.

TITLE: Polydimethylsiloxanes containing tris(trimethylsiloxy) and dimethylphosphinoxy terminal groups

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 454-457

TOPIC TAGS: liquid polydimethylsiloxane, terminal polymer group, tris(trimethylsiloxy) group, dimethylphosphinoxy group, viscous flow activation energy, polymer viscosity, polydimethylsiloxane viscosity, condensation synthesis, polymer synthesis, polymer molecule number

ABSTRACT: New liquid polydimethylsiloxanes containing the above terminal groups were synthesized by condensation of α, ω-dihydroxydimethylsiloxanes with the dimethylethoxysilylmethyl ester of dimethylphosphinic acid or tris (trimethylsiloxy) ethoxysilane, and some of their properties (molecular weight, glass-forming temperature, activation energy) studied. The reaction formula is

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ACCESSION NR: AP4025009

presented and properties tabulated. In the end products, n, denoting the number of polymer molecules, was equal to 9, 13, 42, 45, 75 and 120. Viscosity in the 20-120C range was higher in polymers with terminal tris (trimethylsiloxy) groups than in those with the dimethylphosphinoxy group for the same degree of polymerization. The logarithm of viscosity, inversely dependent upon temperature, is also figured. The activation energy of viscous flow, calculated according to experimental data in the range studied, decreased upon increasing the distance between the terminal groups, which may point towards a comparatively great influence of these groups, as against that of the dimethylsiloxane groups of the backbone. The synthesis is described. Orig. art. has: 2 formulas, 2 tables and 4 figures.

ASSOCIATION: Institut elementoorganicheskikh soedinennly Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

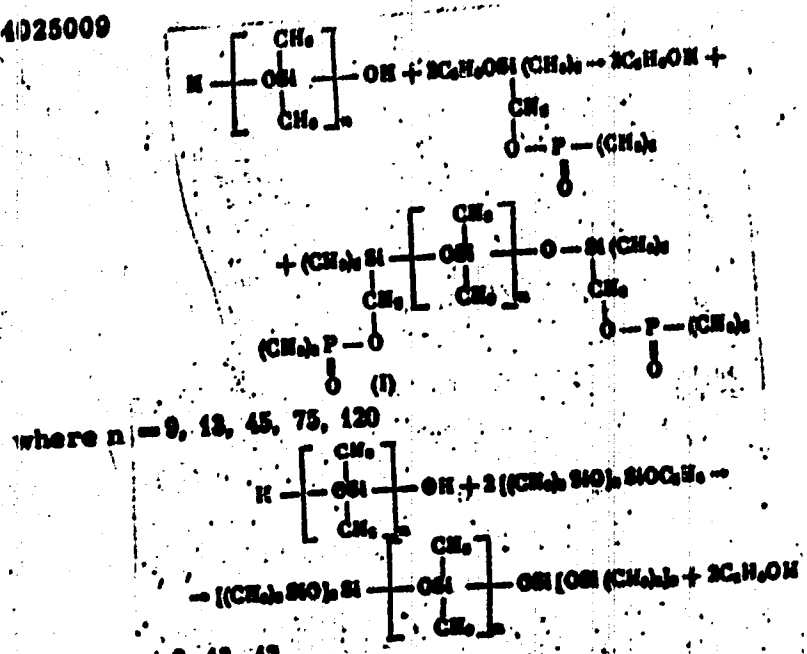
SUBMITTED: 10Oct62 DATE ACQ: 17Apr64 ENCL: 01

SUB CODE: CH NO REF SOV: 005 OTHER: 001

Card 2/3

ENCLOSURE:01

ACCESSION NR: AP4025009



where n = 9, 13, 45, 75, 120

where n = 9, 13, 42.

Card 3/3

NOVIKOV, I.T.; PAVLENKO, A.S.; SMIRNOV, M.S.; CHIZHOV, D.G.; LAVRENENKO, K.D.; NEKRASOV, A.M.; NOSOV, R.P.; TARASOV, N.Ya.; ZHIMERIN, D.G. UGORETS, I.I.; DMITRIYEV, I.I.; DROBYSHEV, A.I.; YERMAKOV, V.S.; SAPOZHNIKOV, F.V.; BOROVOY, A.A.; BANNIK, V.P.; DASKOVSKIY, Ya.M.; ROGOVIN, N.A.; PETROV, A.N.; MEL'NIKOV, B.V.; LATYSH, D.I.; KONIN, F.P.; DYDYKIN, P.Ye.; BONDAREV, I.I.; GUMENYUK, D.L.; POBEGAYLO, K.M.

Ol'ga Sergeevna Kalashnikova; obituary. Elek.sta. 30 no.2:95 F '59. (MIRA 12:3)
(Kalashnikova, Ol'ga Sergeevna, 1914)

YERMAKOV, V.S., kand. tekhn. nauk; PEKELIS, G.B., inzh.

Method for selecting a version for the introduction of new power into the power system. Elek. sta. 30 no.3:6-11 Mr '59. (MIRA 12:5)

(Power engineering)

YERMAKOV, V.S.

Unsteady temperature field in the heat-producing elements of a reactor. Inzh.-fiz.zhur. no.5:115-118 My '60. (MIRA 13:8)

1. Institut energetiki AN BSSR, Minsk.
(Nuclear reactors)

S/170/60/003/04/24/027
B007/B102

AUTHOR: Yermakov, V. S.

TITLE: The Nonsteady Temperature Field in Heat Liberating Reactor Elements

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 4, pp. 127-131

TEXT: Equation (2) for the heat conductivity of the fuel elements in the case of nonsteady operation of a nuclear reactor is written down (Ref. 3). The boundary conditions (3) and (4) for equation (2) are given and the solution of the latter under these boundary conditions yields formula (5). The function $Q(z, \tau)$ must be known in order to calculate the integrals in formula (5). $Q(z, \tau)$ stands for the specific power of the internal heat source. This function is determined by the propagation of neutrons in the core of the reactor. Formula (16) is derived for this function. This formula holds for supercritical reactor operation without consideration of the influence of the negative temperature coefficient. Formula (16) is substituted in formula (5) which yields formula (17). However, if $Q(z, \tau)$ varies with varying neutron flux according to formula (12) formula (18) is obtained. This is the case with the reactor being supercritical with respect to the delayed neutrons. The distribution of the mean temperature along the rod

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The Nonsteady Temperature Field in Heat Liberating Reactor Elements

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of fuel elements at various moments in nonsteady reactor operation can be determined by means of formulas (17) and (18). L. S. Leybenzon (Ref. 2) is mentioned. There are 5 references, 4 of which are Soviet.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering of the AS Belorusskaya SSR, City of Minsk)

Card 2/2

S/170/60/003/010/022/023
B019/B054

AUTHORS: Yermakov, V. S., Perel'man, T. L.

TITLE: Problems of Nuclear Physics (II All-Union Conference on Low- and Medium-energy Nuclear Reactions)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 10, pp. 139-143

TEXT: The II Vsesoyuznaya konferentsiya po yadernym reaktsiyam pri malykh i srednikh energiyakh (II All-Union Conference on Low- and Medium-energy Nuclear Reactions) was organized in Moscow by the AS USSR on July 21-28, 1960. I. M. Frank, Corresponding Member of the AS USSR, headed the organizing committee. In his opening speech, he pointed out that the investigation of low-energy nuclear reactions quite naturally deals with the problems of nuclear structure. N. A. Vlasov gave a survey of experimental investigations of systems containing less than eight nucleons in the nucleus. Among other things, this report dealt with the existence of a tetraneutron, the isotope H^8, and some hydrogen isotopes, as predicted by Ya. B. Zel'dovich, V. I. Gol'danskiy, and A. I. Baz'. A. I. Baz'

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Problems of Nuclear Physics (II All-Union Conference on Low- and Medium-energy Nuclear Reactions)

S/170/60/003/010/022/023
B019/B054

gave a survey of theoretical investigations of these systems. He mentions the investigation of the three-particle problem for short-range forces carried out by G. V. Skornikov and K. A. Ter-Martirosyan (Ref. p. 140). L. D. Landau made some critical remarks during the subsequent discussion, mainly on missing levels in one of the mirror nuclei. Further, Ya. B. Zel'dovich stated that the existence of H^8 is very likely. V. I. Gol'danskiy suggested the hypothetical reaction $Be^9(\pi^-,p)He^8$ for the experimental proof of the existence of H^8. I. S. Shapiro showed in his report that the π-meson capture does not only supply information on elementary particles, but also on the structure of light nuclei. A. A. Ogloblin and V. G. Neudachin gave a survey of experimental and theoretical investigations on direct interactions of nuclei. A. P. Klyucharev (Khar'kov) spoke about elastic proton scattering. P. E. Nemirovskiy dealt with inelastic nucleon scattering. In the discussion of this report A. S. Davydov discussed the use of the optical model for light nuclei. I. Kh. Lemberg reported on investigations of the Coulomb excitation of nuclear levels by multiply charged ions. These investigations were carried out at the Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad

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Problems of Nuclear Physics (II All-Union Conference on Low- and Medium-energy Nuclear Reactions)

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Institute of Physics and Technology of the AS USSR). In the discussion of this report, experimental results obtained in Dubna were given on the excitation of rotational levels by μ-mesonic transitions of U^{238} atoms. V. I. Gol'danskiy reported on the possibility of a two-proton activity of some nuclei. In an attempt made to explain theoretically the results obtained by Almquist, A. S. Kompaneyets suggested the model of a two-nucleus quasimolecule C^{12}-C^{12}. A. I. Baz' reported on his calculations of a nuclear molecule model. L. D. Landau and A. I. Alikhanov took part in the discussion of R. Moessbauer's report. F. L. Shapiro gave a survey of experimental and theoretical investigations of the resonance scattering of γ-quanta carried out by A. I. Alikhanov et al. Investigations carried out at the FIAN and MGU are also considered. L. Ye. Lazarev and A. M. Baldin reported on experimental inveatigations of photonuclear reactions, L. V. Groshev and S. P. Tsytko on the radiation capture of nucleons. A. S. Davydov reported on non-axially symmetric nuclei, Yu. T. Grin on the superfluidity of nuclear substance which he had discovered together with A. B. Migdal. Reports delivered by American, Canadian, British, German, and Italian scientists are also discussed. There is 1 Soviet reference.

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21.1200
26.2231

S/170/61/004/001/015/020
B019/B056

AUTHORS: Yermakov, V. S., Zhuk, I. P., Yaroshevich, O. I.

TITLE: Calculation of Temperature in Fuel Elements of a Nuclear Reactor in Transient Conditions

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1961, Vol. 4, No. 1, pp. 104-108

TEXT: The temperature distribution in fuel elements of a water-moderated water-cooled reactor in transient conditions is investigated. The authors proceed from the known set of differential equations for the temperature field of a cylindrical fuel element consisting of rod, airgap, and jacket. This nonlinear differential equation is simplified by assuming mean values of the thermal conductivity coefficient λ being a temperature function, for various temperature zones of the fuel element. This simplified linear differential equation reads:

$$c_i \gamma_i \frac{\partial t_i}{\partial \tau} = \lambda_{ik} \nabla^2 t_i + Q_i (r,\tau),$$ where i = 1, 2, 3, corresponding to the

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Calculation of Temperature in Fuel Elements of a Nuclear Reactor in Transient Conditions

S/170/61/004/001/015/020
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rod, the airgap or the jacket, and k is the k-th temperature zone. By means of this equation the fuel elements of a BBP (VVR) reactor with a power efficiency of 760 megawatts is investigated. The thermal capacity of the airgap and the jacket are neglected, and the He and Al-mass is assumed to be small compared to the UO_2-mass; furthermore, the temperature drop in the Al-jacket is neglected. For the temperature of the core, the following expression is obtained by means of a Hankel-transformation:

$$t(\varrho,\tau) = qT\left[1 - \frac{hl_o\left(\frac{\varrho}{\sqrt{aT}}\right)}{\frac{1}{aT}\,I_1\left(\frac{1}{\sqrt{aT}}\right) + hl_o\left(\frac{1}{\sqrt{aT}}\right)}\right] e^{\tau/T} - \frac{2qh}{a}\sum_{i=1}^{\infty} \frac{e^{-a\mu_i^2\tau}}{(\mu_i^2+h^2)\left(\mu_i^2+\frac{1}{aT}\right)} \frac{J_o(\mu_i\varrho)}{J_o(\mu_i)} \qquad (15)$$

μ_i are the positive roots of the equation $\mu J_1(\mu) = hJ_o(\mu)$ (16). For

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Calculation of Temperature in Fuel Elements of a Nuclear Reactor in Transient Conditions

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calculating with (15) it is now necessary to know the reactor period as well as the time within which the reactor attains a certain power output. Table 1 shows the results. There are 1 table and 7 references: 5 Soviet, 1 British, and 1 US.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering of the AS BSSR, Minsk)

SUBMITTED: August 16, 1960

Legend to Table 1: 1) Time from the beginning of the reactor startup onward. 2) Core radius in mm. t*) Temperature, calculated by means of a hydrointegrator. t**) Temperature calculated analytically.

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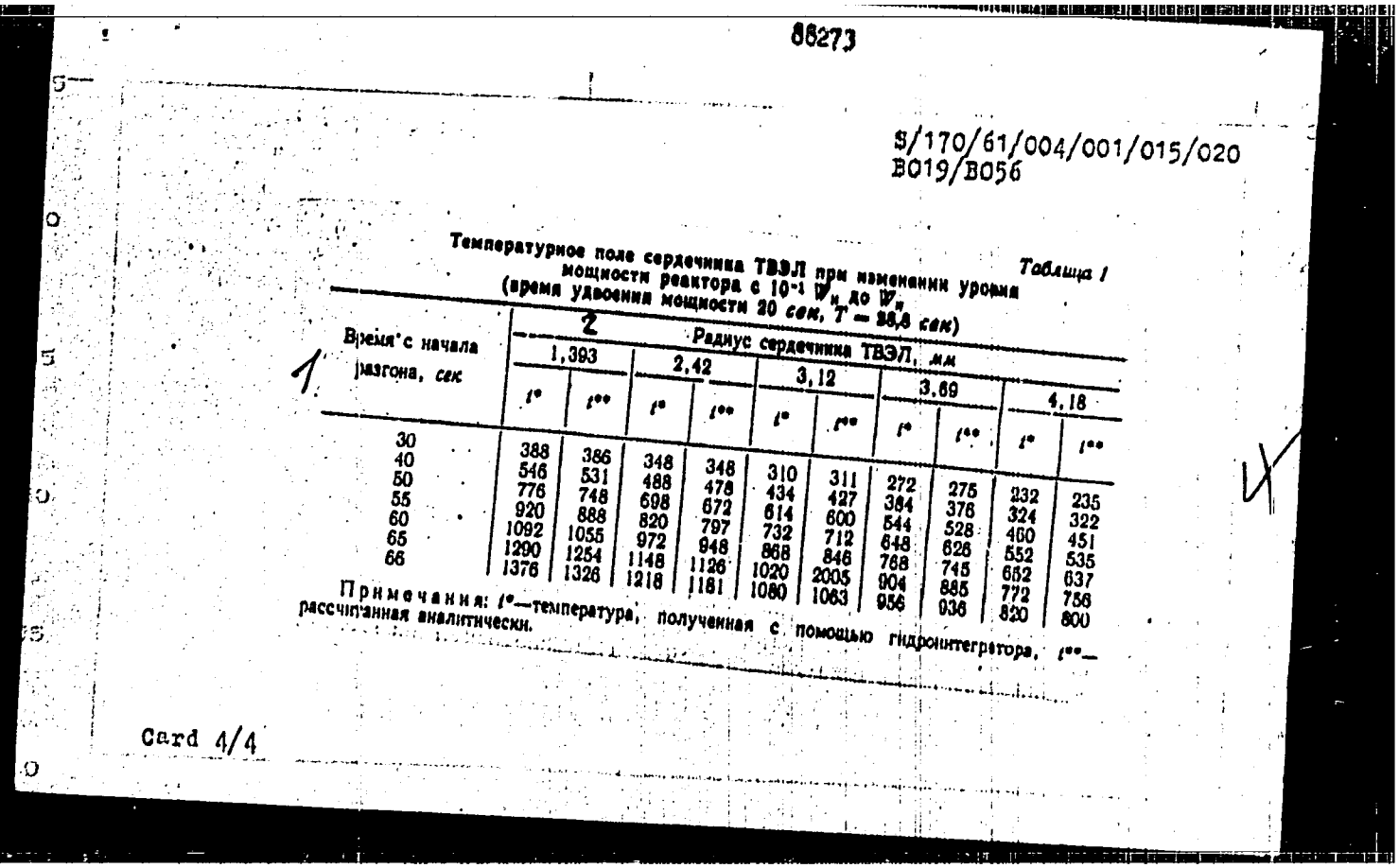

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S/170/61/004/001/015/020
E019/E056

Температурное поле сердечника ТВЭЛ при изменении уровня мощности реактора с 10^{-1} $W_н$ до $W_н$ (время удвоения мощности 20 сек, T — 28,8 сек)

Таблица 1

Время с начала разгона, сек	Радиус сердечника ТВЭЛ, мм									
	1,393		2,42		3,12		3,69		4,18	
	t°	t°°	t°	t°°	t°	t°°	t°	t°°	t°	t°°
30	388	386	348	348	310	311	272	275	232	235
40	546	531	488	478	434	427	384	376	324	322
50	776	748	698	672	614	600	544	528	460	451
55	920	888	820	797	732	712	648	626	552	535
60	1092	1055	972	948	868	846	768	745	652	637
65	1290	1254	1148	1126	1020	2005	904	885	772	756
66	1376	1326	1218	1181	1080	1063	956	936	820	800

Примечания: t°—температура, полученная с помощью гидроинтегратора, t°°—рассчитанная аналитически.

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S/170/61/004/005/011/015
B111/B214

26.2230

AUTHORS: Yermakov, V. S., Zhuk, I. P., Yaroshevich, O. I.

TITLE: The problem of nonstationary heat transmission in the fuel elements of a nuclear reactor

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 5, 1961, 96-99

TEXT: The problem of nonstationary heat transmission in the fuel elements of a nuclear reactor is solved in this paper. For this purpose, the simplifying assumptions made in Ref. 1 (IFZh, v. IV, no. 1, 1961) are not taken into account. It is assumed that the temperature distribution at the beginning of the transient $t(0, r) = \psi(r)$ is nonuniform and that the intensity of the heat production is time dependent as obtained by the solution of the dynamic reactor equation. The solution of the dynamic reactor equation in one-group approximation with a decay constant τ is found to be:

$$n = n_0 \left[\frac{\beta}{\beta - \rho} e^{\frac{\bar{\tau}\rho}{\beta - \rho}} - \frac{\rho}{\beta - \rho} e^{-\frac{\beta - \rho}{L}\tau} \right], \quad (1),$$

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where n_0 is the density of thermal neutrons at the beginning of the transient ϱ .. the reactivity of the reactor, β the fraction of slowed down neutrons, and L the mean lifetime of neutrons. For the production of heat $Q(\tau)$ in a thermal reactor one may write:

$$Q = Q_0 (A_1 e^{a_1 \tau} - A_2 e^{-a_2 \tau}), \qquad (2).$$

where

$$A_1 = \frac{\beta}{\beta - \varrho}; \quad A_2 = \frac{\varrho}{\beta - \varrho}; \quad a_1 = \frac{\bar{\tau}\varrho}{\beta - \varrho}; \quad a_2 = \frac{\beta - \varrho}{L}.$$

The problem of the radial temperature distribution inside a fuel element may be mathematically formulated in the following manner:

$$\frac{\partial t(r,\tau)}{\partial \tau} = a \left(\frac{\partial^2 t(r,\tau)}{\partial r^2} + \frac{1}{r} \frac{\partial t(r,\tau)}{\partial r} \right) + \frac{Q_0}{c\gamma} (A_1 e^{a_1 \tau} - A_2 e^{-a_2 \tau}), \qquad (3) \text{ to } (6)$$

Card 2/6

The problem ...

Equation (3) under the conditions (4) and (6) may be solved with the help of a Laplace transform. The solution is obtained in the following form:

$$t = \frac{Q_0 A_1}{c\gamma a_1}\left(1 - \frac{h I_0\left(\sqrt{\frac{a_1}{a}}r\right)}{h I_0\left(\sqrt{\frac{a_1}{a}}R\right) + \sqrt{\frac{a_1}{a}} I_1\left(\sqrt{\frac{a_1}{a}}R\right)}\right) e^{a_1 \tau} +$$

$$+ \frac{Q_0 A_2}{c\gamma a_2}\left(1 + \frac{h J_0\left(\sqrt{\frac{a_2}{a}}r\right)}{h J_0\left(\sqrt{\frac{a_2}{a}}R\right) - \sqrt{\frac{a_2}{a}} J_1\left(\sqrt{\frac{a_2}{a}}R\right)}\right) e^{-a_2 \tau} - \quad (7).$$

$$- \left[\frac{Q_0}{h}(1 + hR) + \frac{2Q_0 h}{c\gamma R}\left(\frac{A_1}{a_1} + \frac{A_2}{a_2}\right) - \frac{2hT}{R}\right] \times$$

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$$\times \sum_{\mu_i} \frac{J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{(\mu_i^2 + h^2) J_0(\mu_i R)} +$$

$$+ \frac{2Q_0 A_1 ah}{c\gamma a_1 R} \sum_{\mu_i} \frac{\mu_i^2 J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{(\mu_i^2 a + a_1)(\mu_i^2 + h^2) J_0(\mu_i R)} +$$

$$+ \frac{2Q_0 h}{\lambda R} \sum_{\mu_i} \frac{J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{\mu_i^2 (\mu_i^2 + h^2) J_0(\mu_i R)} -$$

$$- \frac{2Q_0 A_2 ah}{c\gamma a_2 R} \sum_{\mu_i} \frac{\mu_i^2 J_0(\mu_i r)\, e^{-\mu_i^2 a \tau}}{(a_2 - \mu_i^2 a)(\mu_i^2 + h^2) J_0(\mu_i R)} + \theta. \qquad (7)$$

Here, μ_i are the positive roots of the equation $\mu_i I_1(\mu_i R) = h I_0(\mu_i R)$. The solution of (7) can be considerably simplified. The first, second, and sixth terms of (7) vanish almost completely 1 second after the beginning of the transient if the temperature field differs only slightly from the stationary value. The simplified expression is:

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$$t = \frac{Q_0 A_1}{c\gamma a_1}\left[1 - \frac{h I_0\left(\sqrt{\frac{a_1}{a}}r\right)}{h I_0\left(\sqrt{\frac{a_1}{a}}R\right) + \sqrt{\frac{a_1}{a}} I_1\left(\sqrt{\frac{a_1}{a}}R\right)}\right] e^{a_1 \tau} -$$

$$- \left[\frac{Q_0}{\lambda}(1 + hR) + \frac{2Q_0 h}{c\gamma R}\left(\frac{A_1}{a_1} + \frac{A_2}{a_2}\right) - \frac{2hT_0}{R}\right] \frac{J_0(\mu_1 r) e^{-\mu_1^2 a \tau}}{(\mu_1^2 + h^2) J_0(\mu_1 R)} +$$

$$+ \frac{2Q_0 A_1 a h}{c\gamma a_1 R} \frac{\mu_1^2 J_0(\mu_1 r) e^{-\mu_1^2 a \tau}}{(\mu_1^2 a + a_1)(\mu_1^2 + h^2) J_0(\mu_1 R)} +$$

$$+ \frac{2Q_0 h}{\lambda R} \frac{J_0(\mu_1 r) e^{-\mu_1^2 a \tau}}{\mu_1^2 (\mu_1^2 + h^2) J_0(\mu_1 R)} + \Theta. \qquad (9)$$

The numerical calculations were made for the fuel elements of the reactor of type BBP (VVR) and compared with the calculations made earlier for an analogous problem with the help of an analogous computer. The values were

Card 5/6

The problem ...

found to be practically coincident so that both methods can be applied. The solution obtained describes the nonstationary temperature field of the fuel elements of a reactor with constant rate of starting up. There are 1 table and 3 Soviet-bloc references.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering, AS BSSR, Minsk)

SUBMITTED: February 14, 1961

Card 6/6

30000

S/170/61/004/012/010/011
B104/B138

21.1000

AUTHORS: Yermakov, V. S., Sokol'chik, V. A.

TITLE: The experimental organic loop of the ИРТ-2000 (IRT-2000) reactor of the Academy of Sciences Belorusskaya SSR

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 12, 1961, 109 - 117

TEXT: This is a report delivered at the Mezhdunarodnoye soveshchaniye po eksperimental'nym petlyam yadernykh reaktorov (International Conference on Experimental Loops of Nuclear Reactors) at Dubna on the ИРТ-2000 (IRT-2000) research reactor of the Institut energetiki Akademii nauk Belorusskoy SSR (Institute of Power Engineering of the Academy of Sciences Belorusskaya SSR), recently put in operation. An experimental loop with an organic coolant was installed in the reactor. The loop is designed for studying organic compounds as to their applicability as coolants. Polyphenyls are also to be examined for their resistance to temperature effects and radiation, and also for their heat-transfer properties. An experimental channel 60 mm in diameter and having a maximum neutron flux was installed in the core center for this purpose. The fuel assembly, which can be exchanged at any time, is shown in Fig. 1. The seven fuel elements

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The experimental organic loop of ...

(10 mm in diameter) are housed in stainless steel tubes (40 mm in diameter, wall thickness 0.5 mm). The coolant passes along the gap between tube 1 rods, cooling the latter. Neutron absorption is highest in the core center. The reactivity of the reactor was computed with the aid of the two-group theory, using the digital computer of the Institut atomnoy energii imeni I. V. Kurchatova AN SSSR (Institute of Atomic Energy imeni I. V. Kurchatov AS USSR) and allowing for modifications of design. Results are presented in Fig. 2. The computations were performed by Yu. G. Nikolayev, A. A. Chervyatsov (IAE AN SSSR), and O. I. Yaroshevich (IE AN BSSR) following a program worked out by V. A. Khodakov. Details of the design (Fig. 4) are finally discussed. There are 4 figures.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering AS BSSR, Minsk)

SUBMITTED: August 12, 1961

Fig. 1. Center of the core assembly.
Fig. 2. Neutron distribution along the reactor radius (burnup of U^{235}: 20%). Legend: (a) fast neutrons; (b) thermal neutrons; (1) with loop;

Card 2/[redacted]

FYI (2816, 9910)

S/170/62/005/008/009/009
B104/B102

AUTHOR: Yermakov, V. S.

TITLE: Start of the first Belorussian nuclear reactor

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 8, 1962, 138-139

TEXT: In May 1962 an VPT-2000 (IRT-2000) reactor was put into operation at the Energeticheskiy institut Akademii nauk BSSR (Power Engineering Institute of the Academy of Sciences BSSR). The reactor develops 2000 kw. Its moderator, coolant and top shielding are ordinary distilled water. The fuel elements consist of UO_2 with 10% U^{235}. Zero-power reactors, accelerators and laboratories are planned in addition. The reactor has ten horizontal and nine vertical holes. It is available to other institutes also. The following alterations were made as compared with the conventional reactor design of this type: (1) a power loop was built into the vertical core hole, is provided with leads to a shielded working place; (2) A second hot cell was built into the concrete of the biological shield; (3) Some of the service stands and workshops were transferred from the main building to other buildings; (4) control and shielding

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system were improved; (5) the horizontal holes and the core were also modified. There are 2 figures.

Card 2/2

L0374

S/170/62/005/009/002/010
B108/B104

26.2223

AUTHORS: Yermakov, V. S., Kondrashov, N. G., Perel'man, T. L., Romashko, Ye. A., Ryvkin, V. B.

TITLE: Temperature field in a cylindrical reactor fuel element cooled by a turbulent flow of liquid

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 9, 1962, 38-43

TEXT: The temperature field of a cylindrical rod heated from inside and cooled at the outside was studied theoretically in order to gain insight into the processes of heat transfer within a reactor core. For simplicity the heat transfer between rod and coolant is assumed to be convective, the coolant flow to be turbulent (heating of the entire liquid flow), and the heat conductivity as well as all parameters of the problem to be constants. The problem of stationary heat transfer is then

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Temperature field in a cylindrical ...

$$\lambda\left[\frac{1}{r}\frac{\partial}{\partial r}\left(r\frac{\partial t}{\partial r}\right)+\frac{\partial^2 t}{\partial z^2}\right]=-Q(r,z), \qquad (1)$$

$$\gamma cSv\frac{\partial\theta}{\partial z}=P_1\alpha_1(t|_{r=R}-\theta)+P_2\alpha_2(t_0-\theta), \qquad (2).$$

$$0<z<L;\ 0\leq r<R.$$

$t(r,z)$ - temperature in the fuel element, $\theta(z)$ - temperature in the liquid, t_0 - temperature of channel wall, γ and c - density and specific heat of coolant, P_1 and P_2 - perimeters of fuel element and channel. $Q(r,z)$ can be found from the neutron diffusion equation. The boundary conditions are

$$\lambda\frac{\partial t}{\partial r}\Big|_{r=R}=\alpha_1\left(t_{r=R}-\theta\right),$$

$\theta|_{z=0}=0$, $t_{z=0}=0$, $\partial t/\partial z|_{z=L}=0$. The approximate solution of this

problem has the form

$$\tilde{t}(r,z) = \sum_{k=0}^{n} (r/R)^{2k} a_k(z).$$

Q and $\nabla^2 t$ are approximated by a polynomial of (n-1)-st degree. This leads to a system of n equations for the (n+1) functions $\{a_k(z)\}$. As $\tilde{t}(r,z)$ in general does not satisfy the boundary conditions it is necessary to minimize the unknowns when these conditions are satisfied. The error of this method is made up only of the errors in the heat conduction equation and in the boundary conditions. The problem was solved numerically for various actual parameters. There are 1 figure and 1 table.

ASSOCIATION: Energeticheskiy institut AN BSSR, g. Minsk (Power Engineering Institute AS BSSR, Minsk)

Temperature field in a cylindrical ... S/170/62/005/009/002/010
B108/B104

SUBMITTED: February 28, 1962

Card 4/4

L 30237-66

ACC NR: AP6020150 SOURCE CODE: UR/0250/65/009/011/0722/0724

AUTHOR: Yermakov, V. S.; Soshina, N. V.

ORG: Belorussian State University im. V. I. Lenin (Belorusskiy gosudarstvennyy universitet)

TITLE: Determination of uniformity of distribution of activity over a plane source with a large surface

SOURCE: AN BSSR. Doklady, v. 9, no. 11, 1965, 722-724

TOPIC TAGS: mathematics, absorption coefficient

ABSTRACT: The article considers the question of the determination of the uniformity of distribution of activity over the surface of a plane source. When A(x, y) const, this value can be taken out of the integral sign, and the line of equal intensity can be found by solving the equation

$$A(\xi, \eta) = \iint_{(s)} A(x, y) \frac{\exp(-\mu r)}{r^2} dxdy.$$

Then, if several identical detectors are placed on this line, the uniformity of the distribution of activity in a given plane can be judged by comparing the intensities recorded by these detectors. The problem of the authors was to determine lines of equal intensity $A(\xi, \eta)$ const, given the absorption coefficient value μ const for a plane rectangular source of the size $2x_0 2y_0$. This article was presented by Academician AN BSSR, A. N. Sevchenko. Orig. art. has: 13 formulas. [JPRS]

SUB CODE: 12, 07/ SUBM DATE: 15Jun64/

Card 1/1 nc

YERMAKOV, V.S.; SOSHINA, N.V.

Determining the uniformity of the distribution of activity over a two-dimensional source having a large surface. Dokl. AN BSSR 9 no. 11:722-724 N '65 (MIRA 19:1)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

YERMAKOV, V.S., kand. tekhn. nauk; MINKOV, V.A., kand. tekhn. nauk

Regulation of the load graph of a power system by industrial consumers. Elek. sta. 36 no.6:56-59 Je '65. (MIRA 18:7)

AUTHORS: Al'tman, E.A. and Yermakov, V.S. SOV/46-4-4-2/20

TITLE: The Effect of Ultrasound on Ageing of a Nickel--Chromium--Titanium Alloy (Vliyaniye ul'trazvuka na stareniye nikel'-khrom-titanovogo splava).

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol 4, Nr 4, pp 307-314 (USSR)

ABSTRACT: First studies of the effect of elastic vibrations of sonic and ultrasonic frequencies on the internal transformations in metals and alloys, including processes of dispersion hardening, were carried out by Gorskiy and Yefremov (Ref 1). They showed that ultrasonic vibrations of 30 kc/s frequency and 10 W/cm^2 accelerate natural ageing of duralumin by a factor of 63. This effect was confirmed by Gudtsov and Gavze (Refs 2, 3) and Pogodina-Alekseyeva and Eskin (Ref 5) who investigated dispersion ageing of aluminium and ferrous alloys. Herman-Schenck and Schmidtmann (Ref 4) found a 430 kc/s, 6.5 W/cm^2 ultrasonic beam to be ineffective as an accelerator of ageing of steels with 0.06% of carbon, possibly because the ultrasonic power was too low. The present authors studied the effect of 20-26 kc/s ultrasonic vibrations on the process of ageing of the KhN.80.T nickel--chromium--titanium alloy. Lower frequencies, of 8-16 kc/s, were found to fatigue

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the operating personnel. Cylindrical samples of the alloy (Fig 1) were used. The apparatus is shown in Fig 2. It consisted of an electric oscillator 1, a selenium rectifier 2, an ultrasonic generator 3, an electric furnace 4 with a thermocouple 5 and a thermostat 6. A sample 7 was attached to the ultrasonic generator by means of an extension rod 8 onto which the sample was screwed. The ultrasonic generator consisted of a magnetostriction vibrator a, a transmitting rod b and a casing v. The system consisting of the vibrator, transmitting rod and extension rod together with the sample had dimensions which produced resonance at frequencies of 23-25 kc/s. The sample was placed into the furnace and was heated for 10-15 minutes until an appropriate temperature was reached. Then the sample was aged with the ultrasonic generator switched on. A standing wave was excited in the system consisting of the vibrator, transmitting rod, extension rod and sample. The largest stresses and deformations occurred in the middle portion of the sample where the hardness resulting from the ageing process was measured. Ageing was carried out using ultrasound of 23-25 kc/s with 5 μ amplitude of the displacement of the end of the sample. Temperatures of 700, 750 and 800°C and various durations of

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the treatment were used. Some samples were irradiated with ultrasound at 700°C, 20-21 kc/s frequency and the displacement amplitude of 8 μ. At the latter amplitude the acoustic energy dissipated in the sample was approximately twice as high as in the case of displacement amplitude of 5 μ. The stresses in the samples aged at 700°C were 2.3-2.7 kg/mm^2 for the displacement amplitude of 5 μ and 3.3-3.7 kg/mm^2 for the displacement amplitude of 8 μ. The increase of the ultrasound energy by a factor of two increased the accelerating effect of ultrasound on the ageing process very considerably; at the higher ultrasound intensity ageing was 40-50 times as rapid as the ageing without ultrasound. The increase of the ageing temperature (from the standard temperature of 700°C) to 800°C and simultaneous application of ultrasound was found to produce a further increase in the rate of ageing without lowering the maximum hardness achieved by this process. The results obtained are given in Figs 3-5 and Table 1. These figures

show duration of the ageing process against hardness achieved by it. The ageing process was taken to be complete when the sample reached the hardness obtainable after 16 hours at 700°C without ultrasound. Ageing with ultrasound makes it possible to obtain a more highly disperse state of the second phase without any change of its total amount in the alloy. There are 5 figures, 1 table and 8 references, 7 of which are Soviet and 1 German.

ASSOCIATION: Voyenno-vozdushnaya inzhenernaya akademiya im. Mozhayskogo, Leningrad (Air Force Engineering Academy imeni Mozhayskiy, Leningrad).

SUBMITTED: October 8, 1957 - June 5, 1958.

Yermakov, V. S.

AUTHOR: Yermakov, V.S., Engineer. 96-1-22/31

TITLE: The Production of Germanium from Fuel Ash (Polucheniye germaniya iz zoly topliva)

PERIODICAL: Teploenergetika, 1958, Vol.5, No.1, pp. 80 - 81 (USSR)

ABSTRACT: This article gives a brief account of studies made in Great Britain on the germanium content of fine dust from power stations. General information on the distribution of germanium in particular parts of different types of boilers, is given in Tables 1 and 2. The object of the tests was to determine the most suitable type of boiler and ash arrester for trapping ash containing germanium. Experiments showed that variations in the temperature of combustion of fuel and the size of the boiler do not play an important part in increasing the quantity of germanium in the dust. It was also shown that an economic method of extracting germanium from the fine dust in boilers has not yet been developed.
There are 2 tables and 3 non-Slavic references.

AVAILABLE: Library of Congress

Card 1/1

AUTHORS: Yermakov, V.S., Engineer and Al'ftan, E. A. 129-58-7-5/17

TITLE: Accelerated Ageing of the Heat Resisting Nickel Alloy EI437B Subjected to the Effect of Ultrasonics (Uskorennoye stareniye zharoprochnogo nikelevogo splava EI437B pod vozdeystviyem ul'trazvuka)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 22-27 (USSR)

ABSTRACT: Gudtsov, N.T. and Gavze, M. N. (Ref.1) investigated the effect of ultrasonics of 300 - 1500 kc/sec on the dispersion hardening of duraluminium and some ferrous alloys. Schenk, G. and Schmidtmann, O. (Ref.2) studied the influence of ultrasonics of 430 kc/sec with a specific power of 6.5 W/cm^2 on the ageing of basic Thomas steel containing 0.06% C at 20°C. Goreskiy, F.K. and Yefremov, V. I. (Ref.3) stated that ultrasonics of 30 kc/sec and a specific power of 10 W/cm^2 accelerate 63-fold the natural ageing of an alloy containing 4.5% Cu, 0.8% Mg and 0.5% Si. Pogodina-Alekseyeva, K. M. and Eskin, G. I. (Ref.4) found that duraluminium ages at room temperature 20 to 25 times faster in an ultrasonics field of 1 Mc/sec with a specific power of 1.6 W/cm^2 than without

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using ultrasonics. According to Gudtsov and Gavze (Ref.1) the effectiveness of ultrasonics as regards ageing is independent of the frequency of oscillation in the range of 300 to 1500 kc/sec and it is this conclusion which forms the basis of the investigations of the authors of this paper, who believed that it is advisable to apply apparatus ensuring a maximum intensity of ultrasonics. In the experiments they used a magnetostriction ultrasonics generator (20 to 26 kc/sec), a sketch of which is shown in Fig.1, p.23. The regimes and the results of ageing in an ultrasonic field of the Soviet alloy EI437B are entered in a table, p.25. The graphs, Figs.2-4, show the change in hardness of the EI437B alloy at various temperatures with and without the use of ultrasonics. On the basis of the obtained results the following conclusions are arrived at: ultrasonics of 20 to 26 kc/sec accelerate ageing of the alloy EI 437B; doubling of the intensity of the ultrasonics in the specimen brings about a considerable increase in the effect of the ultrasonics on the process of ageing and permits reducing the duration

Accelerated Ageing of the Heat Resisting Nickel Alloy EI437B Subjected to the Effect of Ultrasonics

of ageing 40 to 50 times compared with the standard regime; application of even very weak ultrasonics during ageing at 800°C eliminates the influence of coagulation and produces the required hardening of the alloy 15 to 20 times faster than in the case of the standard hardening regime.
There are 4 figures, 1 tables and 6 references, 5 of which are Soviet, 1 German.

ASSOCIATION: Leningradskaya voyenno-vozdushnaya inzhenernaya akademiya (Leningrad Military Aviation Engineering Academy)

Card 3/3

YERMAKOV, V.S.

AUTHOR: Yermakov, V.S. 32-1-48/55

TITLE: A Rotating Accessory to the Metallographic Microscope Type MIM-7 (Povorotnoye prisposobleniye k metallograficheskomu mikroskopu tipa "MIM-7").

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 112-112 (USSR)

ABSTRACT: The accessory attachment to the aforementioned microscope consists of a pair of gear wheels, of which the larger serves as the movable table for the microscope, and the smaller serves the purpose of driving the former, one of the holes of the fastening screws of the microscope support being used as a lower bearing. The samples are placed upon the movable plate (larger gear wheel) in such a manner that, by moving the driving shaft with the small gear wheel they can, one by one, be brought before the objective, or, if the sample is in the center of the movable plate, it is caused to perform circular movements and is alternatingly illuminated and exposed in various of its parts in polarized light. A uniform (shock-free) motion of the object to be investigated is assured. The circular motion of the sample may also be limited to

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A Rotating Accessory to the Metallographic Microscope Type MIM-7

32-1-48/55

a certain angle. For this purpose the angular degrees are marked on the edge of this movable plate, and an indicator is mounted in a suitable position. The said movable plate (large gear wheel) has its own ground plate, which is fastened to the table of the microscope. There is 1 figure.

AVAILABLE: Library of Congress

Card 2/2 1. Microscopes-Adapters-Test methods

AUTHOR: Yermakov, V. S.

S07/32-24-7-24/65

TITLE: The Metallography of Non-Ferrous Metals in Polarized Light (Tsvetnaya metallografiya v polyarizovannom svete)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7, pp. 838 - 838 (USSR)

ABSTRACT: This investigation was conducted with a metallographic microscope of the type MIM-7 to which a polarizer and an analyzer were mounted. A cellophane foil with a thickness of 0,05 mm was used as "color sensitive film". A number of colored microphotographs of the alloy EI 437 in various azimuthal positions are reproduced. It may be seen that different grains with a differing crystallographic orientation are differently colored. When the stage of the microscope is rotated the color changes and then returns to the original tinge. By means of some other microphotographs it is shown that this method permits microscopic determinations not only with small, but also with more powerful optical magnifications (1:1530). The contrast in color, however, is reduced. In investigations of cast alloys the dendrite

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formations which exhibit a different crystallographic orientation can be sharply distinguished. Some microphotographs of cast aluminium, copper alloys and zinc are given as well. It can be easily distinguished, which crystallites belong to a certain dendrite. There are 5 figures and 6 references, 2 of which are Soviet.

YERMAKOV, V.S.

PHASE I BOOK EXPLOITATION SOV/3559

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. 5 (Investigations of Heat-Resistant Alloys, Vol 5) Moscow, Izd-vo AN SSSR, 1959. 423 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V.A. Klimov; Tech. Ed.: I.F. Kuz'min; Editorial Board: I.P. Bardin, Academician, G.V. Kurdyumov, Academician, N.V. Ageyev, Corresponding Member, USSR Academy of Sciences (Resp. Ed.), I.A. Oding, I.M. Pavlov, and I.F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgical engineers, research workers in metallurgy, and may also be of interest to students of advanced courses in metallurgy.

COVERAGE: This book, consisting of a number of papers, deals with the properties of heat-resisting metals and alloys. Each of the papers is devoted to the study of the factors which affect the properties and behavior of metals. The effects of various elements such as Cr, Mo, and V on the heat-resisting properties of various alloys are studied. Deformability and workability of certain metals as related to the thermal conditions are the object of another study described. The problems of hydrogen embrittlement, diffusion and the deposition of ceramic coatings on metal surfaces by means of electrophoresis are examined. One paper describes the apparatus and methods used for growing monocrystals of metals. Boron-base metals are critically examined and evaluated. Results are given of studies of interatomic bonds and the behavior of atoms in metal. Tests of turbine and compressor blades are described. No personalities are mentioned. References accompany most of the articles.

4/5

AUTHOR: V.S. Yermakov (Engineer) SOV/129-59-4-3/17

TITLE: Cyclic Ageing of Refractory Steels of the Type EI437 (Tsiklicheskoye stareniye zharoprochnykh splavov tipa EI437)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov, 1959, Nr 4, pp 14-19 (+ 1 plate) (USSR)

ABSTRACT: The method of cyclic ageing consists in combining the effect of temperature on a hardened alloy with cyclically varying stresses produced artificially in the alloy. This is done to accelerate ageing. Various authors studied the combined influence of temperature and static stresses on the process of decomposition of solid solutions of alloys (Refs 3-5) and also the influence on these processes of internal stresses which are generated during decomposition of solid solutions (Refs 6,7). Some of the authors pointed out that static stresses accelerated the decomposition of solid solutions. The author investigated the influence of cyclic stresses on the process of ageing of alloys of the type EI437. The cyclic stresses during ageing can be produced thermally by subjecting the alloy to repeated cyclic heating and cooling in a certain range of temperatures. Due to

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Cyclic Ageing of Refractory Steels of the Type EI437

non-uniform deformation in the individual layers considerable thermal stresses will occur, the magnitude of which will depend primarily on temperature gradient and also on the coefficient of linear expansion and the modulus of elasticity of the alloy concerned. A characteristic feature of "thermal cycle ageing" is that it proceeds at a variable temperature. The experiments were carried out using flat and cylindrical laboratory specimens, sketches of which are reproduced in Fig 1, made of deformable refractory nickel-chromium alloys EI437, EI437A and EI437B. To achieve various heating speeds the specimens were heated by various methods: in salt baths, by direct passage through them of an electric current, by high frequency current, and in an ordinary electric furnace which was considerably hotter than the specified maximum temperature of cyclic ageing. A batch of specimens were quenched in water at room temperature; another batch were cooled by air compressed to 3 - 4 atm. In Fig 2 (p 15) the standard 700°C, 16 hours ageing curve is graphed for the alloy EI437A, and also the ageing curve for thermal cycle ageing at 700 ± 20°C, (quenching in water). For the cyclic ageing

Cyclic Ageing of Refractory Steels of the Type EI437

the heating was effected in a salt bath with a heating duration of 60 sec and a cooling duration of 5 sec. In Fig 3 (p 16) the dispersion hardening curves are graphed for the alloy EI437 in the case of thermo-cyclic ageing at 700 ± 20°C with quenching in water, using various methods of heating of the specimen. As compared to ordinary ageing, heating by passage of an electric current brings about a 50-fold acceleration of the hardening of the alloy; high frequency heating results in a 100-fold acceleration of the hardening. In Fig 4 the variation is graphed in the quantity of the intermetallide phase of the alloy EI437A during thermo-cyclic ageing as a function of the ageing time. In Fig 6 the variation is graphed of the hardness along the cross-section of a cylindrical EI437 specimen of 7 mm diameter after thermo-cyclic ageing. In Fig 7 the dependence is graphed of the long duration heat resistance of the alloy EI437A on the type of thermal cycle ageing and on the number of cycles. In Fig 8 the dependence on the number of cycles is graphed of the long duration heat resistance of the alloy EI437B after thermal cycle ageing with

Cyclic Ageing of Refractory Steels of the Type EI437

heating in an electric furnace. In Fig 9 the dependence on the number of cycles and on the type of thermo-cyclic ageing is graphed of the long duration heat resistance of the alloy EI437. On the basis of the obtained results the following conclusions are arrived at: 1) Thermal cycle ageing of type EI437 refractory alloys enables obtaining tens of times more rapidly at the surface of the specimen, the same degree of hardness as is obtained during ordinary ageing. 2) During thermal cycle ageing only the surface layer of the specimen will be subjected to accelerated hardening whilst the core will only become partially hardened. As a result of this the strength of the specimen will usually be lower than in the case of ordinary heat treatment. 3) The heat resistance of EI437 type alloys after thermal cycle treatment will in a number of cases be lower than the current value of the heat resistance. 4) Thermal cycle ageing can be applied only if the components manufactured from such an ageing

Cyclic Ageing of Refractory Steels of the Type EI437

alloy need not have a high surface strength combined with a relatively tough core.
There are 9 figures and 8 Soviet references.

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YERMAKOV, V.S., kand. tekhn. nauk, glav. red.; LEONKOV, A.M., red.; MINKOV, V.A., red.; PEKELIS, G.B., kand. tekhn. nauk; RESHETNIKOV, D.V., red.

[Coverage of fluctuating electrical loads in electric power systems] Problemy pokrytiia peremennykh elektro-nagruzok v energosistemakh. Minsk, Nauka i tekhnika, 1965. 144 p. (MIRA 18:10)

1. Nauchno-tekhnicheskaya konferentsiya po problemam pokrytiya pikovykh nagruzok obʺyedinennoy energosistemy Severo-Zapada. Minsk, 1963.

YERMAKOV, V.T., inzhener.

Operation of the high-frequency generator manufactured by the Swedish firm ESAB. Prom.energ.11 no.12:12-13 D '56. (MLRA 10:1)
(Electric generators)

AUTHOR: Yermakov, V.T. (Engineer) 133-8-16/28

TITLE: Piercing of stainless steels at an insufficient capacity of the induction motor. (Proshivka nerzhaveyushchikh staley pri nedostatochnoy moshchnosti asinkhronnogo dvigatelya).

PERIODICAL: "Stal'" (Steel), No.8, 1957, p.732 (USSR).

ABSTRACT: A feeding installation for the motor of the piercing mill on the Yuzhnotrubny Works (two reactive feeders operated by closing sectional disconnecting switch) which permits short time overloading of the motor, is described (Fig.1). This prevents cutting off of the motor during the piercing of stainless steel billets. The latter steel is particularly sensitive to changes in temperature during the piercing period, e.g., piercing of a billet of 215 mm dia. at 1200 C takes place at a load of 4000 Kw and at 1180 C the load increases to 5000 Kw.

There is 1 figure.

ASSOCIATION: Yuzhnotrubnyy Zavod . (Southern Pipe Works)

AVAILABLE: Library of Congress

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AUTHOR: Yermakov, V.T. (Engineer) SOV/94-58-9-7/30

TITLE: The use of synchronous motor drive on pipe mills. (Primeneniye sinkhronnogo dvigatelya dlya privoda truboprokatnykh stanov.)

PERIODICAL: Promyshlennaya Energetika, 1958, No.9. pp. 20. (USSR)

ABSTRACT: The production of seamless steel tubes is briefly described. At the Southern Pipe works the automatic pipe mill was driven by a wound rotor induction motor of 800 kW and 600 r.p.m. A flywheel was used. It was decided to replace the induction motor by a synchronous motor partly because the old induction motor needed a major overhaul and partly to increase the output. The starting conditions are not easy even after the flywheel was removed, nevertheless they were found acceptable for use with a synchronous motor type DSZ-1707-8, of 825 kW, 1100 kVA. The starting period was 3 - 4 seconds and the mill could be stopped in 17 seconds. As a result of installing the synchronous motor the power factor was changed from 0.7 lagging to 0.8 leading and the increase in motor speed from 600 to 750 r.p.m. increased

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The use of synchronous motor drive on pipe mills. SOV/94-58-9-7/30

the mill output. The motor is working satisfactorily.

ASSOCIATION: Nikopol'skiy yuzhnotrubnyy zavod (Nikopol' Southern Pipe Works)

1. Electric motors--Applications 2. Electric motors--Performance

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S/133/60/000/011/016/023
A054/A029

AUTHOR: Yermakov, V.T., Engineer

TITLE: Modernized Power Line of the Automatic Mill in the 400-mm Tube Rolling Installation

PERIODICAL: Stal', 1960, No. 11, p. 1025

TEXT: In July 1959 the drive of the automatic mill of the 400-mm tube rolling installation of the Yuzhnotrubnyy Plant was reconstructed: the flywheels having a total weight of 30 tons essential for operating the slip regulator of the asynchronous motor were removed, the asynchronous motor (capacity 1,325 kilowatts) was replaced by a synchronous motor of 2,300 kilowatt capacity at 500 rpm and producing a rolling speed of 4 m/sec. It will no doubt be known that the automatic mill works irreversibly and the load - at the start of rolling - is taken over by the rollers with a certain impact, after which follows the rolling of the tube on the mandrel for 2.5-3 seconds. When measuring the moments of resistance in the spindles by the tensiometric method this impact can be observed very clearly in the initial stage of the operation, whereas it was found from oscillographic observations of the synchronous motor that the peak load, when rolling is started, is not reached instantly, but

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Modernized Power Line of the Automatic Mill in the 400-mm Tube Rolling Installation

after 0.15 sec. Experiments show that the removal of flywheels promote a smooth operation of the power line and extends the useful life of some important parts of the equipment, especially that of the bronze bushes of the Ortmann coupling and its protecting pins, as well as that of the hinged couplings of the spindles. However, when removing the flywheels from the drive, the capacity of the Bibby coupling connecting the drive and the reduction gear of the mill must be increased. The use of synchronous motors in the drive of the automatic tube rolling mill improves the economic-technical indices of this aggregate and reduces the cost of the electric installation in this type of tube rolling mills. There are 3 figures.

ASSOCIATION: Yuzhnotrubnyy zavod (Yuzhnotrubnyy Plant)

YERMAKOV, V.T.

Replacement of asynchronous motors with synchronous motors for driving pipe-rolling mills and methods for selecting their power rating. Prom. energ. 16 no.4:14-16 Ap '61. (MIRA 14:9)
(Rolling mills--Electric driving)

1. YERMAKOV, V. V.

2. USSR (600)

4. Technology

7. Principles of computing hydraulic drive. Moskva, Mashgiz, 1951

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

YERMAKOV, V. V.

"Investigation of the Stability of Telegraphic Communication During Work on Channels of Tonal Telegraphy." Cand Tech Sci, Moscow Electrical Engineering Inst of Communications, Min Communications, Moscow, 1955. (KL, No 10, Mar 55)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

YERMAKOV, V.V., kandidat tekhnicheskikh nauk, dotsent.

Design of passage cross sections in governors used in machine tools with hydraulic drive. Issl. v obl. metallorezh. stan. no.3:134-144 '55. (MLRA 10:2)

(Machine tools--Hydraulic driving)
(Valves)

YERMAKOV, VLADIMIR VIKTOROVICH

AMAN'IN, Sergey Grigor'yevich, professor; ACHERKAN, Naum Samoylovich, professor, doktre tekhnicheskikh nauk; BOGUSLAVSKIY, Boris L'vovich, professor; YERMAKOV, Vladimir Viktorovich, dotsent; IGNAT'YEV, Nikolay Vasil'yevich, dotsent; KUDRYASHOV, Aleksandr Alekseyevich, dotsent; PUSH, Valentin Ervinovich, dotsent; FEDOTENOK, Aleksey Antonovich, dotsent; KHRYKOV, Aleksandr Nikolayevich, dotsent; ROSTOVTSEV, I.A., inzhener, retsenzent; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine tools] Metallorezhushchie stanki. Pod red. N.S.Acherkana. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 1015 p. (MLRA 10:6)
(Machine tools)

SOV/123-59-16-64504

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 16, p 122 (USSR)

AUTHOR: Yermakov, V.V.

TITLE: Heat Treatment in the Flux During Drop Forging

PERIODICAL: Tr. Taganrogsk. radiotekhn. in-ta, 1957, 3, Nr 2, 297 - 304

ABSTRACT: Conditions of isothermic treatment are established, which is recommended instead of the labor-consuming annealing and normalizing operations after drop forging. The tests were carried out with the steel grades: 40, 40Kh, U8A. The isothermic treatment was effected at a temperature of 500-650°C in the course of from 10 seconds to 2 minutes. Samples of steel 40, with a diameter and height of 20 mm, were subjected to deformation after heating them at 800°C. The degree of deformation was regulated from 12 to 40%. Intervals of the decomposition of austenite were established, C-shaped diagrams for details of small size were drawn up, and the influence of deformation on the kinetics of the austenite conversion was studied. As a result of deformations, the conversion of austenite in an isothermic medium slows down and the curves of the termination of decomposition on the C-shaped

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diagram shift to the right. For the cases investigated a temperature of the medium of 550°C is recommended. At this temperature the decomposition time of austenite is 2.5 - 3.0 minutes. The important economic effectiveness of the isothermic treatment process in the flux during drop forging is emphasized. 6 figures.

O.B.M.

YERMAKOV, V.V.

ACHERKAN, N.S.; YERMAKOV, V.V.; IGNAT'YEV, M.V.; KAUFMAN, L.M.; PUSH, V.E.; FEDOTENOK, A.A.; KHARIZOMENOV, I.V.; KHRYKOZ, A.M.; VLASKIN, P.S.; kandidat tekhnicheskikh nauk, dotsent; GANDLER, A.V.; kandidat tekhnicheskikh nauk, dotsent; ALEKSEYEV, P.G., kandidat tekhnicheskikh nauk.

"Machine tools" by V.A.Bravichev and others. Reviewed by N.S. Acherkan and others. Vest.mash. 37 no.5:87-91 My '57. (MLRA 10:5)

1.Kafedra "Metallorezhushchiye stanki" Moskovskogo stankoinstrumental'nogo instituta (Acherkan, Yermakov, Ignat'yev, Kaufman, Push, Fedotenok, Kharizomenov, Khrykoz)
(Machine tools)

RYBKIN, Yevgeniy Aleksandrovich; USOV, Anatoliy Antonovich; YERMAKOV, V.V., kand.tekhn.nauk, retsenzent; BAYDAKOV, G.I., red.izd-va; GORDEYEVA, L.P., tekhn.red.

[Gear pumps for machine tools] Shesterennye nasosy dlia metalloreshushchikh stankov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 186 p. (MIRA 13:7)
(Oil hydraulic machinery)

YERMAKOV, V.V., kand.tekhn.nauk, dotsent

Investigating the reversing process in a rotary hydraulic drive.
Issl.v obl.metallorezh.stan. no.4:187-207 '61. (MIRA 14:12)
(Oil hydraulic machinery--Testing)

YEREMAKOV, V.V.; LESHCHENKO, V.A., kand. tekhn. nauk, retsenzent; [redacted]ERENDIN, A.F., red.izd-va; EL'KIND, V.[illegible]., tekhn. red.

[Hydraulic drive of machine tools; some problems in the design and construction] Gidravlicheskii privod metallo-reshushchikh stankov; nekotorye voprosy rascheta i konstruirovaniia. Moskva, Mashgiz, 1963. 323 p. (MIRA 16:8)

(Machine tools—Hydraulic drive)

ACHERKAN, Naum Samoylovich, zasl. deyatel' nauki i tekhniki RSFSR, doktor tekhn. nauk, prof.; GAVRYUSHIN, A.A.; YERMAKOV, V.V.; IGNAT'YEV, N.V.; KAKOYLO, A.A.; KUDINOV, V.A.; KUDRYASHOV, A.A.; LISITSYN, N.M.; MIKHEYEV, Yu.Ye.; PUSH[illegible]; TROFIMOV, O.N.; FEDOTENOK, A.A.; KHOMYAKOV, V.S.; ABANKIN, V.I., inzh., retsenzent

[Metal-cutting machines in two volumes] Metallorezhushchie stanki. [v dvukh tomakh]. Pod red. N.S.Acherkana. Moskva, Mashinostroenie. Vol.2. 2. perer. izd. 1965. 628 p. (MIRA 18:12)

ACHERKAN, N.S., doktor tekhn. nauk, prof., zasl. deyatel' nauki i tekhniki RSFSR; GAVRYUSHIN, A.A., kand. tekhn. nauk; YERMAKOV, V.V., kand. tekhn. nauk, dots.; IGNAT'YEV, N.V., kand. tekhn. nauk, dots.; KAKOYLO, A.A., inzh.; KUDINOV, V.A., kand. tekhn. nauk; KUDRYASHOV, A.A., kand. tekhn.nauk, dots.; LISITSYN, N.M., kand. tekhn. nauk, dots.; MIKHEYEV, Yu.Ye., dots.; PUSH, V.E., doktor tekhn. nauk, prof.; TRIFONOV, O.N., kand. tekhn. nauk, dots.; FEDOTENOK, A.A., doktor tekhn. nauk, prof.; KHOMYAKOV, V.S., kand. tekhn. nauk; ABANKIN, V.I., inzh., retsenzent

[Metal cutting machines] Metallorezhushchie stanki. Moskva, Mashinostroenie. Vol.1. 1965. 764 p. (MIRA 18:10)

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ACC NR: AP6012124 SOURCE CODE: UR/0413/66/000/007/0043/0044

AUTHORS: Leont'yev, N. N.; Malakhovskiy, A. E.; Zakharov, M. A.; Pershutov, G. G.; Petrov, S. P.; Yermakov, V. V.; Komkov, A. N. 54

ORG: none

TITLE: A blower blade. Class 27, No. 180289

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 43-44

TOPIC TAGS: blade profile, rotor blade, industrial blower, ventilation fan

ABSTRACT: This Author Certificate presents a blower blade 2/0 fastened by a shaft and a coupling section to the sleeve of the driving wheel. The design increases the operating reliability under alternating loads. The shaft, at the point of fastening to the blade, has a longitudinal cross section made up of two frustums of a cone, combined along the smaller bases. These frustums are coated together with the entire blade by an overall layer of glass-reinforced plastic. This layer is tightly drawn together by means of a split tapered metal bushing and a disengaging coupling section (see Fig. 1). These units are coated with a subsequent

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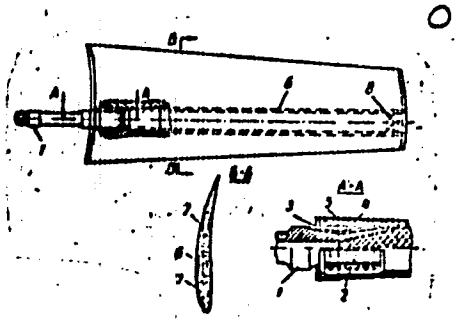

Fig. 1. 1 - shaft; 2 - disengaging coupling section; 3 - glass-reinforced plastic layer; 4 - tapered split bushing; 5 - subsequent layer of glass-reinforced plastic; 6 - power spar; 7 - auxiliary spars; 8 - disks

layer of plastic deposited on the framework to produce the operating profile of the blade. The blade framework includes a power spar and auxiliary spars which form (in the transverse cross section) the operating profile. The blade carries on its end part a set of balancing disks. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 12Feb65

Card 2/2 mat

YERMAKOV, V.V.; BRONNIKOV, I.S.

Selenium content in the pasture vegetation and feeds of Ulety District, Chita Province. Zap. Zabaik.otd. Geog. ob-va SSSR no. 18:86-94 '62. (MIRA 17:6)

YERMAKOV, V. V.

Ostetrics

Dissertation: "Birth by Brow Presentation." Cand Med Sci, Second Moscow Medical Inst imeni I. V. Stalin, 8 Mar 54. (Meditsinskiy Rabotnik, Moscow, 2 Mar 54).

SO: SUM 213 20 Sep 1954

TIKOTIN, M.A., dots., YERMAKOV, V.V.

Pages from the story of the role of medicine in the defense of Sevastopol; on the 100th anniversary of the defense of Sevastopol. Trudy LMI 2:313-322 '55 (MIRA 11:8)

1. Kafedra istorii meditsiny (zav. - dots. M.A. Tikotin) Pervogo Leningradskogo meditsinskogo instituta imeni akademika I.P. Pavlova.
(SEVASTOPOL--HISTORY)
(MEDICINE, MILITARY)

YERMAKOV, V.V., kandidat meditsinskikh nauk

Biomechanics of birth in cases of brow presentation. Akush. i gin. no.4:32-35 Jl-Ag '55. (MLRA 8:11)

1. Iz kafedry akusherstva i ginekologii (zav.prof. I.F.Zhordania) lechebnogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V.Stalina.

(LABOR, PRESENTATION
brow, biomechanics)

YERMAKOV, V.V.

Plea for improvement in training pharmacists with higher education. Apt.delo 4 no.5:27-30 S-O '55 (MLRA 8:12)

1. Kandidat meditsinskikh nauk sam.nach. GUUZ Ministerstva zdravookhraneniya SSSR V.V.Yermakov.
(PHARMACY, education in Russia)

YERMAKOV, V.V., kandidat meditsinskikh nauk; SAVCHENKO, M.G.

Institutes for postgraduate training of physicians and their role in specialising and advanced training for physicians in the U.S.S.R. Sov.med. 19 no.6:68-76 Je '55. (MLRA 8:9)

1. Iz Glavnogo upravleniya uchebnymi zavedeniyami Ministerstva Zdravookhraneniya SSSR.

(EDUCATION, MEDICAL,
in Russia, postgraduate training)
(SPECIALISM,
in Russia, postgraduate training)

YERMAKOV, V.V.

YERMAKOV, V.V., kandidat meditsinskikh nauk

Etiology of brow presentation in labor. Sov.med.19 no.8:45-51 Ag '55. (MLRA 8:10)

1. Iz kafedry akusherstva i ginekologii (zav.-prof. I.F.Zhordania) lechebnogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V.Stalina.

(LABOR PRESENTATION, brow, etiol.)

YERMAKOV, V.V., kandidat meditsinskikh nauk (Moskva); SOVCHENKO, M.G. (Moskva)

Advanced training by correspondence for directing personnel in the public health service. Sov.med. 20 no.7:74-77 Jl '56. (MLRA 9:10)
(PUBLIC HEALTH, educ. in Russia, correspondence courses for leading teams)

YERMAKOV, V. V.

3-5-14/38

AUTHORS: Yermakov, V.V., Doctor of Medical Science, Dotsent and Starobinskiy, I.M., Professor

TITLE: To Solve in a More Active Way the Tasks Set by "The Letter I-100" (Aktivneye reshat' zadachi, postavlennyye "Pis'mom I-100") Success Depends on the Initiative of the Chairs (Uspekh zavisit ot initsiativy kafedr)

PERIODICAL: Vestnik vysshey shkoly, 1957, Nr 5, pp 38-41 (USSR)

ABSTRACT: The author states that measures taken in accordance with the instructions of "Letter I-100" are now beginning to show results.

The schedule of the first Medical Institute of Moscow provides 5 days school work and one day practical work at chairs, clinics and laboratories. At the clinic of Professor N.N. Yelanskiy, for instance, (IVth course of the medical faculty) there were 39 operations performed in three days, in which students assisted. 14 operations were carried out by the students under the direct supervision of the professor.

There are, however, medical institutes, which do not comply with the "Letter I-100". G. Savastenko, Dotsent at the Minsk Medical Institute states in the newspaper "The Soviet

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To Solve in a More Active Way the Tasks Set by "The Letter I-100". Success Depends on the Initiative of the Chairs

Medical Man" (Sovetskiy Medik) No 6-7, 1957, that some chairs still do not take these instructions seriously enough.

This is true of the Voronezh Medical Institute. The collective of this Institute consisting of 100 Professors, Dotsents and Candidates of Science, and 180 Teachers and Assistants, do not show enough interest in this very important document.

The author believes that a number of lectures can be reduced for various disciplines, such as "Physiology" (132 hours), "Anatomy of Man" (118 hours) "Biology" (86 hours). There is also the possibility of reducing the group practical work. The author proposes to divide the practical work into three sections. First: work of demonstrative character, e.g. practical work on physiology and pathological physiology; second: more active, but supervised work (e.g. surgical obstetrics, surgery); third: independent work. Students of the VIth course should not take part in the clinical work of the IInd and IVth course, as is done at the Ist Medical Institute of Moscow. Attention is invited to the work of the Minsk, Vitebsk, Stavropol' and Stalino Medical In-

To Solve in a More Active Way the Tasks Set by "The Letter I-100". Success Depends on the Initiative of the Chairs

stitutes which prepare students for their future working conditions and practical work.

The system of examinations on practical work must be carefully considered. The author suggests the teacher examine the student on his work but not by a systematic test. The introduction of intermediate examinations in the IInd course on anatomy, hystology, physiology and biological chemistry was made for the purpose of improving the quality of training and permitting the Vuzes to expell unsuccessful or lazy students. This right, however, is not efficiently utilized.

The author states that a new system of distribution of scholarships will systematize the evaluation of a student's knowledge and increase the requirements in examinations. Because of the increased independence in their instruction and more free time for this work, the students need good manuals. The activity of professors and teachers in this matter must be increased to assure the success of "Letter I-100".

It appears that many medical institutes neglect instructive-methodic work. This, however, is not the case with the Riga Institute of Medicine, where good results have been obtained.

3-5-14/38

To Solve in a More Active Way the Tasks Set by "The Letter I-100". Success Depends on the Initiative of the Chairs

ASSOCIATION: The Administration of Staff and Educational Institutions of the Ministry of Health, USSR (Upravleniye kadrov i uchebnykh zavedeniy Ministerstva zdravookhraneniya SSSR)

AVAILABLE: Library of Congress

Card 4/4

JERMAKOV, V.V.; SAVCHENKO, M.G. (Moskva).

Graduate studies by correspondence of the leaders of public health workers. Sovet. zdravoot. 5 no.1:42-45 Jan 57.

(PUBLIC HEALTH, educ.
graduate studies by correspondence (Cs))

YERMAKOV, V.V., dotsent; STAROBINSKIY, I.M., prof.; KOZLOV, A.M., dotsent

Forty years of higher medical education in the U.S.S.R. Sov.zdrav. 16 no.10:19-24 O '57. (MIRA 10:12)
(EDUCATION, MEDICAL, hist.
in Russia)

YERMAKOV, V.V.

YERMAKOV, V.V., dotsent; STAROBINSKIY, I.M., prof.

Problems of prophylaxis in higher medical education. Sov.med. 21 no.10:119-127 O '57. (MIRA 11:1)

1. Iz Upravleniya kadrov i chebnykh zavedeniy Ministerstva zdravookhraneniya SSSR.
(EDUCATION, MEDICAL) (MEDICINE, PREVENTIVE, educ.)

YERMAKOV, V.V., dotsent., SAVCHENKO, M.G.

The present status and the future of regular and advanced training for physicians in public health work. Sov.zdrav. 17 no.10:7-10 0 '58 (MIRA 11:11)

1. Iz Upravleniya kadrov i uchebnykh zavedeniy Ministerstva zdravookhraneniya SSSR.
(SANITATION, educ.
in Russia (Rus))

YERMAKOV, V.V.

State of industrial practice of students in medical institutes.
Sov.med. 22 no.7:145-150 Jl '58 (MIRA 11:10)

1. Zamestitel' nachal'nika Upravleniya kadrov i uchebnykh zavedeniy Ministerstva zdravookhraneniya SSSR.
(SCHOOLS, Medical
med. student train. in indust. practice (Rus))
(INDUSTRIAL HYGIENE,
same (Rus))

YERMAKOV, V.V., dotsent, SAVCHENKO, M.G.

A brief historical sketch on the training of obstetricians and gynecologists in the USSR. Akush. i gin. 34 no.2:96-100 Mr-Ap '58. (MIRA 11:5)
(OBSTETRICS, educ
in Russia (Rus))
(GYNECOLOGY, educ.
same)

YERMAKOV, V.V.; MIL'NICHENKO, A.K.; POPOV, G.A.

Status and prospects for the training of pharmaceutical personnel in the U.S.S.R. Apt.delo 8 no.3:31-38 My-Je '59. (MIRA 12:8)

(PHARMACY--STUDY AND TEACHING)

YERMAKOV, V. V., dotsent (Moskva)

The certification of the physician is an important problem of the state. Klin. med. no.8:144-145 '61. (MIRA 15:4)

1. Iz otdela meditsinskikh uchebnykh zavedeniy i kadrov (nach. - dotsent V. V. Yermakov) Ministerstva zdravookhraneniya SSSR.

(MEDICAL LAWS AND LEGISLATION)

YERMAKOV, V.V., dotsent; BARAKOVSKIY, V.V.

Immediate tasks in the advanced training of subprofessional medical personnel. Med. sestra 20 no. 2:10-14 F '61. (MIRA 14:4)
(MEDICINE—STUDY AND TEACHING)