[illegible]-59-[illegible]/12

Experimental Industrial Lot of Pipes Made From Thermically [illegible] Carbon Steel

temperature of 950 ± 10°C; each sheet [illegible] in water during 1 minute in a vertical position. [illegible] tempering process consisted in the heating of each sheet [illegible] to a temperature of 540 ± 10°C during 20 minutes and subsequent cooling by air. In all tested sheets temporary tensile strength was 50-60 kg/mm²; yield point was 3[illegible] kg/mm² and relative elongation (δ_5) over 1[illegible]%; after artificial aging, toughness at a temperature of -[illegible]°C exceeded 3 m kg/cm²; bending angle was 180°. Ratio of the yield point to temporary tensile strength was less than 0.8. After thermal treatment the sheets were subjected to cold dressing in a 7-roller mill during 5-7 minutes and bent to shape in a 4-roller mill, the bending process lasting from 3-5 minutes for each sheet. Automatic welding was done with electrode rods Sv10GS under flux OSTs-45 with a current of 38-44 v and 750-650 a. After welding the pipes were subjected to cold rolling during 3-5 minutes. Ends of pipes were calibrated and chamfered. In this condition reception tests were made on 2 pipes of the same smelt, to determine mechanical properties of the welded joint and of the fused on metal:

Card 2/4

[illegible]33-59-4-3/32

Experimental Industrial Lot of Pipes Made From Thermically Hardened Carbon Steel

Results of tests are shown in Table Nr 3. Values of toughness under dynamic tests are shown in Table 4. At room temperature the toughness is 6.5-14.0 m kg/cm^2. The lower the temperature the lower the toughness and the greater the amount of crystalline portions; at -40°C for instance the fracture is almost entirely crystalline and the toughness is 4.0-7.0 m kg/cm^2. The fused on metal differs from basic metal by a lower toughness under all temperatures. A comparative Graph Nr 1 shows the difference [illegible] strength between basic metal, fused on metal and metal in intermediate zones. Chemical composition of fused on metal is shown in Table Nr 5. At first it appeared as though welded, thermically hardened carbon steel pipes should work out slightly more expensive than pipes from low-alloy steel of MK grade. Successive improvements of thermal treatment will, however, lower the cost of production of the pipes from St.3(sp) steel, which will work out cheaper in the end than the pipes from

Card 3/4

SOV/93-5[illegible]-4-3/12

Experimental Industrial Lot of Pipes Made from Thermically Hardened Carbon Steel

low-[illegible] [illegible]K grade steel. The industrial trial lot of 42 tons of welded, thermically hardened carbon steel pipes proved their fitness for high pressure gas and oil pipeline work.
There are 3 table, 1 graph and [illegible] microphotographs.

Card [illegible].

PHASE I BOOK EXPLOITATION SOV/4923

Krasil'shchikov, Zal'man Naftal'yevich, Nikolay Vladimirovich Shmidt, Yevgeniy Nikolaevich Shvach, Nikolay Timofeyevich Pavlenko, and Stepan Yefimovich Nechepurenko

Termicheskoye uprochneniye nezakalivayushcheysya uglerodistoy stali (Thermal Strengthening of Nonhardenable Carbon Steel) Leningrad, Sudpromgiz, 1960. 146 p. 4,200 copies printed.

Scientific Ed.: G. I. Kapyrin; Ed.: R. D. Nikitina; Tech. Ed.: N. V. Erastova.

PURPOSE: This book is intended for technical and scientific personnel of metallurgical plants, scientific research organizations, and laboratories. It may also be useful to students in metallurgical institutes and departments.

COVERAGE: The book reviews problems of attaining by thermal strengthening significant improvement in the mechanical properties of that carbon steel which cannot be quench-hardened. The term "thermal strengthening" is used to distinguish this process from regular

Card 1/4

heat treatment of hardenable steels. Experience in developing and introducing the thermal strengthening of carbon steel is generalized. The authors state that thermal strengthening increases the ultimate strength and the yield point of carbon steel by 20-30%. As a result of the use of thermally-strengthened carbon steel, the consumption of steel in producing a given object is reduced 20% or more. The authors acknowledge the contributions of P. M. Dontsov, Candidate of Technical Sciences, A. S. Vladimirov and O. T. Vnukova, Engineers, and G. A. Pashenko, and A. P. Rud', Senior Technicians, and thank N. G. Gavrilenko, Engineer, for his help in organizing the experimental investigations at a number of plants under actual working conditions. There are 32 references: 26 Soviet and 6 German.

TABLE OF CONTENTS:

22724

1.1710

S/095/60/000/006/001/001
A053/A129

AUTHORS: Krasil'shchikov, Z.N., Candidate of Technical Sciences, Shvach, Ye. N., Nechepurenko, S.Ye., Engineers (Zhdanov city)

TITLE: Welded pipes of greater strength

PERIODICAL: Stroitel'stvo trub provodov, no. 6, 1960, 11 - 14

TEXT: In order to probe the effectiveness of the hardening thermic treatment, experimental pipes were produced from medium-carbon СУ (SU) steel, containing 0.26% of carbon and 1.05% of manganese, and from low-alloy steel of 14ХГС (14KhGS) grade containing 0.14% carbon, 1.25% manganese, 0.54% silicon and 0.64% chrome. Maximum hardening effect was obtained after tempering in water with austenitic temperature of 920 ± 10°C. The strength of hardened steel greatly decreases from a tempering temperature of 500°C during 0.5 hours, while plasticity and toughness considerably increase. A good combination of mechanical properties in medium-carbon steel is obtained with a tempering temperature of 670°C, resulting in a yield point of 59-61 kg/mm², a tensile strength of 70 kg/mm², a relative elongation exceeding 20%, a relative contraction of cross section exceeding 55% and a toughness of 5.5-6.5 kgm/cm² at temperatures between +20°C and -40°C. Low-

Card 1/3

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

22724

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A053/A129

Welded pipes of greater strength

alloy steel 14KhGS in the tempered state at equal plasticity and toughness has a slightly lower tensile strength in comparison with medium-carbon steel. Supplementary tests were conducted at the Khartsyzskiy zavod (Khartsyz Plant) using 680-720 mm pipes with a wall thickness of 10 mm. Steel was thermically treated in sheets prior to being processed and after being processed as finished pipes. The micro-structure of the medium-carbon steel after tempering and annealing consisted of sorbite and a very small amount of ferrite, whereas in 14KhGS steel structural-free ferrite existed in larger quantities. The article gives in detail the results of the supplementary tests. The yield point for both brands of steel exceeded 41 kg/mm^2, but the tensile strength was above 60Kg/mm^2. In both cases bending at 180° was possible without showing cracks; toughness at +20°C exceeded 6 kgm/cm^2; at -70°C toughness of 14KhGS steel lies between 3-6.5 kgm/cm^2 and of SU steel within the limits of 3.5-7.5 kgm/cm^2. Crystalline sections appear in fractures of 14KhGS steel at -20°C and in SU steel at -40°C. Investigations of toughness of thermically treated and subsequently aged samples revealed that mechanical aging somewhat lowers the toughness, but maintains it at a high level; even at -70°C toughness exceeds 3.5 kgm/cm^2. Thermic aging does not interfere with the toughness, but the combination of mechanical and thermic aging is apt to lower toughness of steel most especially in the low-alloy steel of 14KhGS grade. Tests revealed that the strength

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Welded pipes of greater strength

S/095/60/000/006/001/001
A053/A129

of welded pipe joints of medium-carbon steel after thermic treatment was not below 60 kg/mm^2 and in case of low-alloy 14KhGS steel between 56 and 60 kg/mm^2. Toughness of the metal of the welded seam is for both grades within the zone of thermic treatment within 9-13 kgm/cm^2 at +20°C and 7-10 kgm/cm^2 at -40°C. On the basis of results of tests the authors draw the following conclusions: Medium-carbon and low-alloy steel (SU and 14KhGS) can be used after thermic treatment to produce pipes with a yield point exceeding 40 kg/mm^2 and with a tensile strength of 55-60 kg/mm^2. In view of mechanical properties of pipes and technological considerations preference should be given to production of pipes from hot-rolled sheets with subsequent thermic treatment. The utilization of medium-carbon and low-alloy steels for the production of large-diameter welded pipes in a thermically hardened state will reduce steel consumption in pipelines working at high pressure. There are 3 tables, 2 graphs and 2 photographs.

Card 3/3

VOLOKHVAYNSKAYA, E.S., kand.tekhn.nauk; GLADYREVSKAYA, S.A., kand. tekhn.nauk; KRASIL'SHCHIKOV, Z.N., inzh.; PAVLENKO, N.T., kand.tekhn.nauk

Investigating the thermal hardening of St. 3 steel. Trudy TSNII MPS no.195:162-175 '60. (MIRA 13:9)
(Steel alloys--Heat treatment)

18 8200
55330

21396
S/032/61/027/012/009/015
B104/B108

AUTHORS: Krasil'shchikov, Z. N., and Shvach, Ye. N.

TITLE: Investigation of the impact strength of steel by tensile testing

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 12, 1961, 1505 - 1509

TEXT: Fracture tests were conducted with an МИМ-6 (MIM-6) microscope on Cr-Ni-Mo, Cr-Mn-Mo, and carbon steels. The minimum, maximum, and mean linear dimensions of the crystal facets, as well as the crystallinity coefficient of the fracture surface were determined. All facets within the visual field of the microscope were measured for the determination of their mean linear dimensions. The crystallinity coefficient was calculated from $f = \frac{l^2_{mean} \cdot N}{S} \cdot 100$, where l_{mean} is the mean linear dimension of the facets in a given field of view in μ, and S is the surface area of the field of view, in μ^2. The results of the fracture analysis depend on

Card 1/2

the magnifying power of the microscope. At different strengths of the specimens, an identical structure of the fractures corresponds to different impact strengths. The estimation of the impact strength from the fracture must therefore be made bearing in mind the strength (hardness). The impact strength of specimens of equal strength decreases continuously with increasing dimension of the facets. The results show that for every steel brand nomograms can be drawn up for determining its impact strength from the hardness and structure of the fracture. There are 3 figures, 2 tables, and 4 Soviet references.

X

S/095/62/000/002/001/001
1031/1231

AUTHOR: Krasil'shchikov, Z. N., Candidate of Technical Sciences, Nechepurenko, S. E., Engineer, and Shvach, E. N., Engineer (Zhdanov)

TITLE: Investigation of heat-treated carbon-steel pipes

PERIODICAL: Stroitel'stvo truborovodov, No. 2, 1962, 12-14

TEXT: Heat-treated St.3(Sp) carbon steel pipes were studied to determine whether St. 3(Sp) carbon steel could replace low-alloyed steel in the manufacture of gas- and oil pipes. The physical properties of the base metal and the welds of an experimental batch of 41 pipes were investigated. The tensile properties, impact strength and ductility in both base metal and welding seams were satisfactory. The pipes were also subjected to hydrostatic tests. The macrostructure and hardness of the welds yielded satisfactory results. Application of heat-treated carbon steel in the manufacture of high-test line pipe is justified from both the technical and the economic standpoints. There are 4 figures and 4 tables.

Card 1/1

KRASIL'SHCHIKOVA, B., inzh.; KHEYFETS, G., inzh.

Painting drinking water tanks with paints having an Kh-40 synthetic resin base. Mor.flot 19 no.9:33-34 S '59. (MIRA 12:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut morskogo flota.
(Tanks) (Paint)

BERSHTEYN, V.A.; KRASIL'SHCHIKOVA, B.L.; MATVEYEV, V.M.; RYT, E.Sh.; KHEYFETS, G.M.

Paints used for protecting the underwater portion of seagoing ships' hulls from corrosion and fouling. Trudy TSNIIMF no.25: 31-72 '59. (MIRA 12:8)
(Paints) (Ships--Painting)

BERNSHTEYN, V.A.; KRASIL'SHCHIKOVA, B.L.

Nonmetallic coatings for corrosion protection of inner surfaces of oil tanker tanks. Trudy TSNIIMF no.25:73-86 '59.
(MIRA 12:8)

(Protective coatings) (Tank vessels--Painting)

BERSHTEYN, V.A., inzh.; KRASIL'SHCHIKOVA, B.L., inzh.

Nonmetallic coatings used for protecting oil-tanker tanks from corrosion. Sudostroenie 25 no.3:38-42 Mr '59. (MIRA 12:5)

(Protective coatings) (Tank vessels)

BERSHTEYN, V.A., inzh.; KASHAYEV, I.N., inzh.; RYT, E.Sh., inzh.; TSODIKOVA, S.T., inzh.; Prinimali uchastiye: KRASIL'SHCHIKOVA, B.L., inzh.; KONONOVA, N.I., inzh.; MATVEYEV, V.M., inzh.

Results of testing synthetic antifouling paints for seagoing ships. Sudostroenie 28 no.4:41-44 Ap '62. (MIRA 15:4)
(Fouling of ship bottoms) (Ships--Painting)

BERSHTEYN, V.A.; KRASIL'SHCHIKOVA, B.L.; NIKONOVA, S.N.; SHABADASH, A.N.

Mechanism of the effect of the thermochemical treatment of glass fibers on the strength of polyester glass plastics. Plast.massy no.10:30-35 '63. (MIRA 16:10)

BERSHTEYN, V.A., inzh.; Prinimali uchastiye: KRASIL'SHCHIKOVA, B.L., inzh.; NOVIKOVA, Ye.V., inzh.; LAVROV, A.V., inzh.; GREKOV, D.I., inzh.; KITAYCHIK, V.A., inzh.; GLIKMAN, L.A., prof., doktor tekhn. nauk; SUPRUN, L.A., kand.tekhn.nauk, nauchnyy red.; SHRUBEF, P.I., kand.tekhn.nauk, otv.red.

[Stress-rupture strength and creep of glass-reinforced plastics for use as shipbuilding material.] Dlitel'naia prochnost' i polzuchest' stekloplastikov kak sudostroitel'nykh materialov. Leningrad, Izd-vo "Morskoi transport," 1963. 92 p. (Leningrad. TSentral'nyi nauchno-issledovatel'skii institut morskogo flota. Trudy, no. 53) (MIRA 17:6)

1. Sotrudniki TSentral'nogo nauchno-issledovatel'skogo kotloturbinnogo instituta imeni Polzunova (for Grekov, Kitaychik).

L 11320-65 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPR/EWP(j)/T/EWP(b) Pc-4/Pq-4
Pr-4/Ps-4/Pt-10 WW/RM/WH
ACCESSION NR: AP4009834 S/0191/64/000/001/0047/0052

AUTHOR: Bershteyn, V. A.; Glikman, L. A.; Kresil'shchikova, B. L.

TITLE: Effect of thermochemical treatment of glass fiber on the time-strength characteristic of glass-reinforced polyester plastic in air and sea water

SOURCE: Plasticheskiye massy*, no. 1, 1964, 47-52

TOPIC TAGS: polyester plastic, glass reinforced plastic, glass fiber chemical treatment, glass fiber hydrophobicity, glass cloth strength

ABSTRACT: The effect of time on the strength of glass-reinforced polyester plastic (RPP) in pure bending is very pronounced and specific for each type of previous glass fiber treatment. There is no direct correlation between the long-term (based on 1000 and 2000 hours) and the original strength of RPP. The equation obtained for homogeneous materials holds for the time-strength function for the RPP, for the binder, glass fiber and resin-glass cloth adhesive bonds; the only exceptions are "clean" glass fibers and plastics based thereon, and fibers with lubricant (in water). The need for thermochemical treatment of glass cloth

Card 1/2

L 11320-65
ACCESSION NR: AP4009854

is shown by the time-strength characteristic of the adhesive bonds of RPP which is affected by water much more when the glass fiber is untreated. A proposed mechanism for the failure of polyester RPP on pure bending (or compression) is based on the gradual breaking of resin-glass adhesive bonds (which are usually the strength-determining factor, rather than glass cloth or resin strength). However, in the case of RPP made of cloth without lubricant, the strength in sea water is determined by the strength of the glass fiber. Orig. art. has: 5 figures, 1 table, and 1 equation.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 011 OTHER: 005

Card 2/2

KRASIL'SHCHIKOVA, D.I.

Stability of original bonds in memory processes. Vop. psikhol. 2 no.6:65-82 N-D '56. (MLRA 10:2)

1. Rostovskiy-na-Donu pedagogicheskiy institut.
(Memory)

KRASIL'SHCHIKOVA, D.I.; KHOKHLACHEV, Ye.A.

Memorization of words of a foreign language in relation to methods of explaining their meaning and to memorization time. Vop. psikhol. 6 no. 6:65-74 N-D '60. (MIRA 13:12)

1. Pedagogicheskiy institut i Institut usovershenstvovaniya uchiteley, Rostov-na-Donu.
(Language and languages--Study and teaching)

KRASIL'SHCHIKOVA, D.I.

"Involuntary memory" by P.I.Zinchenko. Reviewed by D.I. Krasil'shchikova. Vop. psikhol. 8 no.4:151-155 Jl-Ag '62.
(MIRA 16:1)

1. Pedagogicheskiy institut, Rostov-na-Donu.
(Memory) (Zinchenko, P.I.)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

KRASILSCHIKOVA, E.A. [Krasilshchikova, Ye.A.

Unsteady motion of finite wing span in a compressible medium.
Archiw mech 16 no.2:285-290 '64.

1. Department of Aerodynamics. Institute of Mechanics, Moscow.

KRASIL'SHCHIKOVA, G.A.

GAL'PERIN, Ye. I.; KRASIL'SHCHIKOVA, G.A.; MIRONOVA, V.I.; FROLOVA, A.V.

Techniques in using stereographic projections for solving three-dimensional problems in geometrical seismology. Prikl. geofiz. no.18: 3-29 '58. (MIRA 11:5)

(Seismometry) (Projection)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

KRASIL'SHCHIKOVA, I.

A new psychology textbook ("Psychology," edited by Smirnov and others. Reviewed by D.I. Krasil'shchikova). Vop. psikhol. 4 no.2:143-149 Mr-Ap '58. (MIRA 11:5)

1. Kafedra pedagogiki i psikhologii Rostovskogo-na-Donu pedagogicheskogo instituta.

(Psychology)

Kraslishchikova, V.I.

PHASE I BOOK EXPLOITATION SOV/3276

Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.

Prikladnaya geofizika; sbornik statey, vyp. 18 (Applied Geophysics; Collection of Articles, No. 18) Moscow, Gostoptekhizdat, 1958, 286 p. Errata slip inserted. 3,000 copies printed.

Ed.: A.I. Bogdanov; Executive Ed.: N.P. Dobrynina; Tech. Ed.: E.A. Mukhina.

PURPOSE: The book is intended for engineers, technicians, geophysicists, and persons interested in the geophysical methods of petroleum prospecting.

COVERAGE: The book is a collection of 15 articles dealing with the theoretical and practical problems of electrical sounding, seismic prospecting and gravimetry. Advances in electrical prospecting in not easily accessible regions and in the ocean are treated for the first time in Soviet literature. New methods for the investigation and detection of radioactive emissions of drill holes, as well as optical and luminescence logging are analyzed. No personalities are mentioned. References accompany most of the articles.

AVAILABLE: Library of Congress (TN269.P7)

JA/cdr/mas
8-18-60

Card 4/4

(21)

AAIR

Aeroelasticity (Flutter, Divergence, etc.) 3

June '48

1034. E. A. Krasilshchikova, "Disturbed motion of air caused by vibration of a wing moving at supersonic speed" (in Russian), Appl. Math. Mech. (Prikl. Mat. Mekh.), Jan.-Feb. 1947, vol. 11, pp. 147-164.

The author considers the problem of a vibrating thin wing, normal to the z-axis and moving at supersonic speed in the x-direction. The velocity potential $\varphi = \varphi^{(0)}(x,y,z) + \varphi^{(1)}(x,y,z,t)$, where $\varphi^{(1)}$ is the transient potential, is assumed to satisfy the linearized equation $(M^2_0 - 1)\varphi_{xx} + \varphi_{yy} + \varphi_{zz} - \varphi_{tt} + 2M_0\varphi_{xt} = 0$. The flow is assumed to be symmetric with respect to the x-y plane. Behind the wing an infinite half-strip of discontinuity Σ in the x-y plane is assumed, along which the values of φ_z, $\varphi_z^{(1)}$ and $(\varphi_t^{(1)} - u\varphi_x^{(1)})$ are equal for $z \to +0$ and $z \to -0$. On the intersection S of the wing with the x-y plane we have $\varphi_z^{(0)} = A_0(x,y)$, $\varphi_z^{(1)} = ReA_1(x,y)e^{i\omega t}$, where $z = A_0(x,y)$ is the equation of the boundary of the wing, and $A_1(x,y)$ and ω are given quantities. Along the Mach surface of the leading edge and finally in the domain σ bounded by the Mach surface and the discontinuity strip, we have $\varphi(x,y,z,t) = 0$.

The author assumes the solution $\varphi^{(1)}$ of the form $\varphi^{(1)} = ReF(x,y,z)e^{\beta x + i\omega t}$, where F satisfies a linear equation and corresponding boundary conditions. She considers at first a wing of infinite span, in which case the equation for F assumes the form $F_{xx} - F_{yy} - \lambda^2 F = 0$, which equation is solved by Riemann's method. She obtains for F an expression which in the special case $\lambda = 0$ coincides with the formula obtained previously by Ackert.

Using the results obtained for the plane problem she obtains by means of Fourier series the expression

$$F(x,y) = \frac{1}{\pi}\iint_{\sigma(x,y)} \frac{A(\xi,\eta)\cos\left[\lambda\sqrt{(x-\xi)^2-(y-\eta)^2}\right]}{(x-\xi)^2-(y-\eta)^2}\,d\eta\,d\xi$$

for a wing of finite span. If the leading edge of the wing is given by $x = \psi(y)$, the trailing edge $x = \chi(y)$, the assumption is made that on the contour the values $\partial\psi/\partial y$ and $\partial\chi/\partial y$ do not exceed the cotangent of the Mach angle. The solution of a finite wing with arbitrary leading edge is reduced to an integral equation

$$\iint_{\sigma(\xi,\eta)} \frac{\theta(\xi',\eta')\cos\left[\lambda\sqrt{(\xi-\xi')^2-(\eta-\eta')^2}\right]}{\sqrt{(\xi-\xi')^2-(\eta-\eta')^2}}\,d\eta'\,d\xi' = D(\xi,\eta)$$

where D is a known function.

Finally the author gives the solution of the second basic problem in the theory of vibrating wings: Assuming the distribution of pressure over a wing, to determine normal components of the velocity and to determine the form of oscillation.

Stefan Bergman, USA

PA 58T3

KRASIL'SHCHIKOVA, Ye. A.

May 1947

USSR/Aeronautics
Velocity, Ultrasonic
Flow, Turbulent

"Turbulent Flow of Air Caused by the Vibrations of a Foil Moving at Supersonic Speeds," Ye. A. Krasil'shchikova, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVI, No 6

Examines linearized problem of vibrations of a fine deformed foil moving at supersonic speeds under normal conditions. Submitted by Academician L. S. Leybenzon, 1 Dec 1946.

58T3

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

PA 36T3

USSR/Aeronautics
Flow, Turbulent
Velocity, Ultrasonic

Nov 1947

"The Effect of Turbulent Flow during the Settled Movement of Wings at Supersonic Speeds," Ye. A. Krasil'shchikova, 3 pp

"Dok Ak Nauk" Vol LVIII, No 6

Discusses a linear problem of the usual arrangement of the straight line forward movement of a thin wing of terminal spread moving at a constant speed $u > a$, where a is the speed of sound in a static gas. Also discusses a wing, whose leading edge can be represented by the equation $y = \psi, (x)$, and whose trail-

36T3

USSR/Aeronautics (Contd) Nov 1947

ing edge can be represented by the equation $y = \chi$ (x). Determines the significance of $d\varphi/dz$ in the zone DLP which conforms to $D_1L_1P_1$. Uses formulas to determine the potential φ at point M(x,y) on the turbulent flow. L. I. Sedov was very helpful with his suggestions. Submitted by Academician M. V. Keldysh 11 May 1947.

36T3

KRASIL'SHCHIKOVA, Ye. A.

KRASIL'SHCHIKOVA, E. A.

Disturbed motion of air caused by vibrations of a wing moving at supersonic speed. Providence, R. I., 1949. (Brown University. Graduate Division of Applied Mathematics. Translation no. A9-T-24)

Trans. of Vozmushchennoe dvizhenie vozdukha pri vibratsiiakh kryla, dvizhushchegosia so sverkhzvukovoi skorost'iu, (Published in Prikladnaia matematika i mekhanika, 1947, v. 11, no 1, p. 147-164.)

DNACA RPB

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

KRASIL'SHCHIKOVA, YE. A.

PROCESSES AND PROPERTIES INDEX

2591. Krasil'shchikova, E. A., On the theory of unsteady motion of a compressible fluid (in Russian), *Doklady Akad. Nauk SSSR (N.S.)* 72, 1, 23-26, May 1950.

Consider a thin vibrating wing translated parallel to the x-axis with constant supersonic speed u at a small angle of attack. The velocity potential $\phi(x, y, z, t)$ is assumed to satisfy the linearized equation

$$(a^2 - u^2)\phi_{xx} + a^2(\phi_{yy} + \phi_{zz}) - \phi_{tt} - 2u\phi_{tx} = 0 \quad [1]$$

referred to axes translated with velocity u, 0, 0. Let P be the projection of the wing onto $z = 0$. On P the normal component of velocity is prescribed to be

$$v_z = \partial\phi/\partial z = A(x, y) f(t + \alpha(x, y)).$$

Then

$$\phi = \int_S \int C(\xi, \eta) K(x, y, z, t; \xi, \eta)\, d\eta d\xi$$

where K is the fundamental solution of [1] defined by $Kr = \sum_{j=1}^{2} f\{t + \alpha(\xi, \eta) - (ux - u\xi + (-1)^j ar)/(u^2 - a^2)\}$, where $r^2 = (x - \xi)^2 - k^2(y - \eta)^2 - k^2 z^2$, $k^2 = (u/a)^2 - 1$, and $S(x, y, z)$ is the intersection of $z = 0$ and the Mach forecone of x, y, z. At points of P, $C(x, y) = -\frac{1}{2}\pi A(x, y)$. Outside P and the range of influence of the trailing vortex system, C is defined by the integral equation

$$\int_{x'E}^{x'} \int_{\psi(\xi')}^{y'} C(\xi', \eta') K(x, y, 0, t; \xi, \eta)\, d\eta' d\xi' = F(x', y') \quad [2]$$

where $x' = x - ky$, $y' = x + ky$, $\xi' = \xi - k\eta$, $\eta' = \xi + k\eta$; $x - ky = x'_E$ is tangent to the leading edge $y' = \psi(x')$, and $F(x', y')$ is a known function. For $v_z = 0 1 A_1(x, y) \exp(i\omega t)$, [2] reduces to an integral equation previously obtained and solved by the author for harmonic vibrations [same *Doklady* 56, 571-574, 1947; AMR 1, Rev. 1034].

Courtesy of Mathematical Reviews — J. H. Giese, USA

S. L. A. METALLURGICAL LITERATURE CLASSIFICATION

KRASIL'SHCHIKOVA, Ye. A

"Motion of a Thin Wing With Supersonic Speed." Sub 10 May 51, Mathematics Inst imeni V. A. Steklov, Acad Sci USSR

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sur. No. 480, 9 May 55.

Krasil'shchikova [illegible], E. A.

Krasil'shchikova, E. A. The pressure distribution on a wing [illegible]. Doklady Akad. Nauk SSSR (N.S.) [illegible] (1951). (Russian)

In the case of steady irrotational supersonic flow the velocity potential for a thin wing can be obtained from a source distribution with intensity proportional to the local angle of attack, over the wing's projection onto one of the coordinate planes. The linearized pressure distribution can be expressed in terms of double integrals over, and line integrals around regions bounded by segments of characteristics and of the boundary of the wing's projection. The double integrals vanish if the wing is plane. Some line integrals vanish if the wing tips' projections are straight and parallel to the undisturbed flow. The rest vanish on the intersection of the wing's projection with the locus of the fourth vertex of characteristic parallelograms, one vertex of which is on the leading edge, while the second and third lie also on the wing's boundary. Thus there exist wings with regions of negative lift.

J. H. Giese

Source: Mathematical Reviews, Vol. 13 No. 5

KRASIL'SHCHIKOVA, Ye. A.

Mathematical Reviews
Vol. 14 No. 8
Sept. 1953
Mechanics.

Krasil'ščikova, E. A. Supersonic flow about thin bodies. Moskov. Gos. Univ. Učenye Zapiski 154, Mehanika 4, 181–239 (1951). (Russian)

This synthesizes or gives detailed proofs of results previously reported elsewhere [these Rev. 9, 392; 10, 77; 12, 216, 767; 13, 507]. Part I determines the velocity potential function for linearized supersonic flow over a harmonically oscillating and deforming thin wing, considering the influence of the wing's edges and trailing vortex sheet where necessary. As described in previous reviews, the potential is expressed as a power series in $\lambda^2 = \omega^2 u^2/(u^2 - a^2)^2$ with double integral coefficients, where ω is the frequency, a the speed of sound, and u the speed of the undisturbed steady flow. The author outlines in detail the steps required to deal with wings of low aspect ratio (or for low supersonic speed) and with wings of non-convex plan-forms having areas cut out of their leading edges. She also describes a method for taking thickness into account. Part II deals with flow over non-oscillating wings, for which the potentials reduce to double integrals. Depending on where the potential is evaluated, the author simplifies the domain of integration and otherwise transforms the integrals, especially for wings of low aspect ratio. The pressure distribution on the wing is expressed in terms of surface integrals and line integrals along segments of the leading edge or characteristics. In some cases there may be curves of zero pressure on the wing. For plane wings with supersonic leading edges and straight tips, which need not be parallel, these curves are similar to the leading edge. *J. H. Giese* (Havre de Grace, Md.).

KRASIL'SHCHIKOVA, YE.A.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 399 - I

BOOK Call No.: AF539690

Author: KRASIL'SHCHIKOVA, YE. A.
Full Title: WING OF FINITE SPAN IN A COMPRESSIBLE FLOW
Transliterated Title: Krylo konechnogo razmakha v szhimayemom potoke

Publishing Data
Originating Agency: None
Publishing House: State Publishing House of Technical and Theoretical Literature
Date: 1952 No. pp.: 158 No. of copies: 5,000

Editorial Staff
Editor: None Tech. Ed.: None
Editor-in-Chief: Professors: Appraiser: None
Lur'ye, A. I. and Loytsyanskiy, L. G.
Others: The author expresses thanks for valuable help to Sedov, L. I.

Text Data
Coverage: This is an account of the author's works on the theory of the thin wing published in 1947-1951. The book is concerned with the formation of the mathematical theory of the movement of a compressible medium disturbed by the presence of a thin wing. It contains also the calculation of boundary problems of the original equations of hydrodynamics. This book is not concerned with aero-

dynamic characteristics of the wing and other problems of applied aerodynamics. Diagrams.

The book is interesting as a theoretical aerodynamic study. In the introduction the author gives a short history of the development of the theory of the supersonic wing. Names of prominent Russian and foreign authors and titles of their publications appear in the text and in footnotes.

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Krylo konechnogo razmakha v szhimayemom potoke

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PAGES

Ch. III Harmonic Oscillations of the Wing in Supersonic Flow 113-158

1. Basic formula for the velocity potential at harmonic oscillations of the wing; 2. Harmonic oscillations of the wing of infinite span; 3. End effect. Formation and calculation of the integral equation; 4. Oscillating wing of a small span; 5. The influence of the vortex system in the wake of the wing at harmonic oscillations of the wing;
6. General case of the supersonic flow around the wing;
7. Flow around an oscillating wing of a certain thickness.

Purpose: Theoretical study for the advancement of science for specialist in aerodynamics.

Facilities: None

No. of Russian and Slavic References: Names of 18 Russian and Slavic authors appear in footnotes. Most of the publications dated after 1946.

Available: A.I.D., Library of Congress.

KRASIL'SHCHIKOVA, YE.A., RUDNEV, G.V.

Engineers

Scientist and engineer. Priroda 41, no. 9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 ~~1953~~. Unclassified.

KRASIL'SHCHIKOVA, YE. A.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Krasil'shchikova, Ye. A.	"A Wing of Finite Span in a Compressible Flow"	Institute of Mechanics, Academy of Sciences USSR

SO: W-30604, 7 July 1954

KRASIL'SHCHIKOVA, YE. A.

Krasil'ščikova, E. A. Unsteady motions of a wing of infinite span. Izvestiya Akad. Nauk SSSR. Otd. Tehn. Nauk 1954, no. 4, 25–41 (1954). (Russian)

This gives details of work reported earlier [Doklady Akad. Nauk SSSR (N.S.) 94, 397–400 (1954); these Rev. 15, 910]. The author applies to linearized arbitrary unsteady two-dimensional flows techniques for solving the two-dimensional wave equation that she has previously used for three-dimensional wings in linearized steady or harmonically oscillating flow [Moskov. Gos. Univ. Učenye Zapiski 154, Mehanika 4, 181–239 (1951); these Rev. 14, 815]. The velocity potential $\varphi(t, x, z)$ is obtained by superposition of sources of strength $\varphi_z(t, x, 0)$ on $z=0$, where $\partial\varphi/\partial z = \varphi_z(t, x, z)$. In regions of $z=0$ where the intensity $\varphi_z(t, x, 0)$ is not known a priori for a prescribed airfoil motion, it is found by solving a sequence of integral equations. The examples considered illustrate procedures for treating airfoil motions that start from rest and are accelerated to sub- or supersonic speeds, or are decelerated from long-established supersonic motion to subsonic speed. Also considered is the possibility of deforming the airfoil, as by extension or retraction of a flap.

J. H. Giese (Ann Arbor, Mich.).

KRASIL'SHCHIKOVA, YE. A.

1/2

[redacted] Unsteady motion of a profile in a [redacted] Doklady Akad. Nauk SSSR (N.S.) 94, 397–400 (1954). (Russian)

This paper considers linearized flow about a thin airfoil which moves in an xz-plane with its chord approximately on the x-axis and starts from rest at time t_0. The potential function is given by

$$2\pi\varphi(t,x,z) = -\iint_S \varphi_z(\tau,\xi,0) \times [(t-\tau)^2-(x-\xi)^2/a^2-z^2/a^2]^{-1/2} d\tau d\xi,$$

where a is the undisturbed speed of sound and S is the intersection of $z=0$ and the nappe extending into the past of the sound cone with vertex (t,x,z). At points of the xt-plane unaffected by the motion, the normal velocity $\varphi_z=0$. At points of $z=0$ traversed by the chord, φ_z can be determined from knowledge of the airfoil's motion, mean camber, etc. The remainder of $z=0$ is divided into strips by the sound waves emitted from the ends of the chord at $t=t_0$ and their successive reflections from the paths of these ends. Integral equations for φ_z in these regions are obtained by imposing $\varphi=0$ ahead of the profile and $\varphi_x=0$ behind.

(over)

$\varphi_1(x, z, 0)$ is obtained by solving these equations, strip by strip, as in the author's similar treatment of steady linearized potential flow over thin finite wings [Moskov. Gos. Univ. Učenye Zapiski 154, Mehanika 4, 181–239 (1951); these Rev. 14, 815].

J. H. Giese.

LG
9/3/55

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00082611O(

AUTHOR: Krasil'shchikova, Ye. A. 20-117-5-13/54

TITLE: Unsteady Motions of a Wing of Finite Span in a Compressible Medium (Neustanovivshiyesya dvizheniya kryla konechnogo razmakha v szhimayemoy srede).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 5, pp. 777 - 780 (USSR)

ABSTRACT: The present paper investigates the spatial motions of an incompressible liquid, which is caused by the unsteady motion of a wing with finite span within an infinite liquid volume. The liquid is supposed to be at rest in the infinite. The author investigates the motion of the wing on such conditions limiting its action to small perturbations. The problem is linearized and the usual assumptions of the theory of the thin wing are made. The solution is accomplished in the fixed coordinates xOyz, which determinate the spatial motion of the wing. The law of motion of the wing is given in the form $x = F(t)$, F denoting an arbitrary continuous function of time. Then an expression for the normal component of the velocity is given and discussed. The velocity potential satisfies the three-dimensional wave equation $a^2\varphi_{xx} + a^2\varphi_{yy} + a^2\varphi_{zz} - \varphi_{tt} = 0$. The author here employs the four-dimensional space x,y, z,t and then states the following boundary problem: The function $\varphi(x,y,z,t)$ is to be found, which satisfies a wave equation, the

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20-117-5-13/54

Unsteady Motions of a Wing of Finite Span in a Compressible Medium.

derivatives of which vanish in the infinite and which satisfies the following boundary conditions in the space of the variable (x,y,t): $\varphi_z = A(z,y,t)$ holds in the volume V (which is illustrated by an attached figure). $\varphi_t = 0$ holds in the volume V_1, $\varphi = 0$ holds in the volume V_2. The author then deals with the solutions of the equation $(u_1^2 - a^2)\varphi_{1xx} - a^2\varphi_{1yy} - a^2\varphi_{1zz} + \varphi_{1tt} + 2u_1\varphi_{1tx} = 0$. The solution of the wave equation is given explicitly and is applied to the boundary problem. In particular, it is possible to compute the velocity potential everywhere at the surface of the wing with the help of this formula. In the investigation of the different variants of the unsteady motion of the wing a family of cones at $z = 0$ play an important part. The results ascertained here are valid even in the case, when the velocity of the wing changes suddenly. There are 3 figures, 4 references, all of which are Slavic.

ASSOCIATION: Institute for Mechanics AS USSR (Institut mekhaniki Akademii nauk SSSR).

PRESENTED: June 13, 1957, by L. I. Sedov, Academician

SUBMITTED: June 11, 1957

Card 2/2

KRASIL'SHCHIKOVA, Ye.A.

24-58-3-3/38

AUTHOR: Krasil'shchikova, Ye. A. (Moscow)

TITLE: Unsteady Motions of a Wing with Finite Span in a Compressible Medium (Neustancvivshiyesya dvizheniya kryla konechnogo razmakha v szhimayemoy srede)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 3, pp 25-32 (USSR)

ABSTRACT: The disturbed motion is analysed of a compressible fluid, caused by a thin wing of finite span obeying a prescribed law of non-stationary motion. The undisturbed motion of the wing is given as a function of time. The normal component of the velocity on both sides of the wing surface is given as the sum of two terms: (1) a term expressing the undisturbed motion which is a function of time and local incidence and (2) a term given at each point of the wing surface, which expresses the superimposed non-stationary motion. Assuming the fluid flow to be irrotational and not subject to external forces, the velocity potential must satisfy the wave equation (Equ.1.4) in fixed co-ordinates . The boundary conditions are stated, including the condition that the fluid is at rest at infinity and that the Zhukovskiy condition at the trailing edge is satisfied. The boundary value problem requires finding a function of space and time to satisfy the wave equation and

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24-58-3-3/38

Unsteady Motions of a Wing with Finite Span in a Compressible Medium.

its boundary conditions. Its solution is found by a method developed earlier by the same author ("Non-Stationary Motions of an Infinite Span Wing", Izv.Ak.Nauk,Otd.Tekh.Nauk,1954, Nr 2) for two-dimensional flows. The solution is given in the form of integrals suitable for all types of non-stationary wing motion, provided the undisturbed motion of the wing is supersonic and provided the tip effect or the effect of the trailing vortex system is negligible at the wing. There are 7 figures and 7 references, 6 of them Soviet and 1 French.

SUBMITTED: June 13, 1957.

Card 2/2

1. Wings--Boundary layer--Mathematical analysis 2. Compressible flow--Analysis 3. Wings--Supersonic characteristics--Mathematical analysis

AUTHOR: Krasil'shchikova, Ye. A. SOV/20-120-1-12/63

TITLE: A Finite Span Wing With Symmetric Profile in a Compressible Flow (Krylo konechnogo razmakha v szhimayemom potoke s simmetrichnym profilem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 1, pp. 51-54 (USSR)

ABSTRACT: The author investigates the motion of a finite span wing with the angle of incidence zero. The principal motion of the wing is assumed to be a straight forward motion with, generally speaking, a variable velocity. This motion may be realized within an infinite volume of a compressible liquid which is at rest at an infinite distance. The shape of the aeroplane's wing is assumed to be arbitrary, and the wing's surface is symmetrical with respect to the plane of the wing's motion. On the main motion of the wing small additional vibrational motions may be superimposed by which the wing's surface is deformed. In these additional motions the wing maintains at any moment the symmetry with respect to the plane of the wing's motion. The author uses a Cartesian co-

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APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

ordinate system which is rigidly joined to the space in which the wing moves. The law of the principal motion of the wing is given as x = F(t), where F is an arbitrary continuous function of time; x denotes the coordinate of an arbitrary fixed point at the front edge. Then formulae are given for the normal component of the velocity on the upper side and lower side of the wing surface. The velocity potential φ of the disturbed motion of the liquid and its derivatives are assumed to be small quantities of first order, and the small quantities of second order are neglected. The problem is treated in a linear manner. The velocity potential satisfies the wave equation $\varphi_{xx} + \varphi_{yy} + \varphi_{zz} - (1/a^2)\varphi_{tt} = 0$, where a denotes the velocity of the sound in a non-disturbed medium. Then the boundary condition on the wing's surface is given. It is sufficient to solve the problem for the upper half-space. The author derives a formula which gives an effective solution of the problem for the case that there is a symmetric flow round the wing. In this case the motion of the wing may satisfy any law of motion (with undersonic and supersonic velocity). The formula for φ is then specialized for the following problem: The wing moves with the con-

SOV/20-120-1-12/63

A Finite Span Wing With Symmetric Profile in a Compressible Flow

stant velocity u. In this case the law of the wing motion has the form x = F(t) = ut. The wing has a cylindrical surface, the indicatrices of which are inclined to the axis at an angle, the tangent of which is equal to u. The last part of this paper deals with the solving of this problem in a moving coordinate system. There are 3 figures and 5 references, 3 of which are Soviet.

ASSOCIATION: Institut mekhaniki Akademii nauk SSSR (Institute of Mechanics, AS USSR)

PRESENTED: January 3, 1958, by L. I. Sedov, Member, Academy of Sciences, USSR

SUBMITTED: December 1, 1957

1. Wings--Motion 2. Compressible flow--Applications
3. Wings--Mathematical analysis

Card 3/3

KRASIL'SHCHIKOVA, Ye. A.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

Card 20/34

KRASILSHCHIKOVA, Ye. A.

"Unsteady Motions of Finite-Span Wings in Compressible Flow."

report to be submitted for the Intl. Council of the Aeronautical Sciences, Second International Congress, Zurich, Switzerland, 12-16 Sep 60.

KRASIL'SHCHIKOVA, YE. A.

PHASE I BOOK EXPLOITATION SOV/4000

SOV/12-M-27

Akademiya nauk SSSR. Institut mekhaniki

Inzhenernyy sbornik, t. 27 (Engineering Collection, Vol. 27) Moscow, Izd-vo AN SSSR, 1960. 210 p. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk.

Resp. Ed.: A. A. Il'yushin; Ed.: V. M. Akhundov; Ed. of Publishing House: V.M. Akhundov; Tech. Ed.: A.P. Guseva.

PURPOSE: This book is intended for engineers, applied physicists, and applied mathematicians.

COVERAGE: The book consists of 24 articles on such problems as wing theory, supersonic flow, theory of shells, stability, plasticity and elasticity, the bending of thin plates and shells, and various aspects of applied mathematics. No personalities are mentioned. References accompany most of the articles.

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Engineering Collection SOV/4000

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KRASIL'SHCHIKOVA, Ye.A. (Moskva)

Airfoil of finite span and with a symmetric profile in subsonic and supersonic flow. Inzh.sbor. 27:29-37 '60. (MIRA 13:6)

(Airfoils) (Aerodynamics, Supersonic)

NEKRASOV, Aleksandr Ivanovich [deceased]; PAVLIKHINA, M.A.; SEKERZH-ZEN'KOVICH, Ya.I., otv. red. toma; KRASIL'SHCHIKOVA, Ye.A., red.; SLEZKIN, N.A., red.; SMIRNOV, L.P., red.; RYVKIN, A.Z., red. izd-va; ASTAF'YEVA, G.A., tekhn. red.

[Collected works] Sobranie sochinenii. Moskva, Izd-vo Akad. nauk SSSR. Vol.1. 1961. 442 p. (MIRA 15:1)
(Aerodynamics) (Hydrodynamics)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

KRASIL'SHCHIKOVA, Ye.A. (Moskva)

In the Valley of Geysers. Priroda 50 no. 2:17 F '61.
(MIRA 14:2)
(Kamchatka—Geysers)

NEKRASOV, Aleksandr Ivanovich, akademik; PAVLIKHINA, M.A.; TUPOLEV, A.N., akademik, otv. red. toma; KHASIL'SHCHIKOVA, Ye.A., red.; SEKERZH-ZEN'KOVICH, Ya.I., red.; SLEZKIN, N.A., red.; SMIRNOV, L.P., red.; GORSHKOV, G.B., red,izd-va; NOVICHKOVA, N.D., tekhn. red.

[Collected works]Sobranie sochinenii. Moskva, Izd-vo Akad. nauk SSSR. Vol.2. 1962. 706 p. (MIRA 15:12)
(Physics) (Mechanics) (Mathematics)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110

KRASILSHCHIKOVA, Ye. A.

"Three-Dimensional Problems for Wings with Variable Boundary Conditions".

Report submitted for the 6th Symposium on Advanced Problems in Fluid Mechanics, Zakopane, Poland, 2-6 Sept. 1963.

ALL PAPERS WILL BE PUBLISHED IN A 1964 ISSUE OF THE POLISH JOURNAL OF APPLIED MECHANICS, ARCHIWUM MECHANIKA STOSOWANEJ.

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

L 8771-65 EWT(d)/FS(m)/EWT(1)/EPA(b)/EPF(n)/EWG(v)/T-2/EWP(k)/FCS(k)/EWA(h)
Pd-1/Pe-5/Pf-4/Pd-b/Pi-4 ESD(t)/RAEM(t)/ESD(c)/AFMDC/SSD/AEDC(a)/AFETR/BSD/
ASD(a)-5/ASD(f)-3/AFTC(a) EM

S/0020/64/158/003/0558/0561

ACCESSION NR: AP4046368

AUTHOR: Krasil'shchikova, Ye. A.

TITLE: Wing of finite span in the presence of a moving shock wave

SOURCE: AN SSSR. Doklady, v. 158, no. 3, 1964, 558-561

TOPIC TAGS: unsteady gas flow, three dimensional flow, compressible flow, wing of finite span, shock wave, velocity potential, wave equation

ABSTRACT: An investigation has been made of the unsteady three-dimensional flow of a compressible fluid, which flow is caused by a thin, slightly curved wing moving at speed u > a at a small angle of incidence and a weak shock wave propagating at sonic speed in the opposite direction. The normal velocity component on both sides of the wing surfaces is given in the form vn = -uθ + B = Aθ where θ is the angle of incidence of wing surface elements, and B is given for every point of the wing's surface. These functions are integrable functions of their arguments. The first term corresponds to the basic wing motion of constant speed u, the second, to small supplementary unsteady

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ACCESSION NR: AP4046368

motions in which the wing's surface may be subjected to deformation. Assuming the perturbations of the medium to be small, a linearized problem is considered and solved by a method developed earlier by the author (Doklady AN SSSR, v. 94, no. 3, 1954). The boundary conditions are stated, and the Chaplygin-Zhukovskiy condition is observed on the trailing edge of the wing. Expressions are established for a velocity potential which satisfies a three-dimensional wave equation. Orig. art. has: 4 figures and 12 formulas.

ASSOCIATION: Institut mekhaniki AN SSSR (Institute of Mechanics, AN SSSR)

SUBMITTED: 27May64 ATD PRESS: ENCL: 00

SUB CODE: ME NO REF SOV: 005 OTHER: 000

Card 2/2

L 21415-65 EWP(m)/EWA(h)/EWP(k)/EWT(d)/EWT(l)/EWT(m)/FCS(k)/EWA(d)/EWA(l)/ EWP(w)/EWP(v) Pd-1/Pf-4/Pi-4/Peb AEDC(a)/BSD/SSD(b)/SSD/AFWL/ASD(f)-3/ ASD(p)-3/AFETR/AFTC(a) EM

ACCESSION NR: AP5002988 S/0179/64/000/005/0025/0032

AUTHOR: Krasil'shchikova, Ye. A. (Moscow)

TITLE: Wing of finite span in the presence of a moving shock wave

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 5, 1964, 25-32

TOPIC TAGS: supersonic flow, supersonic flow over wing, shock wave, weak shock wave, thin wing theory, Mach line

ABSTRACT: The motion of a thin, slightly cambered wing of finite span at small angle of attack is considered under the action of a weak incident shock wave whose front is at an angle ω_1 to the direction of motion. The motion is assumed to be uniform, rectilinear translation at supersonic speed u and taking place inside an infinite space of a compressible medium. Small additional unsteady motions may be superposed on the basic wing motion, causing deformation of the wing surface. The linear problem of flow over a wing in the presence of a shock wave moving in the direction opposite to the wing motion is reduced to a boundary value problem with certain

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APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

L 21115-65
ACCESSION NR: AP5002588

boundary conditions, and solved by a method previously used by the author (Izvestiya AN SSSR, OTN no 3, 1958). Analytical expressions for shock waves when $\varphi_1 = \pi/2$ and $\varphi_1 \neq \pi/2$ derived. Orig. art. has: 7 figures and 28 formulas.

ASSOCIATION: none

SUBMITTED: 27May64 ENCL: 00 SUB CODE: ME

NO REF SOV: 003 OTHER: 000 ATD PRESS: 3164

Card 2/2

L 18346-65 AEDC(a)/ASD(f)-2 JXT(CZ) P/0033/64/016/002/0285/0290

ACCESSION NR: AP4049000 (S)

AUTHOR: Krasil'shchikova, E. A. (Moscow)

TITLE: Unsteady motion of a wing of finite span in a compressible medium

SOURCE: Archiwum mechaniki stosowanej, v. 16, no. 2, 1964, 285-290

TOPIC TAGS: unsteady motion, wing, finite span, compressible medium, air disturbance, variable velocity

ABSTRACT: This article is a presentation of continued investigation of air disturbances due to small transverse vibrations of a thin, slender wing of finite span (Krasil'shchikova, Ye. A. AN SSSR. Doklady, v. 117, no. 5; AN SSSR. Doklady, v. 120, no. 1). It is assumed that the angle of attack is small, the main motion of the wing is progressively rectilinear with variable velocity, and the wing surface may be deformed in additional small vibrations so that the problem can be linearized and considered from thin wing theory. An equation is derived for determining the velocity potential everywhere on and above the wing if the medium is not disturbed in front

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ACCESSION NR: AP4042000

of the wing, if the wing moves sufficiently long at supersonic
velocity, and if the shape of the wing (in the plane) meets the given
requirements. Motion of a thin wing with a zero angle of attack is
considered next and it is shown that the derived formula is an ef-
fective solution, in the case of symmetric streamline, of a slender
wing of arbitrary shape for arbitrary motion at subsonic or super-
sonic velocity. Orig. art. has: 5 figures.

ASSOCIATION: Department of Aerodynamics, Institute of Mechanics, Moscow

SUBMITTED: 00 ENCL: 00 SUB CODE: ME

NO REF SOV: 002 OTHER: 000

Card 2/2

L 21770-66 EWT(d)/FS(m)/EWT(1)/EWP(m)/EWT(m)/EWP(w)/EWA(d)/T-2/EWP(k)/EWA(h)/ETC(m)-6
SOURCE CODE: UR/0421/66/000/001/0061/0068

ACC NR: AP6010842
EWA(1) WW/EM

AUTHOR: Krasil'shchikova, Ye. A. (Moscow)

ORG: none

TITLE: Thin wing in a compression wave of finite length

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 1, 1966, 61-68

TOPIC TAGS: supersonic aerodynamics, supersonic flow, shock wave, thin wing

ABSTRACT: The motion of a thin wing of finite span at supersonic speed in a compressible medium is considered under the action of a weak incoming shock wave whose front is at an angle ω to the plane of motion. It is assumed that the motion is uniform and taking place inside an infinite space. Simplified assumptions usual in thin-wing theory are made. The problem is considered in linearized form, according to approaches of Nekrasov and Sedov and solved by the method suggested previously by the author, being reduced to a problem of superposing two waves of infinite length on a disturbed compressible medium. The velocity field is analyzed and expressions for the velocity potential are established, in particular, in the case when the simultaneous effects of forward and rear shock fronts are present on the wing surface at a certain wavelength. If the shock wave moves in the direction of wing motion, it is necessary to change the sign in certain expressions. Orig. art. has: 10 figures and 22 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 18Jan65/ ORIG REF: 005/ ATD PRESS: 4227

Card 1/1

L 44123-66 EWP(m)/EWP(w)/T-2/EWP(k)/FS(v)-3/WW/EM/RM

ACC NR: AP6018064 SOURCE CODE: PO/0033/65/017/005/0727/0738

76
B

AUTHOR: Krasilschikova, E. A. (Moscow)

ORG: Institute of Problems in Mechanics, Academy of Sciences SSSR (Institut problem mekhaniki Akademii nauk SSSR)

TITLE: Finite-span wing in the presence of a moving shock wave

SOURCE: Archiwum mechaniki stosowanej, v. 17, no. 5, 1965, 727-738

TOPIC TAGS: shock wave motion, wave equation, thin wing, supersonic flow, weak shock wave

ABSTRACT: A method of solution of miscellaneous problems has been proposed for a three-dimensional wave equation when conditions change with time. The spacial problem of supersonic gas flow for a wing in the presence of a moving shock wave has been examined by this method. Solutions have been obtained of a three-dimensional problem on determining the field of velocities which is excited by the motion of a

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ACC NR: AP6018064

thin wing and by a weak shock wave attacking it, with changeable gas parameters behind the shock-wave front. The velocity potential has been found in the form of binary quadratures under a sign of which the given function of two variables is included. The resulting solution permits calculation of the velocity potential as follows: a) everywhere on the wing surface and above the wing when the wing edges are supersonic profiles, b) when the wing is moving at a constant speed as a solid or as an elastic solid, and c) when the shock-wave front moves at the speed of sound and represents the plane inclined to the surface of the moving wing at an arbitrary angle. The resulting solutions can be simultaneously examined as three-dimensional problems of the diffraction of a plane acoustic wave moving on a thin, plane, or bent plate at a supersonic speed. Orig. art. has: 7 figures and 27 formulas. [NT]
[Based on author's abstract]

SUB CODE: 01/ SUBM DATE: 05Apr65/ ORIG REF: 004/ OTH REF: 002/

Card 2/2 LC

KRASIL'SHCKIK, V.Z.

Unit for operation with a hollow cathode. Zav. lab. 31 no.2:251 '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

KRASILSIK, I. L.

"Precision Hydrophones for Calibration Purposes."

paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 26 May - 4 Jun 58.

P/015/63/000/003/001/001
D001/D101

AUTHOR: Krasimowicz, Albin

TITLE: Testing the properties of plastic ceramic mass by the conical indentor method

PERIODICAL: Szkło i ceramika, no. 3, 1963, 83-86

TEXT: The author used a conical steel indentor briefly described in the article and built by the Katedra Maszynoznawstwa Ceramicznego AGH (Department of the Theory of Ceramical Machines AGH) to measure shear in a number of Polish clays and loams and establish the usability of the method in production practice. The shear in masses of varying humidity was calculated according to the formula

$$\theta = k \frac{P}{h^2}$$

where θ -- ultimate shearing stress in kg/cm^2; P -- load on conical indentor in kg; h -- indentation in cm; k -- a constant dependent on the tip angle of the cone. Ultimate shearing stress plotted in a diagram against

Card 1/2

Testing the properties of plastic ... P/015/63/000/003/001/001
D001/D101

humidity resembles an exponentially declining curve composed of three nearly straight sections. The center section represents the range of optimum humidity. The method makes possible the determination of ultimate shearing stress and humidity within a few minutes. There are 3 tables and 7 figures.

Card 2/2

GUSEVA, L.M.; SOKOLOV, B.K.; KRASIN, A.G.; LYSENKO, A.M.; MOROZOV, G.A., red.

[For high corn yields] Za vysokie urozhai kukuruzy. Novgorod, Knizhnaia red.gazety "Novgorodskaia pravda," 1960. 59 p. (MIRA 14:12)

(Corn (Maize))

KRASIN, A. K.; TARTAKOVSKIY, P. S.; VENDEROVICH, A. M. and PANOV, A. P.

"Problem of Measuring the Temperature in a Martin Furnace," Zavod. Lab., 4, 330-5, 1935

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00082611OC

BC KRASSIN, A.K.

a-1

Electrodeless discharge. A. Krassin (Physikal. Z. Sovietunion, 1936, 9, 449—460). O. D. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00082611OC

KRASIN, A.K.

CA

2

Zhur. Tekh. Fi...

The effect of the arrangement of the electrodes on the breakdown of solid dielectrics. A. A. Vorob'ev and A. K. Krasin. J. Tech. Phys. (U. S. S. R.) 7, 1561-9(1937); Chem. Zentr. 1939, I, 1728.—The effect of the material and arrangement of the electrodes on the breakdown voltage of rock salt, ebonite, and mica plates was investigated in both homogeneous and nonhomogeneous fields and with both d. c. and a. c. The breakdown voltage was found to depend on the material of the cathode, e. g., Ag, Pb, K, Au, Pt, steel, Cu, Al, and also upon the manner of bringing the dielectric into the homogeneous or nonhomogeneous fields. Photoelectrons released from the surface of the cathode were likewise observed to affect the breakdown voltage. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KRASSIN, A. K.

W. E.

Materials and Subsidiary Techniques

848

The Electrical Breakdown of Solid Dielectrics. A. K. Krassin. (C. R. Acad. Sci. U.R.S.S., 20th Sept. 1940, Vol. 28, No. 8, pp. 693-696: In German.) Consideration of the reason for the destruction of the material by the discharge. The appearance of a large number of electrons in motion in the insulator causes a loosening of the bond between the nodal particles of the lattice; thus the electric field producing the electron current can finally destroy the connexion between the heavy charged particles that has already been modified by the electrons. The breakdown field alone would not destroy the lattice.

Krasin - Ident w/High-Tension Lab, Siberian Physico-Technological Institute, Tomsk State Univ. im. V. V. Kuybyshev. (Same source as above.)

Apr 44

METALLURGICAL LITERATURE CLASSIFICATION

KRASIN, A.

6771. Krasin, A. Znacheniye mestnykh udobreniy v povyshenii urozhaynosti. (Novgor. obl.) Novgorod, 1954. 24 s. 20 sm. (Iz opyta raboty peredovykh kolkhozov). 3.000 ekz. 40 k. - (55-2794) p 631.8 (47.24)

SO: Knizhnaya Letopis' No. 6, 1955

KRASIN, A.K.; MOROZOV, I.G.; GERASEVA, L.A.; KAMAYEV, A.V.

[Study of beryllium as a neutron moderator] Izuchenie berilliia kak zamedlitelia neitronov. Moskva, 1955. 17 p. (MIRA 14:7)

(Beryllium) (Neutrons—Capture)

KRASIN, A.K.

[illegible]

OSTROUMOV, Georgiy Nikolayevich; KRASIN, A.K., doktor fiziko-matematicheskikh nauk, nauchnyy redaktor; GRINGAUZ, S., redaktor; YAKOVLEVA, Ye., tekhnicheskiy redaktor

[First in the world] Pervaia v mire. Nauchn.red. A.K.Krasin. [Moskva] Moskovskii rabochii, 1956. 35 p. (MLRA 10:2)
(Atomic power industry)

KRASIN, A. Dr. Physico-Mathematical Sciences

"Trends in the Development of Atomic Power Engineering," Pravda, page 3, 20 January 1956, Moscow.

Translation M-1097, 2 May 56

KRASIN, A-K.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1608

AUTHOR KRASIN,A.K., DUBOVSKY,B.G., MATALIN,E.Y., INYUTIN,E.I., KAMAEV,A.V. LANTSOV,M.N.

TITLE An Investigation of Physically Characteristic Quantities in a Nuclear Power Station.

PERIODICAL Atomnaja Energija, 1, fasc.2, 2-10 (1956)
Issued: 6 / 1956

Experiments carried out on the reactor of the Nuclear Power Station of the Academy of Science in the USSR are described.
The data for the characteristic quantities obtained on this occasion can be used for the operation of similar reactors as well as for the further development of heterogeneous reactors and reactors with water cooling which work with thermal neutrons.
Experiments and measurements were carried out with respect to the critical mass of the fuel with and without water in the channels, as well as concerning size and arrangement of the boron control rods, maximum activity and its control, the influence exercised by water on activity, the probability of escaping resonance capture, and the velocity distribution of neutrons and their density in the reactor.
The important values found as a result of these experiments agree well with computed values.

Atomnaja Energija, 1, fasc.2, 2-10 (1956) CARD 2 / 2 PA - 1608

Results:	experimental		theoretical
Radius of critical mass with water in the channels	60	(cm)	59
dto. without water in the channels	101		99
The maximum activity at the beginning of a working period (10"linear cm") corresponds to an activity Δ K of $(4,5\pm0,2)10^{-4}$)	0,11±0,005		0,1222
Activity control:			
a) with 1 manual control rod in the interior ring	0,013±0,001		0,12
b) with 1 manual control rod in the exterior ring	0,007+0,001		0,007
c) with 2 locking rods	0,018±0,002		0,02
The probability of escaping resonance capture $(1 - \phi)$			
The fission ratio of U^{235}	ϕ =0,906±0,015		-
in the epicadmium region	8,3%		-

INSTITUTION:

KRASIN, A.K.

Category : USSR/Nuclear Physics - Nuclear Engineering and Power C-8

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6104

Author : Blokhintsev, D.I., Dollezhal', N.A., Krasin, A.K.

Title : Reactor of the Atomic Electric Station of the Academy of Sciences of the USSR.

Orig Pub : Atom. energiya, 1956, No 1, 10-23

Abstract : The thermal power of the reactor is 30,000 kw, and the electric power is 5,000 kw. The amount of uranium charge is 550 kg, representing 27.5 kg U^{235} at a 5% enrichment. The moderator and reflector are made of graphite, and the coolant is ordinary distilled water. The thermal flux reaches 1.8×10^6 kcal-m^{-2}-hr^{-1}. The shield comprises a layer of water 100 cm thick and 3 meters of concrete. The graphite core of the reactor is three meters in diameter and 4.6 meters high. The central section contains 157 vertical holes at a spacing of 120 mm. 128 holes are occupied by the working elements, and the remainder are intended for the control rods and for auxiliary purposes. The diameter of the active zone is 1500 mm, the height is 1700 mm. Tubular uranium fuel elements are used in the reactor. The

Card : 1/2

Category : USSR/Nuclear Physics - Nuclear Engineering and Power

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6104

water pressure is 100 atmospheres and the temperature at the reactor output is 280°. The water of the coolant forms the primary loop, which contains a steam generator. The secondary loop comprises a turbine generator, operating on steam with a pressure of 4.5 atmospheres and a temperature of 270°. The atomic electric station of the Academy of Sciences of the USSR has been operating without interruption since 27 June 1954. Its operating experience has made it possible to proceed toward a design of more powerful stations with uranium-graphite reactors and water cooling.

Card : 2/2

KRASIN, A.K.

neutron source with $\approx 10^6$ neutrons per second was fitted in the interior of the reactor. A waterless variety of the uranium-beryllium reactor was realized by the charging of 6 elements. Graphite was introduced into the central channels of the cells, into the interior tubes of the elements, and into the horizontal channels.
After 366 uranium elements were charged (6,66 kg U^{235}) the system became critical. On the occasion of transition to the reactor without reflector the upper layers of the beryllium blocks were removed. The critical mass in this case was 11,73 kg U^{235}. For the same case the variety of a reactor with thermocolumn in the center was realized.. The data corresponding to the various varieties are shown in a table. If there is a thermocolumn in the center of the reactor the density of the thermal neutrons is 4 times as great as the average density of the neutrons in the active zone. However, in the case of the variety without thermocolumn with reflector the maximum density of the neutrons exceeds the average density by 13%.

INSTITUTION:

Krasin, A. K.

Category : USSR/Nuclear Physics - Nuclear engineering and power C-8

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 711

Author : Krasin, A.K., Dubovskiy B.G., Doil'nitsyn, Ye.Ya., Matalin, L.A., Inyutin, Ye.I., Kamayev, A.V., Lantsov, M.N.,

Title : Study of the Physical Characteristics of an Atomic Electric Station Reactor.

Orig Pub : Atom. energiya, 1956, No 2, 3-10

Abstract : A graphite-water research reactor, in which the cell construction was nearly equal to the cell of the reactor of an atomic electric station, was built to check the calculation results for the latter reactor. The research reactor was a cylinder 190 cm high and 260 cm in diameter. The fission material used was uranium protoxide and oxide with 10% U^{235} enrichment. The critical mass (M_{cr}) was 6.3 kg U^{235}, which was in good agreement with the calculated value (M_{cr} = 5.35 -- 7.4 kg U^{235}) calculated with a procedure previously checked experimentally only with a uranium-graphite lattice with a small content of steel and water. The critical mass was calculated for the reactor of the atomic electric station for two cases: with and without water in the working channels. The results obtained are in good agreement with the calculations.

Experiments were made on the calibration of boron rods and on the determination of the excess reactivity. The dependence of the effectiveness of the

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Category : USSR/Nuclear Physics - Nuclear engineering and power C-8

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 711

absorbing boron rod on the depth of its insertion in the reactor was investigated. Experiments on the determination of the controlling ability of the rod have established that the surrounding rods affect stronlgy the absorbing ability of the rod. A study of the character of the curve for the decrease in power with time under scram conditions was made to determine the operating time of the scram rods.

A mechanical neutron selector was used to study the neutron spectrum, and the distribution of the thermal neutrons was found to be in good agreement with the theoretical curve when the effective temperature of the neutron gas was assumed to be approximately 100° higher than the temperature of the core. The temperature of the neutron gas was then determined with the aid of boron rods, and good agreement was obtained here with the results of the measurements made with the selector. The curves of the cadmium ratios versus the reactor radius showed that 8.3% of the fissions in U^{235} occur in the region above the cadmium.

Card : 2/2

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KRASIN, A.K.

USSR/Nuclear Physics C-8

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11299

Author : Krasin, A.K., Dubovskiy, B.G.

Inst : Not given

Title : Beryllium Research Reactor.

Orig Pub : Atom. energiya, 1956, No 4, 147-148

Abstract : Description of a research reactor, started in August 1954 in the building of the atomic electric station of the Academy of Sciences, USSR, with a moderator made of metallic beryllium, operating with enriched uranium fuel. The core of the reactor, made of beryllium blocks, comprises a cylinder with a diameter and height of approximately 1 meter. Control is by means of two cadmium rods, and scram protection is insured by eight more cadmium rods. A study was made of three versions of dry reactors: with lateral

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USSR/Nuclear Physics C-8

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11299

beryllium reflector 15.5 cm thick, without reflector, with thermal column in the center, and a reactor with fuel elements filled with water. The critical masses in this case turned out to be 6.66, 11.73, 12.66 and 3.42 kg of U^{235} respectively. The density of the thermal neutrons in the thermal column is four times greater than the density of the neutrons in the active zone.

Card 2/2

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

KRASIN, Andrey Kapitonovich, doktor fiziko-matematicheskikh nauk; FAYNBOYM, I.B., redaktor; GUBIN, M.I., tekhnicheskiy redaktor.

[Nuclear power reactors] Energeticheskie iadrenye reaktory. Moskva, Izd-vo "Znanie," 1957 36 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser. 8, no.4) (MLRA 10:3)
(Nuclear reactors)

Distr: 4E3c 2 cys/4E2b(v) 19 8 3

The physical characteristics of a nuclear power reactor. A. K. Krasin, B. G. Dubovskii, B. I. Dol'nitsyn, L. A. Matalin, E. I. Inyutin, A. V. Kamaev, and M. N. Lantsov. *Jadernd Energia* 3, 33-8(1957).—To assist in the calcn. of phys. parameters of a large power reactor, tests were carried out on a smaller prototype. It was a graphite-moderated H_2O-cooled reactor with fuel elements consisting of 2 concentric stainless-steel pipes with powd. UO_2 (10%-enriched) fuel in the annular space and H_2O in the center. Bundles of 7 of these elements were placed 1 at a time in the spaces in the graphite lattice, starting at the center, and criticality was reached for 58 bundles. In the absence of H_2O, 101 bundles were needed. The excess reactivity with 85 bundles in place was compensated with 6 inner B control rods, 4 outer ones, and 1 for automatic control. The excess reactivity was measured by the time required for doubling the power level when a rod was withdrawn 1 cm. The inner and outer rods were calibrated sep. The increase in reactivity which would be caused by complete flooding with H_2O, as might happen in an accident, was detd., and it was found that the available control rods (another 13 in addn. to those mentioned) could compensate for this. The probability of resonance absorption of neutrons by U^{238} was 0.906 and the temp. of the neutron gas, as detd. by In, Au, Co, Mn indicators, and by B filters, was 600°K. in the center and 70°C. above the surroundings at the edges.

H. Newcombe

KRASIN, A.K.; DUBOVSKIJ, B.G.; BOHAL, L., inz. [translator]

Physical beryllium reactor. Jaderna energie 3 no.2:62-63 F '57.

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00082611000

KRASIN, AK., GRIGORYANTS, A. N., NIKOLAYEV, N. A. and USHAKOV, G. N.

"Operating the First USSR Power Station with the Fuel Channels Working in Boiling Conditions."

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

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000826110(

AUTHORS: Krasin, A. K., Minashin, M. Ye., ~~Sviridenko~~, V. Ya.

SOV/89-5-2-2/36

TITLE: The Influence of the Temperature of a Neutron Gas on the Duration of the Runs of the Fuel and Its Regeneration in a Power Reactor (Vliyaniye temperatury neytronnogo gaza na prodolzhitel'nost' kampanii i vosproizvodstvo goryuchego v energeticheskom reaktore)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 2, pp. 111-118 (USSR)

ABSTRACT: The calculation of the influence exercised by the temperature of the neutron gas on the duration of the run of the reactor, on the production of Pu^{239}, and on the amount of the electric energy generated is dealt with. Calculations relate especially to the following two variants of reactors:

	Variant I	Variant II
a) Heat output of the reactor	140 MW	140 MW
b) Quantity of uranium	24,5 t	24,5 t
c) Initial enrichment of uranium	1%	1,5%
d) Material of tubes for coolant	Zr of a thickness of 0,5 mm	steel of a thickness of 0,2 mm

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The Influence of the Temperature of a Neutron Gas on the Duration of the Runs of the Fuel and Its Regeneration in a Power Reactor

SOV/89-5-2-2/36

	Variant I	Variant II
e) Canning material of fuel elements	Zr of a thickness of 0,3 mm	steel of a thickness of 0,2 mm
f) Moderator material in core and reflector	graphite (1,67 g/cm^3)	graphite (1,67 g/cm^3)
g) Coolant	Na	Na
h) Diameter of core	500 cm	500 cm
i) Height of core	400 cm	400 cm
j) Thickness of lateral and basic reflectors	80 cm	80 cm
k) Number of cells	400	400
l) Number of channels for regulating-and safety rods	50	50

Card 2/4