

AKSYANTSEV, M.I., professor (Kazan')

Treatment of pulmonary abscesses. Klin.med. 33 no.12:81 D '55.
(LUNGS--ABSCESS) (MLRA 9:5)

ACCESSION NR: AP4038942

S/0241/64/003/005/0039/0044

AUTHOR: Aksyantsev, M. I.; Gol'dshteyn, D. Ya.; Mittel'berg, Ya. B.

TITLE: Compensatory possibilities of the lymphatic system in acute radiation sickness

SOURCE: Meditsinskaya radiologiya, no. 5, 1964, 39-44

TOPIC TAGS: lymphatic system, collateral lymph vessel, acute radiation sickness, collateral lymph circulation stimulus, intravital lymphography, systemic radiation reaction, local radiation reaction, reactive mechanism, infective lymphatic stimulus, mechanical lymphatic stimulus

ABSTRACT: The ability of the body to create collateral lymph circulation under these conditions was studied in the pelvic extremities of dogs by using infection (*Staphylococcus aureus* culture) or mechanical irritation (tourniquet) as a stimulus. The 62 dogs, divided into 6 lots, received a 800 r x-ray dose which is lethal. Data were derived from intravital lymphography. In the first test series on 12 dogs penetrability of the system increased considerably following radiation, but no formation of collateral circulation was seen. In the 2nd series on 24 dogs

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infected with staphylococcus culture on the 2, 4 or 6th day after irradiation, collateral circulation developed only if the culture was injected in the first 2 days. Later infection led to insignificant local but extensive systemic reaction and early death. Infection on the first day led to considerable local reaction. Systemic and local reactivity of the organism thus appear in stages and decrease with time. No development of collateral circulation was observed when the 15 dogs of the 3rd series were infected 2-10 days prior to irradiation, although local reaction was intense. They lived somewhat longer (probably due to the development of antibodies). Collateral lymph circulation was thus found to develop as an active reaction of the integral organism rather than a result of mechanical obstruction. This was confirmed in 3 test series with tourniquets. Collateral circulation appeared one day after removing the tourniquet if this latter had been applied in the first 2 days following irradiation. Later application resulted in early death. These results point towards the necessity of early remedial action in radiation sickness, before the reactive mechanism of the organism has broken down. Orig. art. has: 4 figures.

ASSOCIATION: Patofiziologicheskaya laboratoriya
Kazanskogo nauchno-issledovatel'skogo instituta traumatologii i ortopedii

Card 2/3

ACCESSION NR: AP4038942

kafedra rentgenologii i radiologii No. 2
Kazanskogo instituta usovershenstvovaniya vrachey im. V. I. Lenina (Kazan Scientific Research Institute of Traumatology and Orthopedics and Kazan Institute for Advanced Physicians' Training)

SUBMITTED: 10Oct63

ENCL: 00

SUB CODE: 15

NO REF SOV: 003

OTHER: 000

Card

3/3

AKSYANTSEV, M.I., VESELOVSKIY, D.A.

Reaction of the body internal relations following afferent stimulations of the bone system. Fiziol.zhur. 50 no.1:58-63 Ja '64.
(MIRA 18:1)

1. Nauchno-issledovatel'skiy institut travmatologii i ortopedii, Kazan'.

SIL'CHENKO, A.S.; AKSYUCHITS, P.I.

A combine of progress. Bum. prom. 36 no.9:15-17 S '61.
(MIRA 15:1)

1. Direktor Kotlasskogo tsellyulozno-bumazhnogo kombinata (for
Sil'chenko). 2. Glavnyy inzh. Kotlasskogo tsellyulozno-bumazhnogo
kombinata (for Aksyuchits).
(Kotlas--Woodpulp industry)

AKSYUCHITS, N.I.

Concerning the economic advantage of peat fuel for White
Russian Enterprises. Sbor.nauch.trud.Bel.politekh.inst. no.65:
193-200 '59. (MIRA 13:5)

(White Russia--Peat)

AKSYUCHITS, N.I.; GOLOVANCHIKOV, I.Ya., inzh.; ZHURAVKOV, A.A.

Comparison of the economy characteristics of the various
types of fuel in the White Russian S.S.R. Torf. prom. 39
no.5:1-4 '62. (MIRA 16:8)

1. Gosplan BSSR (for Aksyuchits). 2. Institut ekonomiki AN
BSSR (for Zhuravkov).

AKSYUK, A. F. Cand Med Sci -- (diss) "New Experimental Data ^{for}
~~Justifying~~ ^{Justifying} the Maximum Permissible Content of Fluorine in Potable ^{drinking}
Water." Mos, 1957. 12 pp 20 cm. (Min of Health RSFSR, First Mos
Order of Lenin Medical Inst im I. M. Sechenov), 200 copies
(KL, 25-57, 117)

~~-117-~~
118

AKSYUK, A.F., kand.med.nauk; POLTORAK, S.A., inzh.; LEVKO, A.P., tehnik

Electronic device for the determination of the rate of reflex reactions simultaneously in several subjects. Gig.1 san. 26 no.12:47-50 D '61. (MIRA 15:9)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta gigiyeny imeni F.F.Erismana.
(REFLEXES) (PHYSIOLOGICAL APPARATUS)

AKSYUK, A.F.

Methology for the automatic (electric) recording of conditional
reflex activity in small laboratory animals. Uch. zap. Mosk. nauch.
issl. inst. san. i gig. no. 3:22-24, '60. (MIRA 16:7)
(CONDITIONED RESPONSE) (PHYSIOLOGICAL APPARATUS)

AKSYUK, A.F.; ZAMYSLOVA, S.D.

Sanitary characteristics of sewage from the production of synthetic fatty acids and sanitary requirements for discharge into open waters. Uch. zap. Mosk.nauch.-issl. inst. san. i gig. no.9:67-72 '61. (MIRA 16:11)

*

AKSYUK, A.F., kand.med.nauk; VERSHININ, A.A., inzh; LYUTOV, A.V., inzh.;
AKHMADULINA, M.S., inzhener-khimik.

Experience in the fluoridation of the water supply in the
U.S.S.R. Gig. i san. 28 no.1:68-73'63. (MIRA 16:7)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta gigiyeny
imeni F.F. Erismana i tsekha "Vodokanal" Noril'ska.
(WATER—FLUORIDATION)

RUSIN, N.M., kand. biolog. nauk; ANDRONOVA, G.P., kand. med. nauk; AKSYUK, I.N.,
nauchnyy sotrudnik

Hygienic aspects of agricultural products treated with dithiophos.
Gig. i san. 24 no.5:31-34 My '59. (MIRA 12:7)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta sanitarii i
gigiyeny imeni F. F. Erismana Ministerstva zdravookhraneniya RSFSR.

(PHOSPHATES, effects,

tetraethyl dithiopyrophosphate, insecticidal eff. & eff.
of feeding of sprayed cereals on animals (Rus))

(CEREALS,

tetraethyl dithiopyrophosphate treated, eff. on animals (Rus))

AKSYUK, I.N. (Moskva)

Effect of a large amount of manganese on the state of the thyroid gland as related to different fat content of the diet. Vop. pit. 24 no.1:53-56 Ja-F '65. (MIRA 18:9)

1. Otdel gigiyeny pitaniya (zav... kand. med. nauk A.P. Shitskova) Moskovskogo nauchno-issledovatel'skogo instituta gigiyeny imeni F.F. Erimana (nauchnyye rukovoditeli: prof. A.I. Shtenberg, prof. I.A. Kusevitskiy).

AKSYUK, L.L., inzh.

Improving the design of a receiving and loading platform in
deepening mine shafts. Bezop. truda v prom. 5 no. 2:12-13
F '61. (MIRA 14:2)

(Mining engineering)

1981: AKSYUK, I.I., mel'banki; SYDOROV, I.; AKSYUK, I.I., inzh.

- Industrial letters. Porop. truda v prom. 5 no. 1983 G 161.
(MIRA 1983G)
1. Khabarovsk: No. 12 of daily "Cher'vinskaya-Severnaya" No. 2 (for
Kell'chichenko). 2. Nauchno-issledovatel'skiy garnernudnyy
instytut, g. Krivoy Rog (for Aksyuk).
(Industrial safety)

BUD'KO, Ye.N.; AKSYUK, Yu.B., red.; GLOTOVA, M.I., tekhn.red.

[Fighting salinity in soils with irrigation] Bor'ba s zasoleniem
pochv pri oroshenii. Rostov-na-Donu, Rostovskoe knizhnoe izd-vo,
1953, 28 p. (MIRA 12:2)

(Irrigation)

TECHKAYEV, Kh.N.; AKSYUK, Yu.B., redaktor; GLOTOVA, M.I., tekhnicheskij
redaktor

[Along Rostov Province tourist trails] Po turistskim marshrutam
Rostovskoi oblasti. Rostov-na-Donu, Rostovskoe knizhnoe izd-vo,
1953. 126 p. [Microfilm] (MIRA 7:10)
(Rostov Province--Tourism)
(Tourism--Rostov Province)

28(2)

SOV/115-59-5-6/27

AUTHORS: Aksyuk, Yu.F. and Volosin, Ya.P.

TITLE: Devices to Control Micrometers of more than 100 mm

PERIODICAL: Izmeritel'naya Tekhnika, 1959, Nr 5, p 9 (USSR)

ABSTRACT: The proposed method makes it possible to test micrometers of a great measuring range (more than 100 mm) with the help of stop measures whose block has a extension of 25 mm. The illustration shows a special clamping device. The first thing to be controlled is the zero point. The rest of the controlling process is the same as with small micrometers. There are 2 diagrams. KhGIMIP and KhTZ are using the device.

Card 1/1

SHATERSHTEYN, V.G.; ANSYUTA, A.A.

Investigating the heat conductivity of various refractories
for coke ovens with high temperatures. Met. 1 gornorud.
prom. no.6:45-46 N-D '65. (MIRA 18:12)

BUTAKOV, A.A.; SIMELEVA, V.M.; IRKHO, O.G.; ROZHINA, L.I.; KLUSS, Yu.A.;
AKSYUTICH, Yu.A.

Conference of the readers of the periodical *Plasticheskie massy*.
Plast. massy no.4:79 '65. (MIRA 18:6)

SAPRYKIN, A.; AKSYUTIK, L.

Equipment from wood and plastics. Sov. torg. 35 no.8:56-58
Ag '62. (MIRA 15:8)

1. Zamestitel' upravlyayushchego Roslesstroytorgom (for Saprykin).
2. Nachal'nik planovogo otdela Roslesstroytorgom (for Aksyutik).
(Stores, Retail--Equipment and supplies)

AKSYUTIN, I.R., inzh.

Possibility of resonance between wind gusts and the rolling of a
ship. Sudostroenie 29 no.10:15 0 '63. (MIRA 16:12)

AKSYUTIN, L.
AKSYUTIN, L., inzh.-sudovoditel'

Practice of using sounding devices on ships of the Black Sea
steam navigation. Mor. flot 18 no.2:9 F '58. (MIRA 11:2)

1. Odesskoye vyssheye morekhodnoye uchilishche.
(Black Sea--Steam navigation)
(Sounding and soundings)

AKSYUTIN, L., inzh.-sudovoditel'

Installing vibrators of the NEI-type sonic echo sounder with ebonite membranes. Mor.flot 19 no.3:29 Mr '59.

(MIRA 12:4)

1. Odesskoye vysshaye inzhennoye morskoye uchilishche.
(Sonar--Equipment and supplies)

~~AKSYUTIN, I.~~ inzhener-sudovoditel'

Best method of solving a parallactic triangle. Mor. flot 19
no.7:34 JI '59. (MIRA 12:10)

1.Odesskoye vyssheye inzhenerno-morskoye uchilishche.
(Triangle) (Navigation)

AKSYUTIN, L., prepodavatel'

Device for the prevention of damage to river beacons. *Bach.transp.*
19 no.9:45 S '60. (MIRA 13:9)

1. Odesskoye vyssheye inzhenernoye morskoye uchilishche.
(Inland navigation--Safety measures)

AKSYUTIN, L., prepodavatel'

Changes in the wind pressure on a ship depending on meteorological factors. Mor. flot 20 no. 12:21-22 D '60. (MIRA 13:12)

1. Kafedra tekhnicheskikh sredstv sudovozhdeniya Odesskogo
vysshego inzhenerno-morskogo uchilishcha.
(Navigation) (Wind pressure)

KRAVETS, P., kapitan; AKSYUTIN, L., starshiy prepodavatel'; TOPALOV, V.,
aspirant

Operating the practical training ship "Gorizont." Mer. flot
24 no.2:37 F '64. (MIRA 18:12)

1. Uchebno-proizvodstvennoye sudno "Gorizont" (for Kravets).
2. Odesskoye vyssheye inzhenernoye morskoye uchilishche (for Aksyutin, Topalov).

AKSYUTIN, L.

Improving the accuracy of determining the metacentric height
from the rolling period of a vessel in waves. Mor. flot 25
no.11:18-19 N '65. (MIRA 18:11)

1. Nachal'nik kafedry morskogo dela Odesskogo vysshego
inzhenernogo morskogo uchilishcha.

AKSYUTIN, Leonid Rodionovich; SERKO, G.S., red.; KLAPTSOVA, T.F.,
tekh. red.

[Accident to seagoing ships from loss of stability]Ava-
rii morskikh sudov ot poteri ostoichivosti. Moskva, Morskoi
transport, 1962. 52 p. (MIRA 15:10)
(Stability of ships) (Shipwrecks)

AKSYUTIN, L.R.

Determining the spectral density of a wind stream. Inform. sbor.
TSNIIKF no.102 Sudovozh. i sviaz' no.24:66-69 '63.
(MIRA 17:9)

CHERNIYEV, Leonid Fedorovich, dots.; KIRIN, Yuriy Pavlovich;
KONDRASHIKHIN, Vladimir Timofeyevich; AKSYUTIN, Leonid
Radionovich; RUSANOV, Valentin Mikhaylovich; YERMOLAYEV,
German Grigor'yevich; ANAN'IN, V.I., red.

[Collection of problems in nautical astronomy] Zadachnik
po morekhodnoi astronomii. Moskva, Transport, 1964. 338 p.
(MIRA 18c5)

AKSYUTIN, Leonid Radionovich, inzh.-sudovoditel'; BOL'SHAKOV,
Vladimir Sergeyevich, kand. geogr. nauk; STUPAKOVA,
L.A., red., red.

[Hydrometeorological service on maritime vessels] Gidro-
meteorologicheskaya sluzhba na morskikh sudakh. Moskva,
Transport, 1964. 82 p. (MIRA 18:7)

AKSYUTIN, L.R.

Possibility of extending the navigation range of second category
ships. Inform. sbor. TSNIIIMF no.98 Sudovozh. i sviaz' no.23:67-
69 '63. (MIRA 18:11)

24(8); 26(0)

PHASE I BOOK EXPLOITATION

SOV/2008

Aksyutin, Stepan Aleksandrovich

Perspektivy razvitiya parovykh i gazovykh turbin elektricheskikh stantsiy; termodinamicheskiye i tekhniko-ekonomicheskyye issledovaniya (Outlook for the Development of Steam and Gas Turbines of Electric Power Plants; Thermodynamic, Technological, and Economic Studies) Moscow, Mashgiz, 1957. 219 p. Errata slip inserted. 7,500 copies printed.

Reviewers: A.A. Kanayev, Candidate of Technical Sciences, and K.A. Rakov, Candidate of Technical Sciences; Ed.: I.Ya. Konfederatov, Doctor of Technical Sciences; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on Road, Transportation, and Lower Machinery Manufacturing: N.N. Voskresenskiy, Engineer.

PURPOSE: The book is intended for scientific workers, engineers and technicians, students and specialists working in the field of power engineering.

COVERAGE: The problem of the most advantageous heat engine for large electric power stations is considered. Some theoretical principles
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Outlook for the Development of Steam (Cont.)

SOV/2008

are elaborated and the equation of state for superheated steam is derived. On the basis of experimental work of the VTI (All-Union Heat-Engineering Institute) and the MEI (Moscow lower-Engineering Institute) a graphical representation of thermodynamic properties of steam is given for $p=1,000 \text{ kg/cm}^2$ and $t=1,000^\circ\text{C}$, and an entropy diagram is included. Cycles of steam-and gas-turbine units of large electric stations are investigated. Efficiency coefficients and maximum power depending on gas and steam parameters are determined. Relations for maximum power of a gas turbine and for processes in the regenerator are given. Some economic problems are considered. In the introduction, some figures and diagrams relative to the planned development of electric power in the USSR from the present time to the year 2000 are given. The following general conclusion is given: steam turbines, driven by steam produced by the combustion of organic fuels or by nuclear reactions are the most advantageous heat engines for large electric stations. There are 59 references: 38 Soviet, 18 English, and 3 German.

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Outlook for the Development of Steam (Cont.)

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AVAILABLE: Library of Congress		

IS/sfm
8-10-59

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SOV/112-58-2-1887

Translation from: Referativnyy zhurnal, Elektrotehnika, 1958, Nr 2, p 15 (USSR)

AUTHOR: Aksyutin, S. A.

TITLE: Equation of a Superheated-Steam State and Determination of Steam Parameters in a Region Remote From the Experiment (Sravneniye sostoyaniya peregretoyo vodyanogo para i opredeleniye parametrov para v oblasti, dalekoy ot eksperimenta)

PERIODICAL: Sb. Statey Vses. zaochn. politekhn. in-ta, Nr 15, pp 128-134

ABSTRACT: On the basis of some experimentally found relationships, the author, assuming a number of simplifications, has made up an equation of a steam state of the form $pv = RTe^n$. The quantity n determined from existing tables for steam lies between 0 and -0.32. The same form of the equation of state can be approached in a different way, viz., by using the law of mass action and by assuming that $\lg(pv)$ is linearly dependent on $1/T$ for the superheated-steam region. Taking specific volume values from the steam tables, VTI has derived the following expression:

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Equation of a Superheated-Steam State and Determination of Steam Parameters

$$n = \frac{10^{12} x_p^{1.072}}{3.1198(RT)^{4.21425}}$$

A table of reference points v, i, and s is presented largely for the parametric state that has never been studied experimentally. The author's values for v, i, and s are compared with corresponding values from Soviet steam tables.

S.L.R.

Translator's note: There is an obvious misprint in the title of the Russian original; "Sravneniye" should be read as "Uravneniye."

Card 2/2

AUTHOR: Aksyutin, S.A. (Candidate of Technical Sciences) SOV/96-59-6-21/22

TITLE: ~~Letter to the Editor~~ (Pis'mo v redaktsiyu)

PERIODICAL: Teploenergetika, 1959, Nr 6, pp 93-95 (USSR)

ABSTRACT: This letter from the author of the book is a reply to the review mentioned in the 'preceding' abstract (20/22). The author claims that the reviewer missed a number of main points in the work, and gives instances. Misprints in the book are pointed out. There is 1 table.

Card 1/1

AKTAKHOV, S. N.

Importance of vitamins in obstetrics. Moskva, Medgiz, 1954. 1881 p.

1. Vitamins. 2. Obstetrics.

AKTANOVA, S.; KISELEV, A.V.; EL'TEKOV, Yu.A.

Adsorption of aliphatic amines on alumina and silica. Izv. AN SSSR.
Otd.khim.nauk no.11:1936-1944 N '62. (MIRA 15:12)

1. Institut fizicheskoy khimii AN SSSR i Moskovskiy gosudarst-
vennyy universitet im. M.V. Lomonosova.
(Amines) (Adsorption)

KALYUZHENNY, I.T.; SIDOROVA, L.N.; BURMIN, L.; AKTAYEV, S.; TEPLITS,
V.V.; ZUYEV, V.N.; POKROVSKAYA, T.I.; KOZHOMKULOV, T.A.;
LAVROVA, N.N., prof., red.; ZUBOK, Ya.Z., tekhn. red.

[Read this, this is useful] Prochitai, eto polezno. Frunze,
1962. 10 nos. [Botkin's disease] Bolezn' Botkina. 19 p.
[Communicable (infectious) diseases in children] Detskie
zaraznye (infektsionnye) bolezni. 18 p. [Helminths and the
harm they cause to human health] Gel'minty i ikh vred dlia
zdorov'ia cheloveka. 26 p. [Work hygiene of the beet grower]
Gigiena truda sveklovoda. 12 p. [Hygienic regimen of the
schoolchild] Gigienicheskiy rezhim shkol'nika. 24 p. [Fungus
diseases of the skin] Gribkovye zabolevaniia kozhi. 24 p.
[Prevention and treatment of cardiac and vascular diseases]
Preduprezhdenie i lechenie boleznei serdtsa i sosudov. 19 p.
[Prevention and treatment of rickets] Rakhit, ego predu-
prezhdenie i lechenie. 8 p. [Old age and longevity] Starost'
i dolgoletie. 14 p. [Vitamins and their significance for
human health] Vitaminy i ikh znachenie dlia zdorov'ia chelo-
veka. 22 p. (MIRA 17:3)

42453

S/725/61/000/003/005/008

AUTHORS: Yegiazarov, B.G., Dolenko, A.V., Aktipov, V.F., Krutyakov, Yu.A.

TITLE: An instrument for the measurement of the intensity of a magnetic field.

SOURCE: Nekotoryye voprosy tekhniki fizicheskogo eksperimenta pri issledovanii gazovogo razryada; nauchno-tekhnicheskiy sbornik, no. 3. A.V. Chernetskiy & L.G. Lomize, eds. Moscow. Gosatomizdat, 1961, 83-93. ✓

TEXT: The paper describes the design of an instrument for the measurement of the absolute magnitude and the direction of the magnetic-field force vector for individual points of fields within a range of 10 to 1,000 oersted and with nonuniformities of up to 15%/cm; the relative error of measurement throughout this range does not exceed 0.03%. The measuring range may be raised to 10,000 oe by a change in pickup heads. In order to eliminate errors due to nonuniformities in the angular velocities of the pickup induction coil, a compensation-type measuring technique is employed; in it a measuring coil rotates within the field to be measured, while a comparison coil, mounted on the same driveshaft, rotates within a known comparison field. Any unevenness of the angular velocity is reflected equally in the two coils, and the necessary error-eliminating expressions are developed and set forth. Criteria for the "punctuateness" of a small coil are presented. The

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An instrument for the measurement of the intensity... 5/725/61/000/003/005/008

principal elements of the instrument are the pickup, the coordinate table, and the measuring unit. To ensure the "punctuateness" of the measuring pickup, the dimensions of the cylindrical coil were held down to a 5-mm dia, a 3.6-mm length, and a wire dia of 0.02 mm. The sensitivity of such a coil, at a speed of 25 rps, is $720 \mu\text{v}/(\text{a}/\text{cm})$. The coil is driven by a synchronous motor (1,500 rpm - not "rps" as stated in Russian original) via a conical gear transmission. Despite the 1.5-m length of the pickup device, required to achieve a long reach to cover the magnetic-intensity topography of extensive fields, the vibration of the coil does not exceed 0.01 mm. The collector of the coil consists of two silver rings and four graphite brushes. The measuring unit comprises a decade potentiometer, a null indicator, and a power-supply unit. A schematic circuit diagram is shown. Constancy in the total potentiometer resistance was achieved by pairing, in opposition to one another, identical decades of two KMC-6 (KMS-6) resistance units. As a result, very convenient contact potentiometers of 100 kohm (more accurately, 99,999 ohm) were obtained. The null indicator is a resonance amplifier tuned to the frequency of the emf produced in the coil. Since the a.c. hum constitutes the principal noise in the amplifier, the amplifier was tuned to 25 cps which, in turn, fixed the speed of the driver motor at 1,500 rpm. To achieve an elevated selectivity relative to the 50-cps frequency and its harmonics that might be produced by nearby powerful sources (motors, transformers, etc.), three resonance transformer stages with

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S/725/61/000/003/000/003

AUTHORS: Yegiazarov, B.G., Dolenko, A.V., Aktipov, V.F., Krutyakov, Yu.A.

TITLE: One of the piezoelectric methods for the measurement of a component of the magnetic field strength in a point.

SOURCE: Nekotoryye voprosy tekhniki fizicheskogo eksperimenta pri issledovanii gazovogo razryada; nauchno-tekhnicheskii sbornik, no.3. A.V. Chernetskiy & L.G. Lomize, eds. Moscow. Gosatomizdat, 1961, 94-104.

TEXT: This paper describes a "punctuate" field-strength-measuring device capable of measuring a component of the intensity of a constant magnetic field in a prescribed point in space with an accuracy of 0.5%. The distance between the pickup and the measuring unit may be of the order of tens of meters. The sensor consists of a tightly wound cylindrical coil (cf. Kamenskiy, Ye.I., et al., Elektronika, no. 10, 1958, 109). The passage of an electric current through the coil evokes the action of a couple in the direction of an alignment of the coil axis with the magnetic field. If the current is alternating with an audio frequency, the coil will oscillate about an axis lying within the plane of the coil perpendicular to the magnetic-field line of force passing through the center of the coil. The new device employs a piezoelement tied to the coil which is forced to oscillate with it and which produces an emf

Card 1/3

One of the piezoelectric methods ...

S/725/61/000/003/006/008

that is proportional to the magnetic field strength H and the constant current (coil), thus yielding a measure of the projection of the field strength onto the plane of the coil windings. This principle is well known, but its earlier embodiments (Birebent, R., C. r. Acad. sci., v. 234, no. 11, 1952, 1135; v. 241, no. 4, 1955, 368; v. 240, no. 10, 1955, 1064) failed to provide a means for the identification of the direction of the field-strength component thus measured. The new device achieves the determination of the field-strength projection onto the axis of the piezoelement, i. e., at a given point and for a given direction. The coil is supported by a bimorphic Barium titanate ceramic beam which is thicknesswise polarized. Torsional oscillations yield a zero emf, and any emf arising in it is proportional to the projection of the magnetic-field strength onto the beam axis only. The phase difference between the output voltage of the piezoelement and the sinusoidal coil-feed current will also yield an indication of the sense of the magnetic field. The sensitivity of the device is increased by tuning the feed current in resonance with the proper flexural frequency of the coil-piezoelement-holder system. Laboratory tests are described and illustrated in schematic cross-sections and photographs; the effectiveness of the resonance tuning on the amplitude of the output signal is shown; it was found that input-current limitations imposed a practical magnetic-field strength threshold of 10 oersted, below which the needed input currents become too high to be tolerable. Noise induction from the coil to the metallized sheath of the piezoelement can be eliminated by covering the coil with "aquadag" graphite lubricant. The two halves
Card 2/3

One of the piezoelectric methods . . .

S/725/61/000/003/606/698

of the coil and the piezoelement must be pasted together exactly coaxially to eliminate any errors due to torsionally produced shifts in the minimum signal. The details of the audio-frequency generator which feeds the sensor coil, the electric characteristics of the piezoelement, the amplifier, the capacitive phase-shifter required for the compensatory piezoelement-voltage comparison, the compensation unit itself, and the use of the null indicator to establish the attainment of the compensation are fully explained. The pickup is maintained at a constant temperature of $50 \pm 0.5^\circ\text{C}$. All individual allowances are based on the specified summary error of measurement, which is not to exceed 0.5%. If two or three mutually perpendicular piezoelements are used, then two or three components can be measured simultaneously, with the only stipulation that the centers of the coils must not be more than, say, 3.5 mm apart to ensure reasonable simulation of local punctuate coincidence. The same result, of course, can be attained by a 90° rotation of a single coil. Thanks are expressed to L. Z. Rusakov for his substantial assistance in the project. There are 8 figures and 12 references (6 Soviet, 3 French, 1 English-language, and 2 Russian translations of English-language writings).

ASSOCIATION: None given.

Card 3/3

АХТОНКА, Ye.S.; VVEDENSKIY, V.A.

Upright drilling machines; standards of precision and rigidity.
Standartizatsiya 24 no.9:46-48 S '60. (MIRA 13:9)
(Drilling and boring machinery--Standards)

AKTOV, V.B.

A track straightener is needed. Put' i put. khoz. no.7:45 J1 '57.
(MLRA 10:8)

1. Zamestitel' nachal'nika distantsii puti, g. Tambov.
(Railroads--Track)

AKTOVA, Ye.S.

Vertical grinding and lapping machines; basic dimensions.
Standartizatsia 24 no.12:39-40 D '60. (MIRA 13:11)
(Grinding machines--Standards)

AKTOVA, Ye.S.

Diamond boring machines. Standartizatsiia 25 no.1:47-48 Ja '61.
(MIRA 14:3)
(Drilling and boring machinery--Standards)

OBTEMPERANSKAYA, S.I.; AKTSHIN, P.A.

In the department of chemistry. Vest. Mosk. un. 8 no. 8:177-178 Ag '53.

(MLRA 6:11)
(Chemistry)

MAKSIMENKO, M.Z.; GALIYEV, A.F.; GUR'YANOV, A.I.; AKTUGANOVA, L.S.; EDEL'-
SHTEYN, I.Ya.

Investigating certain designs of extraction apparatus in a
lubricant-phenol system. Nefteper. i neftekhim. no.6:41-44
'64. (MIRA 17:9)

1. Novo-Ufimskiy neftepererabatyvayushchiy zavod i Kazanskiy
khimiko-tekhnologicheskiy institut.

KULIYEV, R.Sh.; KEVORKOVA, I.S.; AKTYAMOVA, L.A.

Use of perlites for the purification of oils. Azerb.khim.zhur.
no.4:6-9 '65. (MIRA 18:12)

1. Institut neftekhimicheskikh protsessov AN AzSSR. Submitted
June 16, 1964.

11-51050-00 ENT(M)/I DJ/WE

ACC NR: AP5027726

SOURCE CODE: UR/0065/65/000/009/0018/0021

AUTHOR: Kuliyev, R. Sh.; Kevorkova, I. S.; Aktyamova, L. A.

14
12
B

ORG: INKhP AN AzerbSSR

TITLE: New Azerbaydzhan crude oils as stock for the production of oil

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 9, 1965, 18-21

TOPIC TAGS: petroleum, crude petroleum, petroleum product, lubricating oil, lubricant component, lubricant refining, hydrocarbon, aromatic hydrocarbon, resin, methane, solvent extraction

ABSTRACT: This evaluation of Azerbaydzhan paraffin base crudes as stock for the production of high quality oil was made because the output of light oily and paraffin base crude at the old Azerbaydzhan oilfields has drastically decreased and the output of high-tar nonparaffin base and paraffin base crude at the new oilfields has increased in recent years. The latter include the tarry, low-sulfur, and high paraffin base crude of the Ostrov Peschanyy and Kushkhana deposits and the paraffin base crude of the Neftyanyye Kamni deposit. The evaluation results show that 1) the conditions for producing oil from Ostrov Peschanyy and Kushkhana crudes are perfectly acceptable despite the high paraffin content and that 29, 27, and 30% oil on the crude can be obtained from Ostrov Peschanyy, Kushkhana, and Neftyanyye Kamni, respectively, 2) the

Card 1/2

UDC: 665.51(479.24)

I. 31038-66

ACC NR: AP5027726

2

viscosity temperature characteristics of motor oil obtained from the above three crudes are substantially better than those of oils from commercial blends of Baku low-paraffin base crudes, 3) the methano-naphthenic and aromatic hydrocarbon groups of oily components from Ostrov Peschanyy crude have a sufficiently high viscosity index value and the methano-naphthenic, light aromatic, and medium aromatic hydrocarbons as well as the intermediate fractions and resins obtained from the residual component have the highest viscosity index value, 4) the residual component of the Ostrov Peschanyy crude yields 6.2% aviation oil on the crude and the yield can be increased to 10% by deasphalting and to 10.2% by the furfural solvent refining process. It is concluded that the new paraffin base crudes from the Ostrov Peschanyy and Kushkhana deposits are valuable stock for the production of distillate and residual oils. -Orig. art. has: 7 tables.

SUB CODE: 21/ SUBM DATE: none

Card 2/2 *LC*

L 04957-67 EWT(m) DJ

ACC NR: AP6025822

(A)

SOURCE CODE: UR/0316/66/000/001/0007/0010

AUTHOR: Kuliyev, R. Sh.; Kevorkova, I. S.; Aktyanova, L. A.ORG: INKhP AN AzerbSSRTITLE: Preparation of stabilized MK-8 oil "

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 1, 1966, 7-10

TOPIC TAGS: lubricating oil, antioxidant additive

ABSTRACT: MK-8 oil containing 0.6% of the antioxidant ionol has been produced since 1963. Because of its scarcity and high cost, attempts have been made to find means of reducing the amount of ionol added to MK-8. It was found that this can be done by carrying the purification of the oil further, i. e., increasing the amount of acid, further purifying commercial MK-8 with gumbrin and using selective and adsorption methods of purification. Specifically, the amount of ionol can be reduced from 0.6 to 0.4% by the following methods: (1) increasing the amount of H₂SO₄ in the purification of MK-8 oil from 8 to 10%; (2) additionally purifying MK-8 with 4% gumbrin or powdered silica-alumina catalyst, (3) preparing MK-8-type oil by purification with 100% furfural and 5% gumbrin. The most practical method is the improvement of the sulfuric acid purification by increasing the amount of acid to 10%. This has resulted in a 29% decrease in the cost of production of MK-8 oil. Orig. art. has: 4 tables.

SUB CODE: 11/ SUBM DATE: 27Nov64

Card 1/1

AKUBULATOV, Sh. F.

RUDNITSKIY, N. Ya., inzhener; AKUBULATOV, Sh. F., kandidat tekhnicheskikh nauk.

Deformations in a large-panel frameless apartment house. Stroi.
prom. 35 no.5:9-11 My '57. (MLBA 10:6)

1. Institut osnovaniy i podzemnykh sooruzheniy i Institut zhilishcha.
(Apartment houses) (Strains and stresses) (Soil mechanics)

KULIYEV, R.S.; KEVORKOVA, I.S.; AKTYAMOVA, L.A.

New Azerbaijan oils as raw material for the production of lubricants.
Khim. i tekh. topl. i masel 10 no.9:18-21 S '65. (MIRA 18:9)

1. Institut neftekhimicheskikh protsessov AN AzerSSR.

AKULAYEV, V.S., inzh.

Calculation of disturbing stress caused by the hydrodynamic imbalance of the propeller. Sudostroenie 31 no.1:18-20 Ja '65.
(MIRA 18:3)

AKULAYEV, V.S., k.kh.; ALEKSEYEV, A.M., Inzh.; SECHOVSKIY, A.K., kand.tekhn.nauk

Longitudinal vibration of the ship hull. Sudestvenno 31 no.4:14-16
Ap 1965. (MIRA 18:8)

AKULAYEV, V.S.; NIKOL'SKIY, Yu.A.; SBOROVSKIY, A.K.

Coefficients of the dynamics of the ship hull. Sudostroenie
no.7:10-12 JI '65. (MIRA 18:8)

I. 07569-67 EWT(m)/EWP(w) IJP(c) WW/EM/GD
ACC NR: AT6029373 (N) SOURCE CODE: UR/0000/66/000/000/0293/0302

AUTHOR: Akulayev, V. S. (Leningrad); Nikol'skiy, Yu. A. (Leningrad); Sborovskiy, A. K.
(Leningrad)

ORG: none

TITLE: Damping of forced vibrations in the hull of a ship

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Rasseyaniye energii pri kolebaniyakh uprugikh sistem (Energy dissipation during vibrations of elastic systems). Kiev, Naukova dumka, 1966, 292-302

TOPIC TAGS: vibration analysis, marine engineering

ABSTRACT: Calculations of forced vibrations using data from previously published literature yield calculated values of the amplitudes which, as a rule, are considerably lower than experimental values, that is, there is an error on the side of danger. The experiments described in the present article were conducted under deep water conditions which eliminated the effect of factors such as shallow water, mooring walls and other chips. Measurements were made of the forced vibrations of the hull of a ship at different values of the eccentricity, in the presence of vertically directed and undirected forces. Based on the experimental data, curves were plotted of the change in the amplitude of the forced vibrations as a function of their frequency. In working up the data, the decrements in the free damped vibrations were determined from

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L 07569-67

ACC NR: AT6029373

the resonance curves by the known formula

$$\delta = \frac{\pi}{\sqrt{3}} b(1 - b^2), \quad (1)$$

where $b = (N_2 - N_1)/N\rho$ is the relative width of the resonance peak, found with the amplitude of the forced vibrations equal to half the maximum value. In the presence of resonance, the value of the dynamic coefficient is connected with the decrement δ by the following relationship

$$\beta = \frac{\pi}{\delta}. \quad (2)$$

A figure shows values of β for ships of various configurations. After an extended mathematical development, the article arrives at the following formula for determination of the dynamic coefficient:

$$\beta = \frac{10000}{N}. \quad (15)$$

Orig. art. has: 15 formulas, 4 figures and 2 tables.

SUB CODE: 13, 20/ SUBM DATE: 22Feb66/ ORIG REF: 007/ SOV REF: 002/ OTH REF: 002

38734
S/194/62/000/005/015/157
D256/D308

26.2190

AUTHORS: Kuz'menko, A.P., and Akul'bekov, Z.
TITLE: Electronic temperature monitor ЭТС-20 (ETS-20) for
20 probes
PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
no. 5, 1962, abstract 5-2-52 k (Vopr. mekhaniz. i avto-
matiz. v gorn. prom-sti. (KNIUI, no. 8), M., 1961,
283-288)

TEXT: A brief discussion of devices for signalling of excess tem-
peratures of various objects, e.g. bearings, machine elements etc.,
using thermistor pickups 1) arrangement for remote temp. monitoring
in bearings of КТ-1 (KT-1) type including a provision for locating
the overheated area; 2) signalling temp. monitor YTC-1 (UTS-1);
3) temp. monitoring arrangement developed by Leningrad Giproskht.
A description is given of the electronic contactless temperature sig-
nalling device ETS-20 developed by KNIUI. ETS-20 consists of the mo-
nitor unit and a power supply unit, the latter comprising a ferro-
resonance voltage stabilizer, an amplifier panel and el.-magn. relay
Card 1/2.

KUZ'MENKO, A.P.; AKUL'BEKOV, Z.Zh.

The ETS-10 electronic temperature signalling device. Naush.
trudy KNIUI no.15:414-416 '64. (MIRA 18:8)

ACC NR: AP7005117

SOURCE CODE: UR/0041/66/018/005/0007/0018

AKULENKO, L. D.

"Stationary Oscillations and Rotations"

Kiev, Ukrainskiy Matematicheskiy Zhurnal (Ukrainian Mathematics Journal), No. 5,
Vol. 18, 1966, pp 7-18

Abstract: The system

$$\frac{dx_i}{dt} = F_i(t, x_1, x_2, \dots, x_n; \lambda) \quad (i = 1, 2, \dots, n),$$

a generalization of perturbed oscillating systems, is examined. The independent variable t varies over an unbounded interval; the variables x_1, x_2, \dots, x_n , in general, vary in an infinite Euclidean space E^n ; and the numerical parameter takes values on the segment $[\lambda_1, \lambda_2]$. The functions F_i are periodic with respect to t, x_1, x_2, \dots, x_p ($p \leq n$) and independent of λ . Moreover, F_i are continuous with respect to t and have partial derivatives with respect to $x_1, x_2, \dots, x_n, \lambda$ up to the second order, satisfying the Lipschitz condition, with constants independent of t in a region $G \in E^n$ unbounded with respect to coordinates x_1, x_2, \dots, x_p .

The author presents a theorem and solves the system for rotational-vibrational motion. The results are analyzed in detail, and the convergence and stability of the solution are discussed. Orig. art. has: 35 formulas. [JPRS: 38,695/

Card 1/2

0926-1642

ACC NR: AP7005117

TOPIC TAGS: oscillation, vibration

SUB CODE: 20 / SUBM DATE: 01Oct65 / ORIG REF: 023

Card 2/2

AKULENOK, V. N.

USSR/Radio

Oct 1947

Cables - Corrosion
Cables, Underground

"Sectionalizing Cables as a Defense Against Electrical Corrosion," V. N. Akulenok, Engr, 1 p

"Vestnik Svyazi - Elektrosvyaz'" No 10 (91)

The International Consultation Committee recommended that underground cable lines be sectionalized so as to decrease the danger of electrical corrosion disrupting the service on the whole line. The author tries to show that in some cases this method of sectionalizing by means of spaced contact blocks can result in very serious damage. He takes his examples from the case of an underground streetcar power line.

LC

29790

MIKHAYLOV, M.I.; AKULENOK, V.N.; MARCHENKO, A.F.

[Protection against corrosion of interurban communication cables] Zashchita
mezhdugorodnykh kabelei sviazi ot korrozii. Moskva, Gos.izd-vo lit-ry po
voprosam sviazi i radio, 1953. 130 p. (MLRA 6:7)
(Cables)

AKULENOK, V.N., inzhener.

Manual on protecting underground cables from corrosion. Reviewed by
V.N.Akulenok. Vest.sviazi 17 no.1:33-34 Ja '57. (MIRA 10:2)

1. Rukovoditel' gruppy zashchity Giprosvyazi.
(Electric cables) (Electrolytic corrosion)

AKULENOK, V.N., inzh.

Protection of communication cables from corrosion at points where they are crossed by electrified d.c. railroads. Vest. sviazi 20 no.6:10-12 Je '60. (MIRA 13:7)

1. Rukovoditel' gruppyy zashchity instituta "Giprosvyaz'."
(Electric lines--Underground)
(Electrolytic corrosion)

AKINFIYEV, L. I. (Moskva); AKULENOK, V.N. (Moskva)

New regulations on the protection of underground structures from
corrosion. Elektrichestvo no.8:81-87 Ag '60. (MIRA 13:8)
(Electrolytic corrosion)

L 27775-66 EEC(k)-2/EWA(h)/EWT(1)

ACC NR: AP6012704

(A, N)

SOURCE CODE: UR/0119/66/000/004/0024/0024

AUTHOR: Akulenok, V. P. (Engineer); Bekeshev, V. I. (Engineer)

ORG: none

TITLE: Commercial-frequency generator 25

SOURCE: Priborostroyeniye, no. 4, 1966, 24

TOPIC TAGS: frequency standard, reference frequency generator

ABSTRACT: The development of a reference-frequency generator for checking and calibrating frequency meters and other instruments is reported. The generator comprises a self-excited electron-tube oscillator, a push-pull tube amplifier, and a power supply unit. A deep negative d-c feedback makes the oscillator insensitive to heater-voltage variation (3.5 to 7 v) and to tube replacements. The claimed technical characteristics are: continuous band, 43--58 cps; fine control, 0.01 cps per 1° of knob turning; output voltage, 127--220 v; output power, 20 w; harmonic content at 18 w, 5% or less; frequency drift with a voltage variation of 10%, 1% or less. The generator circuit diagram is shown. Orig. art. has: 1 figure and 1 table.

SUB CODE: 09 / SUBM DATE: none

Card 1/1 NC

UDC: 621.373.52

AKULENOK, Ye.M.; BAGDASAROV, Kh.S.; KHAIMOV-MAL'KOV, V.Ye.

Effect of mechanical stirring and ultrasonic vibrations on the process of adsorption of impurities by monocrystals. Kristallografiia 2 no.1:197-198 '57. (MLRA 10:7)

1. Institut kristallografii Akademii nauk SSSR.
(Crystals--Growth)

S/070/62/007/003/015/026
E132/E460

AUTHORS: Khaimov-Mal'kov, V.Ya., Zhmurova, Z.I.,
Bagdasarov, Kh.S., Akulenok, Ye.M.

TITLE: On the question of the sectorial growth of crystals

PERIODICAL: Kristallografiya, v.7, no.3, 1962, 437-441

TEXT: Certain regularities in the production of macro-nonuniformities in crystals during their growth from solution are discussed. The connection between the forms of the growth pyramids and the conditions of crystallization are examined. Using the example of alums it is shown that the development of a sectorial structure is connected with the trapping by the growing crystal of mechanical impurities and with the inclusion of structural impurities. The following signs can be used to diagnose the kinds of defects in crystals. The relative rate of growth of a face which is being spoiled is, in the case of structural impurities, significantly decreased (blocking) but in the case of mechanical impurities it is significantly increased. In the first case, if the symmetry of the crystal allows it, the defective face forms the basic shape of the crystal and in
Card 1/2

✓

On the question of the sectorial ... S/070/62/007/003/015/026
E132/E460

the second case it is tapered out. The degree of spoiling of the growth pyramids (degree of trapping of impurities) decreases with increasing supersaturation for structural impurities but decreases for mechanical impurities. For high concentrations of structural impurities the surface of an affected face has a specific character of peeling flakes. (Mechanical impurities are insoluble particles or colloidal bodies in suspension, structural impurities are ions or dyes in solution which enter the crystal as isomorphous replacements.) There are 8 figures. ✓

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography AS USSR)

SUBMITTED: June 28, 1961

Card 2/2

KHAIMOV-MAL'KOV, V.Ya.; BAGDASAROV, Kh.S.; AKULENOK, Ye.M.

Relation between the intensity distribution in a ruby laser and defects in the crystals. Kristallografiia 8 no.6:925-926 N-D'63. (MIRA 17:2)

1. Institut kristallografii AN SSSR.

ZHMUROVA, Z.I.; KHAIMOV-MAL'KOV, V.Ya.; AKULENOK, Ye.M.; BAGDASAROV, Kh.S.

Distribution of an isomorphic impurity in crystals of
 $\text{Zn}(\text{NH}_4)_2(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ and K_2SO_4 during crystallization.

Kristallografiia 8 no.6:936-937 N-D'63. (MIRA 17:2)

1. Institut kristallografi AN SSSR.

AKULICH, L.

Greater attention to problems of ship repair. Mor. flot 22 no.10:
32-34 0 '62. (MIRA 15:10)

1. Ispolnyayushchiy obyazannosti glavnogo tekhnologa Vladivostokskogo sudoremontnogo zavoda.

(Ships—Maintenance and repair)

AKULICH, S.S.

Use of a soda-potash mixture in the production of glass containers. Stek. i ker. 19 no.8:41 Ag '62. (MIRA 15:9)

1. Stekol'nyy zavod imeni Sazonova.
(Glass containers)

AKULICH, S.S.; KOZLOV, A.P.

Mechanical bottle transfer machine. Stek. i ker. 18 no.11:39-40
N '61. (MIRA 15:3)

(Bottles)

AKULICH, S.S.

The Sazonovo plant increases its output. Stek. 1 ker. 18
no.12:33-34 D '61. (MIRA 16:8)

(Sazonovo--Bottles)

MARON, F.L.; AKULICH, V.A.

The K-1B ditcher. Biul.tekh.-ekon.inform. no.8:11-12 '59.
(MIRA 13:1)

(Peat machinery)

AKULICHEV, N.I.; KLYACHKO, Yu.A.

Calculating theoretically the melting temperatures of binary
chemical compounds. Soob.o nauch.rab.chl.VKHO no.3:26-30 '54.
(MIRA 10:10)

(Melting points)

AKULICHEV, V.A.

Production of bimetal wire by pressing. Izv. vys. ucheb. zav.; tsvet.
met. no.2:160-164 '58. (MIRA 11:8)

1. Moskovskiy institut tsvetnykh metallov i zolota. Kafedra obra-
botki metallov davleniyem.
(Metal cladding) (Electric wire)

AKULICHEV, V.A.; IL'ICHEV, V.I.

Spectral characteristics of the genesis of ultrasonic cavitation in water. Akust. zhur. 9 no.2:158-161 '63.
(MIRA 16:4)

1. Akusticheskiy institut AN SSSR, Moskva.
(Cavitation) (Ultrasonic waves)

AKULICHEV, V.A.; IL'ICHEV, V.I.

Interaction of ultrasonic waves in cavitation. Akust. zhur.
10 no.1:11-14 '64. (MIRA 17:5)

1. Akusticheskiy institut AN SSSR, Moskva.

"APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000100720014-6

APPROVED FOR RELEASE: 06/05/2000

CIA-RDP86-00513R000100720014-6"

L 7059-66 EWT(1)/EWP(m)/EPF(n)-2/EWA(d)/FCS(k)/EED(b)-3/ETC(m)/EWA(1) IJP(c)

ACC NR: AP5021474 ^{44,55} ^{44,55} SOURCE CODE: UR/0046/65/011/003/0287/0293

AUTHOR: Akulichev, V. A; Rosenberg, L. D.

ORG: Acoustics Institute, AN SSSR, Moscow (Akusticheskiy institut AN SSSR) 84
B

TITLE: Certain correlations in a cavitation field

SOURCE: Akusticheskiy zhurnal, v. 11, no. 3, 1965, 287-293

TOPIC TAGS: cavitation, ^{21,44,55} acoustic wave, ^{1,55} cavity flow, fluid mechanics, acoustics

ABSTRACT: The energy of an acoustic wave causing cavitation within a certain volume of a fluid in a cavitation field is dissipated as a result of the energy lost by the generation of cavities. Based on the concept of an ideal model of a unidimensional cavitation field, proposed by L. Rosenberg at the Fourth International Congress on Acoustics, Copenhagen (1962), and assuming the cavitation nuclei to be distributed uniformly, with the only energy losses being due to acoustic cavitation, an integral equation for the dissipation of an intensive acoustic wave is derived.

Applying the concept of M. Sirotynk's experimental work (Energy balance in an acoustic field in the presence of cavitation. Akusticheskiy zhurnal, no. 10, 1964, 465-469), the general integral equation is reduced to a

Card 1/5

UDC: 534.29/532.528

L 7059-66

ACC NR: AP5021474

simplified form containing the easily determinable intensity and frequency parameters of the acoustic wave and a function of the fluid's cavitation properties. It was found that in a powerful concentrator applying focused ultrasonic vibrations of high intensity, the rate of an acoustic wave's cavitation energy loss can be expressed as a function of an electrical potential difference. An example with distilled water, where cavitation begins at an ultrasonic vibration frequency of 500 kc, shows coincident rates of cavitation energy loss derived experimentally and analytically. The analysis of such a wave, generated in distilled water by a plane emitter with a surface intensity between 900 and 1200 w/cm², shows a linear increase in the wave's intensity I with increased surface intensity I₀ until the beginning of cavitation (see Fig. 1). With the beginning of cavitation at 900 w/cm², the increase of I lessens more and more at higher I₀-values and with increased distance x from the emitter (see Fig. 2).

Coefficients are introduced and expressed by functions characterizing different cavitation activities. The index of cavitation K best characterizes the cavitation activity in general or the extent of a developing cavitation. It is defined as the ratio of the volume of cavities to the unit volume in the cavitation field and can easily be determined experimentally; in a unidimensional cavitation field it is a function of the acoustic wave propagating along the x axis. The distance at which K decreases by 10 times is considered the effective rate of the unidimensional cavitation field.

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I. 7059-66
 ACC NR: AP5021474

0

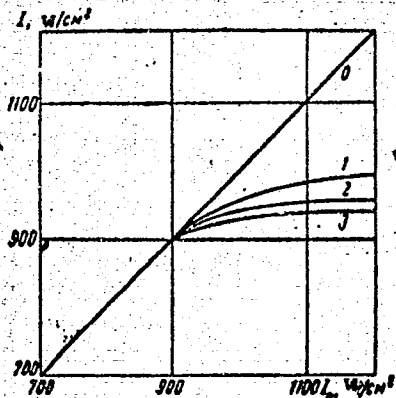


Fig. 1.

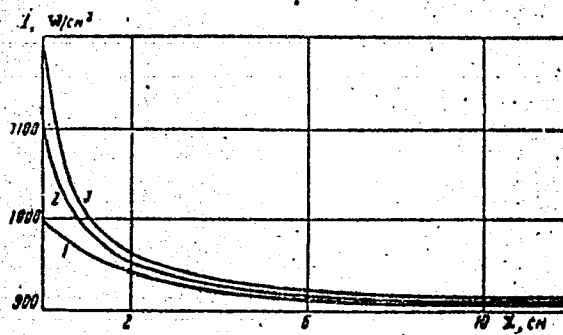


Fig. 2.

The coefficient α defines the degree of cavitation utilization of the acoustic wave energy. At 500 kc, in a powerful concentrator, it rises rapidly from 0 to 0.5 with an increase in the intensity of the cavitation field from 900 to 1200 w/cm^2 . The coefficient ϵ characterizes the potential erosion activity of cavitation; in addition to the wave's intensity, it is also a function of the air content and temperature parameters, and of the

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flapping time of cavitation cavities. Both κ and ϵ have been introduced by L. Rosenberg (Akusticheskiy zhurnal, 1965, 11, 1, 121-124). Luminescent and chemical activities are expressed by analogous coefficients. The efficiency of cavitation processes in a unit of volume within the cavitation field is expressed by the coefficient $\eta = \kappa \epsilon$ and for the whole cavitation field by the mean value of η .

Wave resistance in a cavitating medium generally depends on the cavitation index K and a parameter γ , which is a time function of the cavity's flapping. The mean wave resistance of a cavitating medium decreases relative to a noncavitating medium at low frequencies with increasing K , due to increased compressibility; but it increases at high frequencies when cavities do not flap and the compressibility decreases.

The effect of cavitation index K on the wave resistance at low frequencies at which γ is ineffective is expressed by the equation

$$\rho_{HCN} = \rho_0 c_0 \left(1 + \frac{\beta_0^2 K}{f_0} \right)^{-1/2}$$

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