MAKAROV, L.V.

Method for controlling the performance of hydrocyclones used for clay mud purification. Izv. vys. ucheb. zav.; neft' i gaz 2 no.10: 27-31 '59. (MIRA 13:2)

1.Sverdlovskiy gornyy institut im. V.V. Vakhrusheva.
(Oil well drilling fluids) (Separators (Machines))

MAKAROV, L.V.

Method for studying the performance of hydrocyclones used for removing well-cuttings from drilling muds. Izv. vys. ucheb. zav.; neft' i gaz 2 no.6:39-42 '59. (MIRA 12:10)

1.Sverdlovskiy gornyy institut im. V.V. Vakhrusheva.
(Separators (Machines)) (Borings)

MAKAROV, L.V.

Method for calculating hydrocyclones used for removing borings from drilling muds. Izv. vys. ucheb. zav.; neft' i gaz 2 no.4: 35-40 '59. (MIRA 12:10)

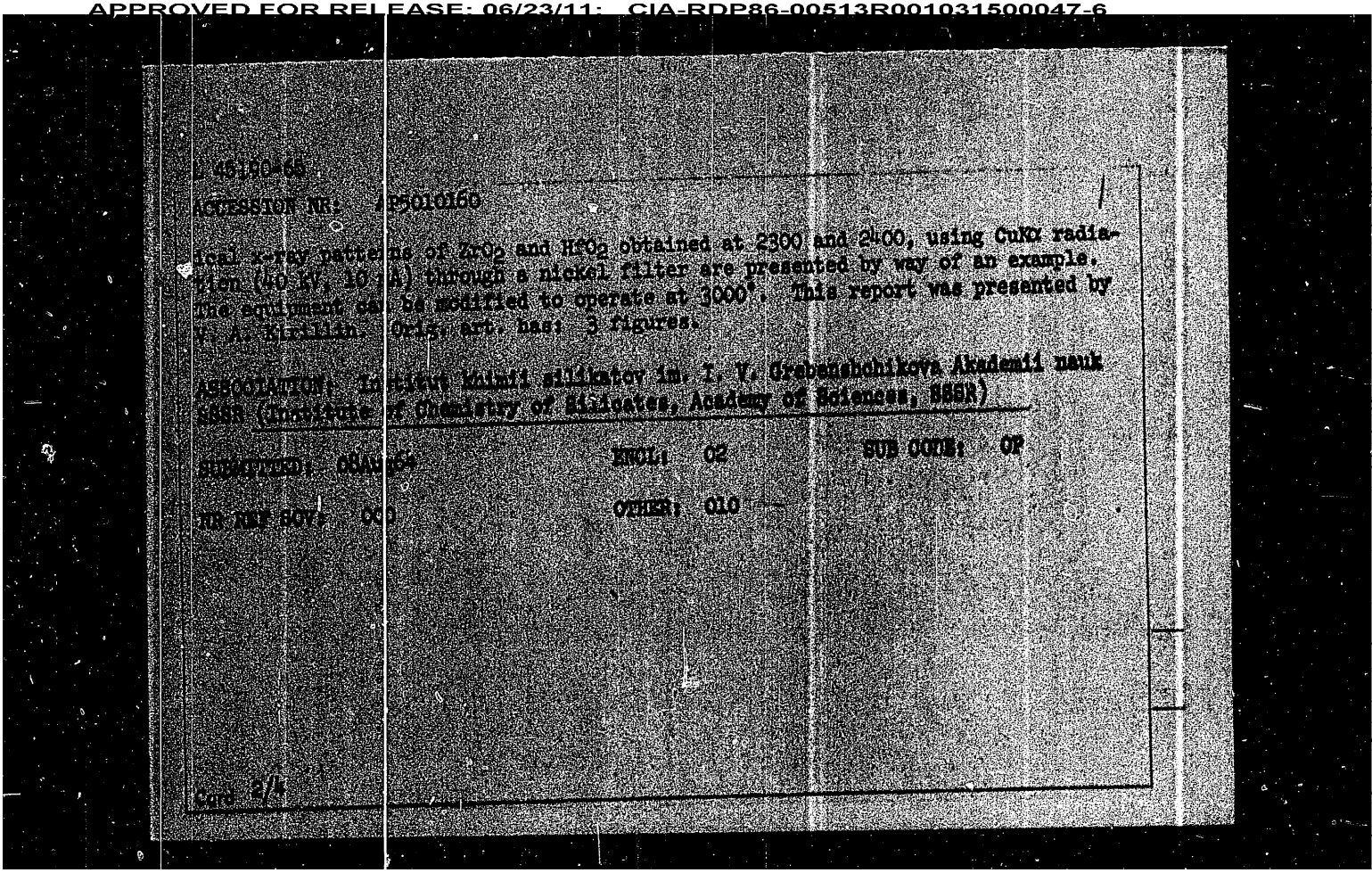
1.Sverdlovskiy gornyy institut im. V.V. Vakhrusheva.
(Separators (Machines)) (Borings)

MAKAROV, L.V., Cand Tech Sci -- "New methods of purification and preparation of clay solutions in exploratory core drilling." Sverdlovsk, 1959. 17 pp (Min of Higher Education USSR. Sverdlovsk Min Nonferrous Metal Inst im V.V. Vakhrushev), 100 copies (KL,27-59, 126)

-50-

MAKAROV, L.S., inzh.

Selecting a method of casting rotors. Lit. proizv. no.7:42-43 Jl '65. (MIRA 18:9)



L 45180-65

ACCESSION NR: AP5010160

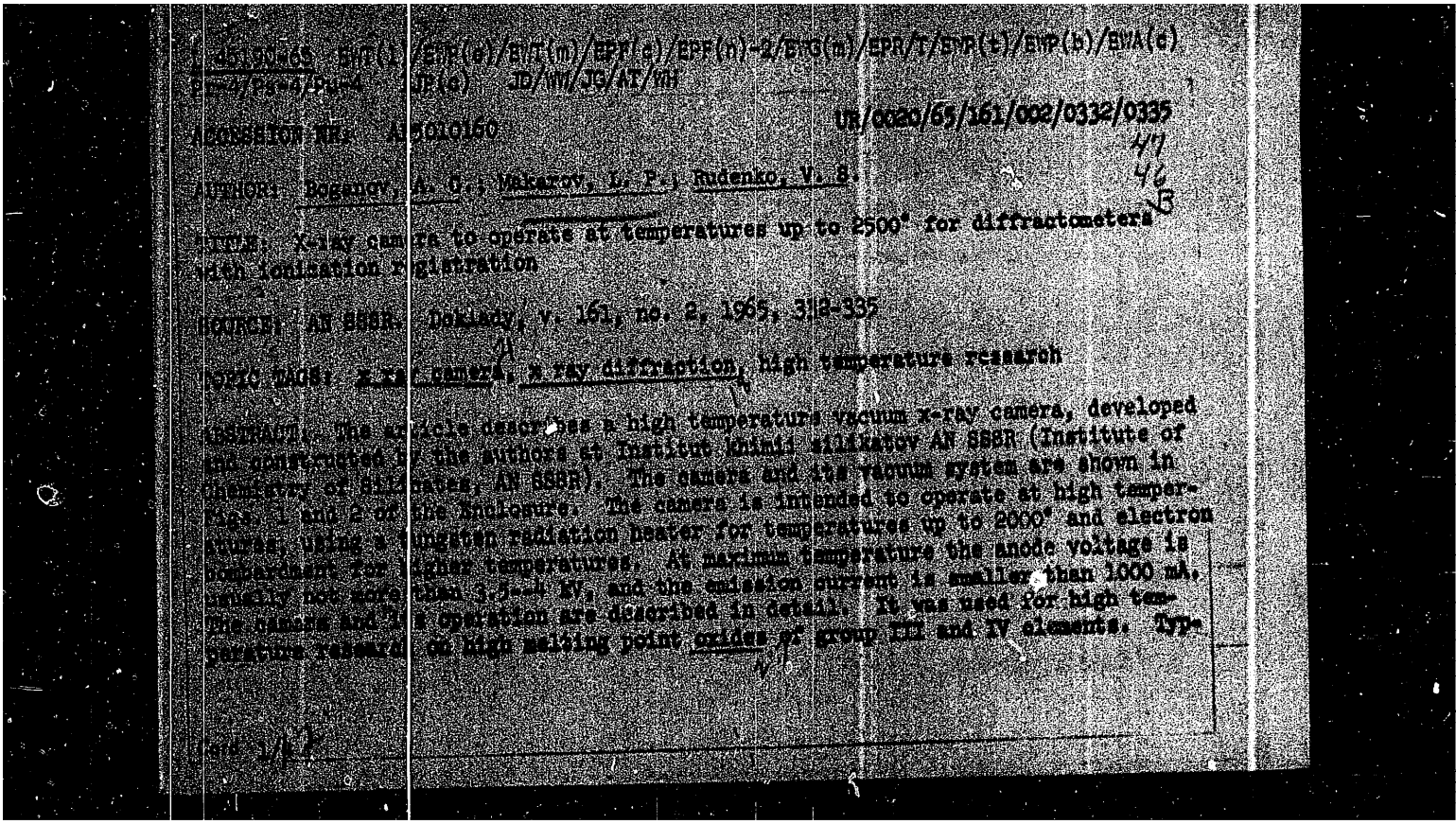
Ideal x-ray patterns of ZrO_2 and HfO_2 obtained at 2300 and 2400, using CuKα radiation (40 kV, 10 mA) through a nickel filter are presented by way of an example. The equipment can be modified to operate at 3000°. This report was presented by V. A. Kirillin. Orig. art. has: 3 figures.

ASSOCIATION: Institut khimii silikatov im. I. V. Grebenshchikova Akademii nauk SSSR (Institute of Chemistry of Silicates, Academy of Sciences, SSSR)

SUBMITTED: 00Apr64 ENCL: 02 SUB CODE: OP

NR REF SOV: 003 OTHER: 010

Card 2/4



L 45190-65 EWT(l)/EWP(e)/EWT(m)/EPF(c)/EPF(n)-2/EWG(m)/EPR/T/EWP(t)/EWP(b)/EWA(c)
P2-2/P4-4/P5-4 JD/WW/JG/AT/WH

ACCESSION NR: AP5010160 UR/0020/65/161/002/0332/0335

AUTHOR: Bogatyy, A. G.; Makarov, L. P.; Rudenko, V. S.

TITLE: X-ray camera to operate at temperatures up to 2500° for diffractometers with ionization registration

SOURCE: AN SSSR. Doklady, v. 161, no. 2, 1965, 332-335

TOPIC TAGS: x ray camera, x ray diffraction, high temperature research

ABSTRACT: The article describes a high temperature vacuum x-ray camera, developed and constructed by the authors at Institute khimii silikatov AN SSSR (Institute of Chemistry of Silicates, AN SSSR). The camera and its vacuum system are shown in Figs. 1 and 2 of the Enclosure. The camera is intended to operate at high temperatures, using a tungsten radiation heater for temperatures up to 2000° and electron bombardment for higher temperatures. At maximum temperature the anode voltage is usually not more than 3.5-4 kV, and the emission current is smaller than 1000 mA. The camera and its operation are described in detail. It was used for high temperature research on high melting point oxides of group III and IV elements. Typ-

Card 1/2

AG1255-65

ACCESSION NR: AP5007561

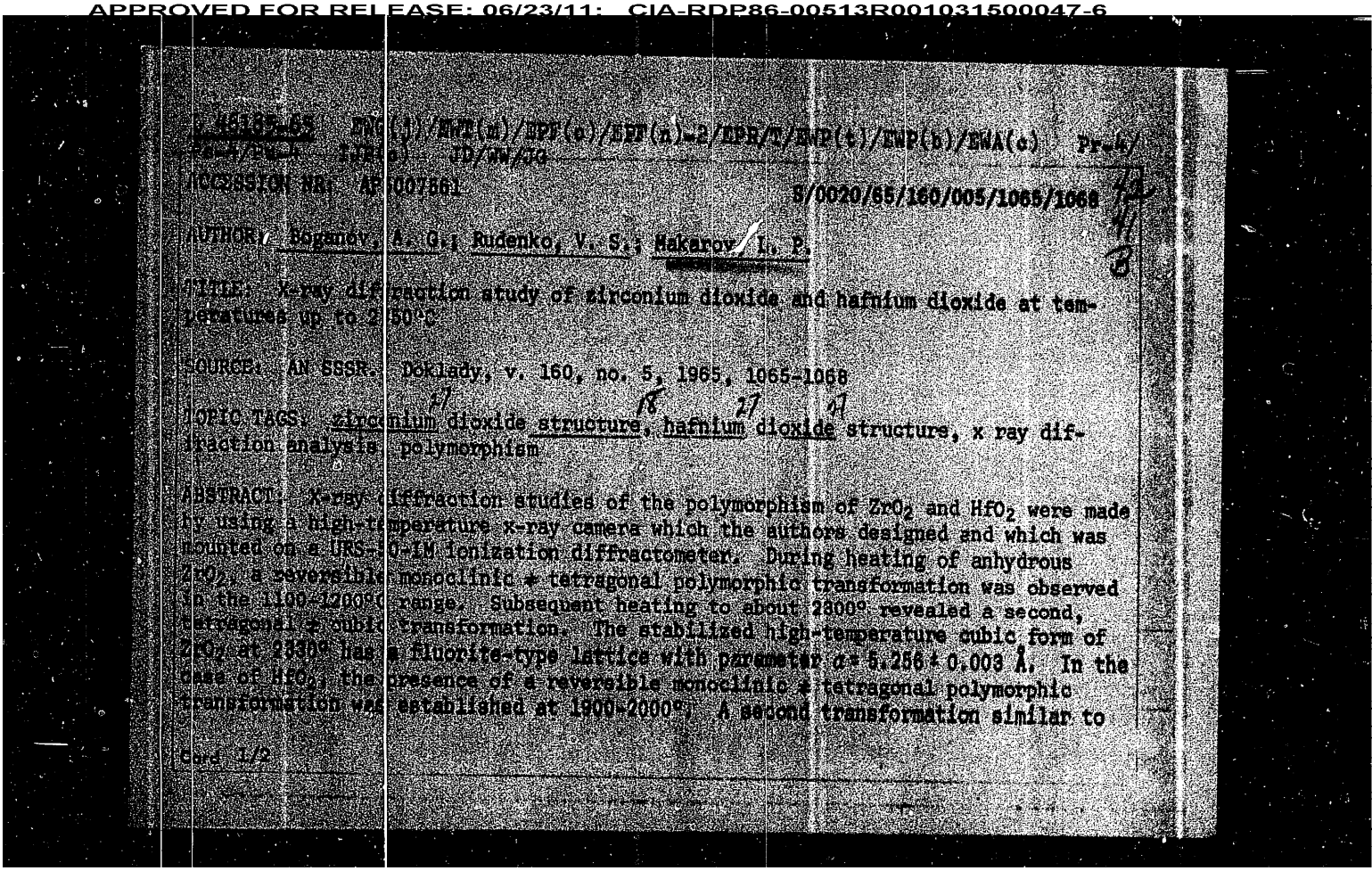
the tetragonal ⇄ cubic transformation of ZrO_2 could be recorded only at very high temperatures close to the melting point of HfO_2 (the melting point was estimated to be 2700-2750° from the power dissipated in the sample by the electron beam used to produce these high temperatures). This transformation is also reversible in HfO_2. The lattice parameter of the cubic modification at 2750° is 5.300 ± 0.010 Å. It is concluded that for pure ZrO_2 and HfO_2, the following crystalline modifications are stable: monoclinic from room temperature to 1150° for ZrO_2 and 1950° for HfO_2; tetragonal from 1150 and 1950° to 2300 and 2700° respectively, and face-centered cubic from 2300 for ZrO_2 and 2700 for HfO_2 up to the melting points. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Institut khimii silikatov im. I. V. Grebenshchikova Akademii nauk SSSR (Institute of Silicate Chemistry, Academy of Sciences SSSR)

SUBMITTED: 08Aug64 ENCL: 00 SUB CODE: IC, GP

NO REF SOV: 004 OTHER: 002

Card 2/2



AM5185-65 EWT(l)/EWP(m)/EPF(c)/EPF(n)-2/EPR/T/EWP(t)/EWP(b)/EWA(c) Pr-4/
Pa-4/Pu-4 IJP(c) JD/GW/GG
ACCESSION NR: AP5007561 S/0020/65/160/005/1065/1068

AUTHOR: Bogatyy, A. G.; Rudenko, V. S.; Makarov, I. P.

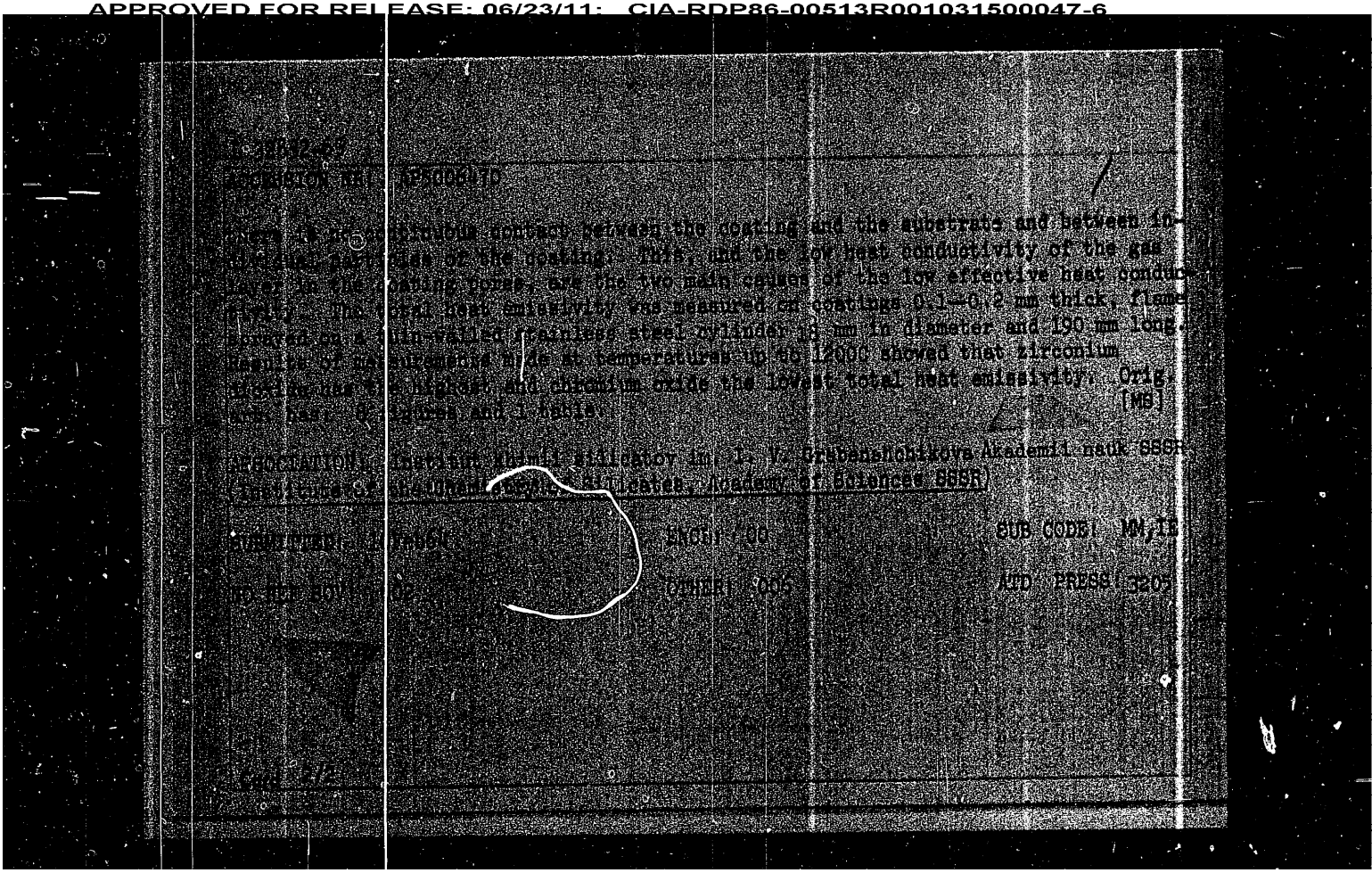
TITLE: X-ray diffraction study of zirconium dioxide and hafnium dioxide at temperatures up to 2350°C

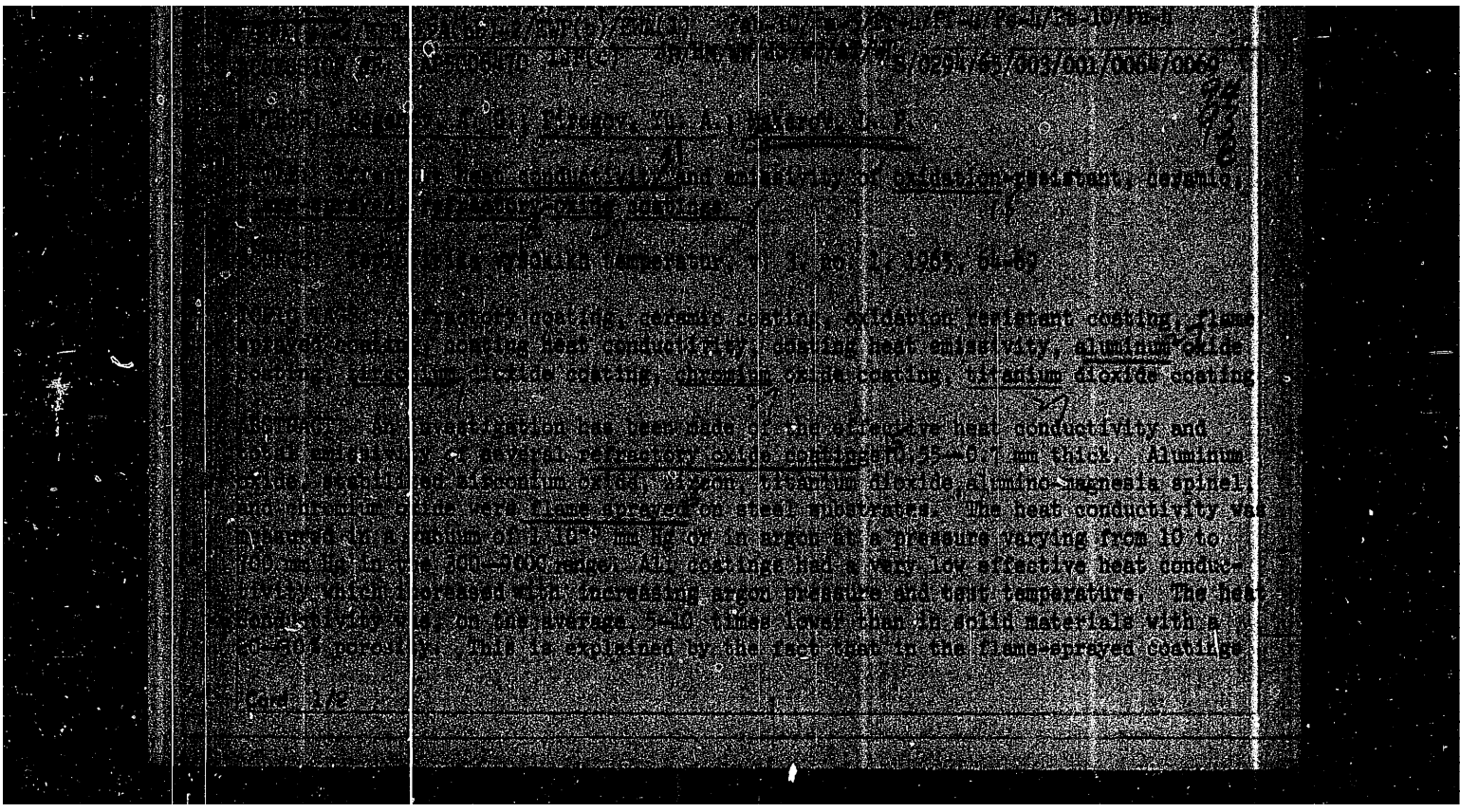
SOURCE: AN SSSR. Doklady, v. 160, no. 5, 1965, 1065-1068

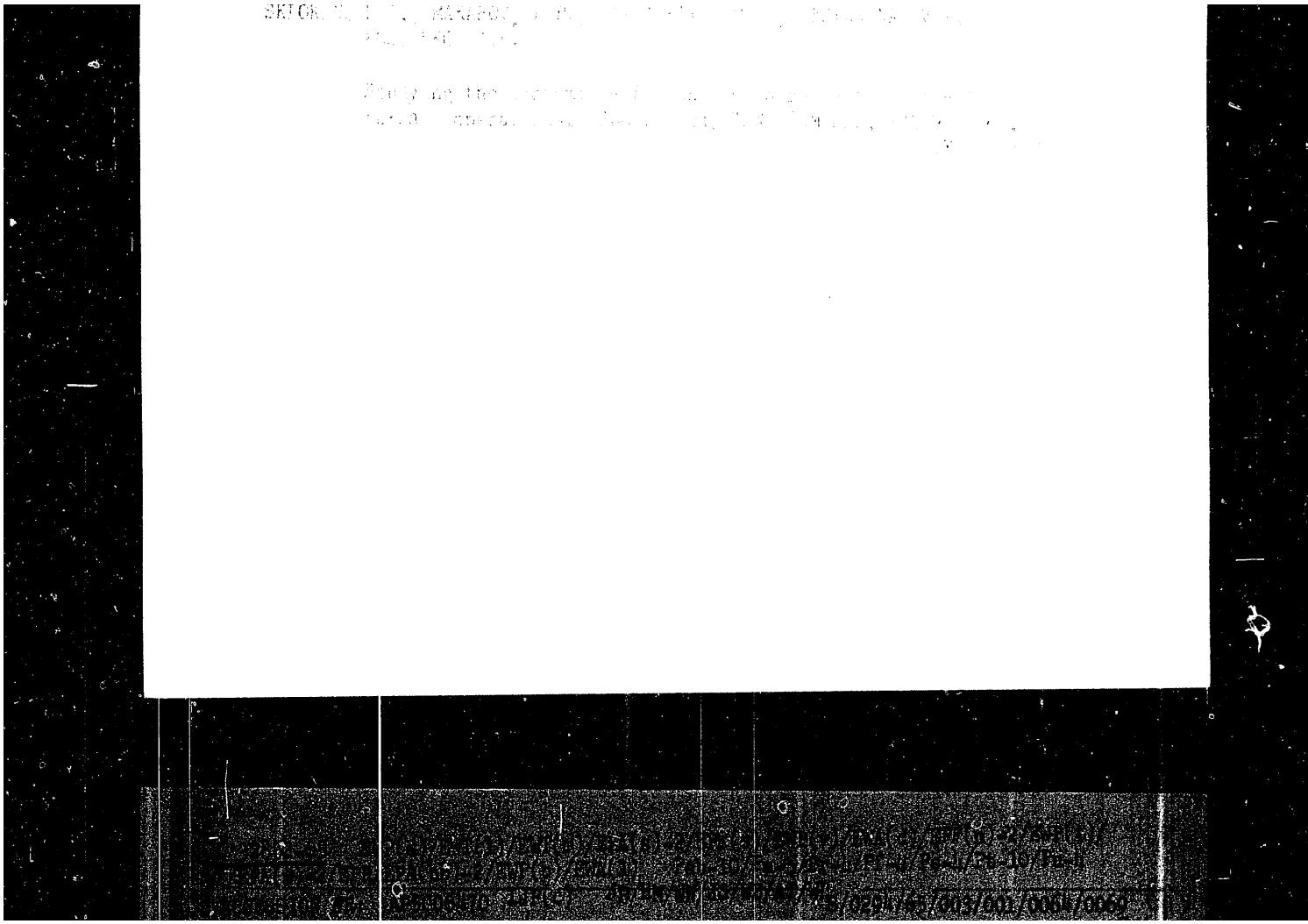
TOPIC TAGS: zirconium dioxide structure, hafnium dioxide structure, x ray diffraction analysis, polymorphism

ABSTRACT: X-ray diffraction studies of the polymorphism of ZrO_2 and HfO_2 were made by using a high-temperature x-ray camera which the authors designed and which was mounted on a URS-50-IM ionization diffractometer. During heating of anhydrous ZrO_2, a reversible monoclinic ⇄ tetragonal polymorphic transformation was observed in the 1190-1200° range. Subsequent heating to about 2300° revealed a second, tetragonal ⇄ cubic transformation. The stabilized high-temperature cubic form of ZrO_2 at 2430° has a fluorite-type lattice with parameter $a = 5.256 \pm 0.003$ Å. In the case of HfO_2, the presence of a reversible monoclinic ⇄ tetragonal polymorphic transformation was established at 1900-2000°. A second transformation similar to

Card 1/2





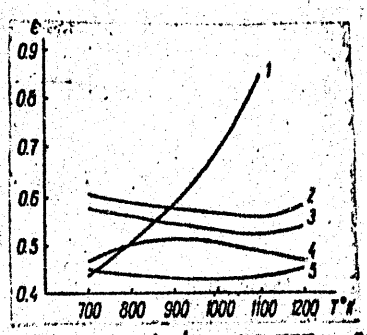


MAKAROV, L.P.

Methods of establishing wholesale prices for cast iron and blast furnace ferroalloys. Sbor. trud. TSNIICHM no.45:48-56 '65.
(MIRA 18:9)

L 28463-66
ACC NR: AT5027958

$ZrSiO_4$, had, during measuring in a high vacuum, a heat transfer of the same character and of about the same values inspite of the large differences in the thermal conductivity of these materials. The results of the determination of the integral conductivity of the coatings made from Cr_2O_3 (curve 1), $Al_2O_3 \cdot MgO$ (curve 2), TiO_2 (curve 3), $ZrSiO_4$ (curve 4), and ZrO_2 (curve 5) are given in the attached figure. Orig. art. has: 5 fig. and 1 table.



SUB CODE: 11, 20/SUBM DATE: 20Jul65/ ORIG REF: 002/ OTH REF: 006

Card 3/3

L 28463-66

ACC NR: AT5027958

ZrSiO$_4$, 0.55 mm TiO$_2$, 0.55 mm Al$_2$O$_3$·MgO, and 0.55 mm Cr$_2$O$_3$, respectively. The effective heat conductivity of the coatings was measured in a vacuum of 10^{-5} mm Hg and in an Ar atmosphere (the heat conductivity of Ar is similar to that of air) at 300-900C and at a pressure of 100 and 300 mm Hg. The values of the heat conductivity coefficient (λ) were plotted in the graphs in λ vs temperature coordinates. The values obtained for λ were, on the average, 5-10 times smaller than those obtained for the same materials tested in the form of massive samples having a porosity of 20-30%. This was caused by the coating structure which formed under specific conditions of the gas-flame method: the layer of sprayed particles was not a homogeneous one, but consisted of irregularly superimposed particles containing numerous pores. A sharp decrease in effective heat conductivity was observed under decreased pressure because of the greater effect of the pores. The radiation heat exchange was predominant in the gas-flame oxide coatings at moderately high temperature (~1000C). Because the thermal contact resistances between the individual grains of the coating controlled the total heat transfer, the values of a specific thermal conductivity of the grains which was different in various materials, had little effect on the thermal conductivity of the samples. This was indicated by the fact that the curves of conductivity changes, plotted from coatings made of Al$_2$O$_3$, ZrO$_2$, Al$_2$O$_3$·MgO, TiO$_2$, and

Card 2/3

L 28463-66 EWP(e)/EWT(m) WW/GD/WH

ACC NR: AT5007958 SOURCE CODE: UR/0000/65/000/000/0226/0232

AUTHOR: Boganov, A. G.; Pirogov, Yu. A.; Makarov, L. P.

36
35
B+1

ORG: none

TITLE: Effective heat conductivity and thermal radiation capacity of gas-flame ceramic coatings 15

SOURCE: Seminar po zharostoykim pokrytiyam. Leningrad, 1964. Zharostoykiye pokrytiya (Heat-resistant coatings); trudy seminara. Leningrad, Izd-vo Nauka, 1965, 22-232

TOPIC TAGS: ceramic coating, heat conductivity, aluminum compound, zirconium compound, magnesium compound, titanium compound, steel, ceramic coating, thermal radiation/ St. 3 steel

ABSTRACT: A study was made of the effective heat conductivity and integral thermal radiation of Al_2O_3, ZrO_2, $Al_2O_3 \cdot MgO$, TiO_2, and $ZrSiO_4$ coatings applied on plate and cylindrical steel St. 3 samples by gas-flame spraying. The thickness, taken as an average of 15-20 measurements made in various parts of the samples, was determined for coatings consisting of 0.6 mm Al_2O_3, 0.07 mm ZrO_2, 0.65 mm

15

Card 1/3

KHAR'KOVTSEV, G.N.; MAKAROV, L.P.

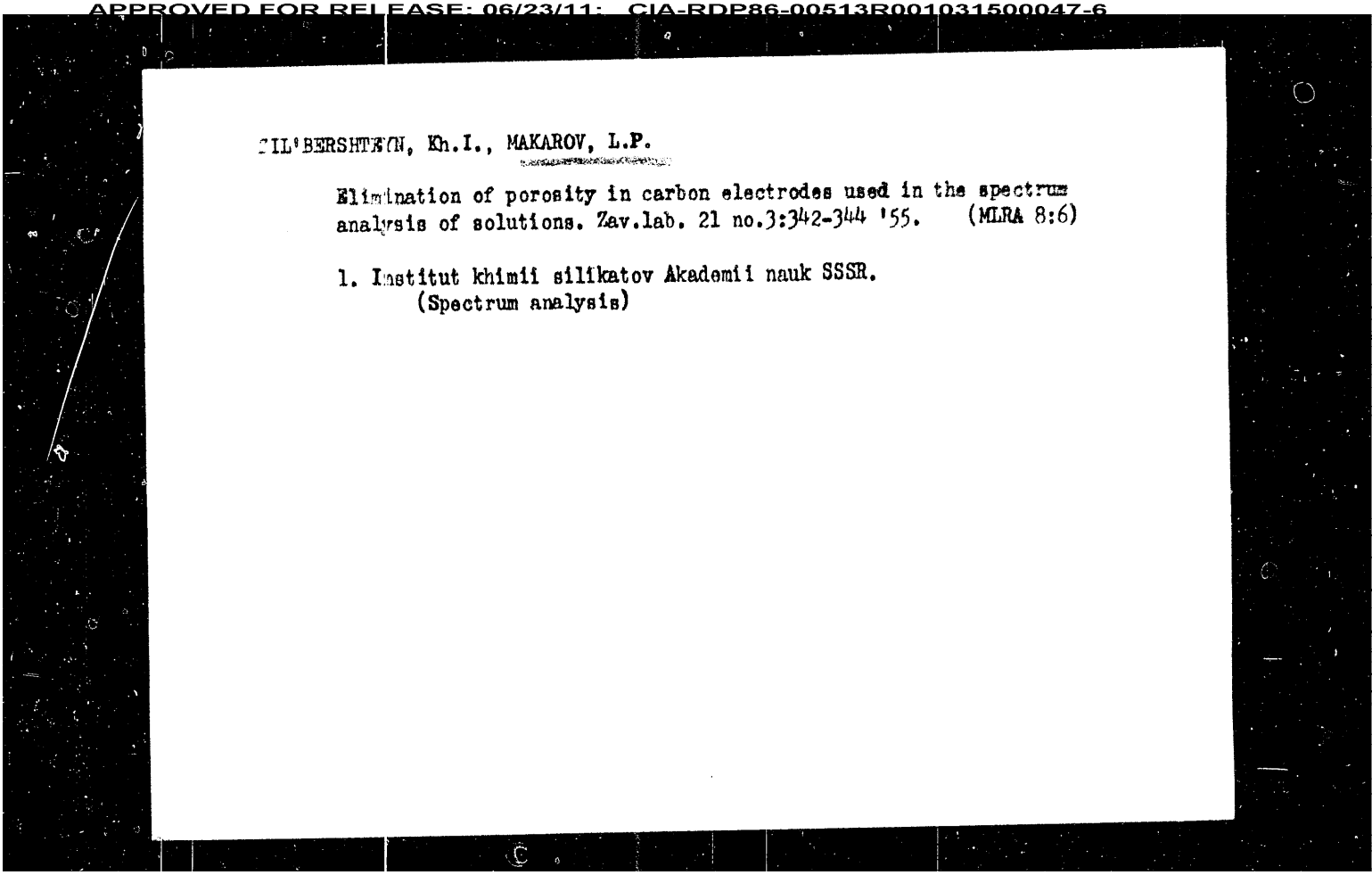
Efficient way of establishing wholesale prices for blast furnace slag. Sbor.trud.Otd. tekh.-ekon. issl. TSNIICHM no. 1:151-159 '63. (MIRA 17:6)

KHAR'KOVTSEV, G.N.; MAKAROV, L.P.

Possibilities for the utilization of blast furnace slags. Stal' 22 no.4:376-378 Ap '62. (MIRA 15:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

(Blast furnaces) (Slag)



GIL'BERSHTEYN, Kh.I., MAKAROV, L.P.

Elimination of porosity in carbon electrodes used in the spectrum analysis of solutions. Zav.lab. 21 no.3:342-344 '55. (MLRA 8:6)

1. Institut khimii silikatov Akademii nauk SSSR.
(Spectrum analysis)

TUSHKANOV, T.M.; MAKAROV, L.P., mashinist

From our practices of operating the cooler of the TEZ diesel locomotive under winter conditions. Elek.i tepl.tiaga 6 no.1:5-6 Ja '62. (MIRA 15:1)

1. Mashinist-instruktor lokomotivnogo depo Archeda, Privolzhskoy dorogi (for Tushkanov). 2. Depo Liski Yugo-Vostochnoy dorogi (for Makarov).

(Diesel locomotives--Cold weather operation)
(Diesel engines--Cooling)

23851-66
ACC NR: AP6007721

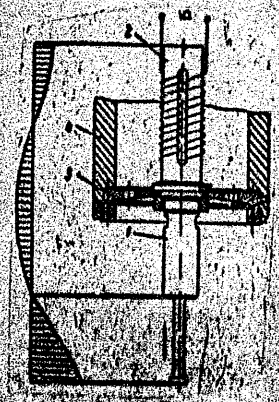


Fig. 1. 1 - concentrator; 2 - magnetostriction transducer; 3 - resonance flange; 4 - housing.

Orig. art. has: 1 diagram.

SUBM DATE: 13Jan66/ SUBM DATE: 24Feb66

Card 2/2 FV

L 23831-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(1) IJP(c) JD

ACC NR: AP6007721 SOURCE CODE: UR/0413/66/000/003/0120/0121

AUTHORS: Makarov, L. O.; Mechetner, B. Kh.; Nemirovskiy, L. E./ Yakhimovich, D.F.

ORG: none

TITLE: Device for ultrasonic machining. Class 49, No. 178665

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 120-121

TOPIC TAGS: ultrasonic machine tool, magnetostriction oscillator, ultrasonic machining

ABSTRACT: This Author Certificate presents a device for ultrasonic machining. The apparatus contains an acoustic head with a concentrator and a magnetostriction transducer. To increase the productivity of the process, the mounting of the concentrator and magnetostriction transducer in the housing of the acoustic head is in the form of supporting resonance flanges of variable thickness, e.g., with uniformly increasing wall thickness from the center to the periphery (see Fig. 1).

Card 1/2 UDC: 621.9.048.6.06

in the Special Design Bureau of Mosgorsovnarkhoz, an attempt is made to review, generalize, and sum up all available information, both Soviet and non-Soviet, on different aspects of ultrasonic machining. No personalities are mentioned. References accompany each chapter.

TABLE OF CONTENTS:

Foreword 3

Introduction 5

Bibliography 8

Ch. I. Basic Information on Mechanical Vibrations and Waves 10

1. Vibrations in the simplest system 10
2. Propagation of elastic waves in liquids and gases 20
3. Propagation of elastic waves in solids 25

MAKAROV, L.O.

PHASE I BOOK EXPLOITATION SOV/6312

Rozenberg, L. D., V. F. Kazantsev, L. O. Makarov, and D. F. Yakhimovich

Ul'trazvukovoye rezaniye (Ultrasonic Machining) Moscow, Izd-vo AN SSSR, 1962. 251 p. Errata slip inserted. 5000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Akusticheskiy institut.

Resp. Eds.: V. I. Dikushin, Academician, and L. D. Rozenberg, Doctor of Technical Sciences; Ed. of Publishing House: L. V. Gessen; Tech. Ed.: A. P. Guseva.

PURPOSE: This book is intended for scientific workers, design and process engineers, and for aspirants working in the field of ultrasonic machining.

COVERAGE: Although the book is mostly based on results of investigations conducted by the authors in the ultrasonic laboratory of the Acoustics Institute, Academy of Sciences USSR, and

Card 1/6

Theoretical study of some torsional ...

vibrational systems in which the elastic torsional vibrations propagate and are amplified, thus leading to an increased shear deformation. The described work has been carried out in 1959 in the laboratoriya ul'trazvuka Akusticheskogo instituta AN SSSR (Laboratory of Ultrasonics of the Institute of Acoustics AS USSR). The author thanks L. D. Rozenberg for supervision, and V. F. Kazantsev and A. A. Tushilin for advice. There are 5 figures, 2 tables and 9 Soviet references.

ASSOCIATION: Akusticheskiy institut AN SSSR Moskva (Institute of Acoustics AS USSR Moscow)

SUBMITTED: April 24, 1961

Card 3/3

3005
S/046/61/007/004/007/014
Theoretical study of some torsional ... B139/B102

resistance. $N_S = \sqrt{S_o/S_1}$ is the area coefficient. S_o and S_1, respectively, are the entrance and exit cross sectional areas of the torsion concentrator. For a stepped torsion concentrator the formula reads $z_{en} = N_S^4 z_{load}$. When it is assumed that the concentrator is loaded with a definite purely active resistivity, $r_{o\text{-}load}$, which is uniformly distributed over the exit cross section, then the reflection coefficients can be calculated. These are characteristic of the kind of superposition of the incident and reflected waves. The load curve of a traveling wave looks exactly like the load curve of transverse vibrations. Conclusions: A stepped concentrator is more sensitive to variations in the reactive component of the load resistance. In the range of low load coefficients (from 0 to 1), the traveling-wave coefficient is greater for an exponential concentrator than for a stepped concentrator when their amplification factors are equal. In order to fasten torsion-rod systems as properly as possible one may use sound-conducting disks as supporting insulators (Fig. 3). The calculation of these disks is presented in this paper. The author theoretically proves the possibility of creating torsion-rod

Card 2/4 3

2310

24.1800

30051
S/046/61/007/004/007/014
B139/B1[illegible]

AUTHOR: Makarov, L. O.

TITLE: Theoretical study of some torsional vibrators

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 4, 1961, 450-456

TEXT: The author investigated the propagation of torsional waves in rods as well as the possibility of amplifying the torsional vibrations with respect to not only torsional angle but also shear amplitude. The results of this work may be applied in ultrasonic welding with torsional vibrations and in shear-aging and fatigue tests. Concentrator torsion rods are the most suitable for shear-amplitude amplification of torsional vibrations. It is interesting for the application of ultrasonic torsional vibrations to study the waveguide properties of hollow concentrator torsion rods. The waveguide torsion concentrators shown in Fig. 1 are studied. Calculation yielded that for longitudinal waves the acoustic entrance resistance of an exponential half-wave concentrator for torsional vibrations is $z_{en} = N_S^2 z_{load}$, where z_{load} denotes the total acoustic load

Card 1/4 3

All-Union Conference ...

The viscosity test was dealt with by I. N. Kogan, the testing of elasticity parameters was dealt with by I. G. Mikhaylov and B. A. Kalugin. Level measurements by means of ultrasonics were dealt with by A. I. Broytman, N. V. Morozov, and M. N. Chizhikov. The measurement of liquid supply was dealt with by G. I. Burger. Investigation of the properties of plastic liquids was dealt with by B. A. Belinskiy in a very interesting lecture. Measuring problems in investigations of ultrasonic fields were dealt with by Yu. Ya. Borisov, A. T. Abrosov, V. A. Kolmakov, Yu. L. Ben'kovich, N. M. Starobinskiy, and A. V. Vitkovskiy. Finally, lectures were held on measurement problems in the section for "Ultrasonic Power Sources" by L. D. Rozenberg, M. G. Sirotyuk, I. G. Mikhaylov, and V. A. Shutilov. A total of 132 lectures were delivered; the final session took place on November 26. The merits of the organization committee, which was headed by V. A. Chernevich, were mentioned.

Card 5/5

All-Union Conference ...

Podoshevnikov. Results obtained by their investigations were given by V. P. Kurkin, B. F. Podoshevnikov, M. L. Barlamov, Yu. Ya. Borisov, and T. I. Mashkova. The production of aerosol by means of ultrasonics was dealt with by O. K. Eknadiosyants, I. I. Malakhovskiy, N. K. Lopyrev, L. G. Shevaldyshev, A. M. Aksel'band and others. Furthermore, D. B. Mondrus, I. M. Solomakhin, N. A. Belousov, and G. S. Kratysh described some sound generators. N. A. Lebedev dealt with purification systems and N. I. Blitshteyn and B. G. Novitskiy dealt with devices for mechanical working by means of ultrasonics. Yu. I. Kitaygorodskiy, I. I. Teumin, N. A. Belousov, and V. A. Tuzlukova spoke about emitters from magnetostrictive materials, I. P. Golyamina dealt with ferrites and A. A. Anan'yeva, V. S. Bondarenko, and I. A. Glozman described new piezoelectric converters made from ceramics. Hydrodynamic emitters were described by B. G. Novitskiy, V. M. Fridman, P. S. Rokhlin, B. D. Tartakovskiy, and V. B. Chernyshev. The section "Ultrasonic Control and Measuring Devices" was under the supervision of L. D. Rozenberg and O. I. Babikov. Babikov, B. Ye. Mikhalev, and G. S. Pol'-Mari dealt with the development of the circuits of ultrasonic measuring devices. The concentration measurement of solutions by means of ultrasonics was dealt with by G. I. Birger, N. I. Brazhnikov, that of gases by D. A. Gershgal.

Card 4/5

All-Union Conference ...

L. K. Gushchin. The use of ultrasonics in mechanical working was dealt with by V. F. Kazantsev, V. Yu. Veroman, V. V. Kupfer, A. A. Voronin, and A. I. Markov. The section on the use of ultrasonics in processes of chemical technology was under the supervision of I. I. Salamatov and I. G. Mikhaylov. Here, most lectures dealt with the dispersion by means of ultrasonics. L. I. Kondakova and V. M. Fridman spoke about corresponding apparatus, V. A. Druchenko, V. L. Tushchenko, M. N. Demin, and L. N. Korotkov dealt with the dispersion of dyes. Acceleration of the crystallization of potassium bitartrate was dealt with by G. N. Gasyuk. The effect produced by ultrasonics on the course of chemical processes was studied by M. S. Akutin, F. I. and L. A. Kukoz, M. N. Chizhikov, F. N. Makarova, S. P. Kirichenko, and V. F. Popov. Diffusion processes were dealt with by V. M. Fridman, M. Ye. Arkhangel'skiy, G. N. Pinus, B. G. Belov, Ye. G. Tokar', P. Ya. Yefremova, S. I. Bezzubova, G. N. Nasyuk, and A. I. Greshnev. In the section for ultrasonic power sources, which was under the supervision of D. B. Mondrus and I. M. Solomakhin, mainly the coagulation of aerosol and the process of drying was dealt with. The corresponding apparatus were dealt with by the lectures of V. P. Kurkin, B. D. Tartakovskiy, R. N. Shkol'nikova, V. A. Veller, K. P. Troitskiy, Yu. Ya. Borisov, and B. F.

Card 3/5

S/046/61/007/001/015/015
B104/B204

All-Union Conference ...

ultrasonics in chemical technology. Candidate of Technical Sciences A. B. Mondrus lectured on "Main Problems of Producing Ultrasonic Power Sources". Candidate of Technical Sciences O. I. Babikov spoke about "The Development of Control Methods and Control Means Based upon the Use of Ultrasonics". The section "Application of Ultrasonics in Machine Building" was supervised by Yu. I. Kitaygorodskiy and N. A. Ol'shanskiy. Here, A. S. Bebchuk and L. D. Rozenberg spoke about purification by ultrasonics. V. I. Volodarskaya spoke about the development of apparatus, and I. V. Gushchin dealt with ultrasonic purification of wires, while A. I. Abrosov spoke about the purification of the components of clocks and watches. Ya. N. Lipkin and A. M. Sollok spoke about the application of anodic treatment, and A. I. Sobolev spoke about galvanization. B. F. Balandin, N. N. Rykalin, and L. L. Silin reported on ultrasonic welding and soldering, I. L. Glizburg et al. spoke about corresponding apparatus, and N. A. Ol'shanskiy, V. F. Zhelavskiy, Ye. P. Kalinin, and K. D. Zakharov spoke about technological investigations and applications. Ultrasonic welding of plastics was dealt with by A. V. Mordvintsev, V. V. Bogdashevskiy, and L. N. Matsuk. The use of ultrasonics in metallurgy was dealt with by I. I. Teumin, G. M. Pogodin-Alekseyev, G. I. Eskin, B. F. Balandin, and

Card 2/5

6,8000 (and 1063, 1155)

S/046/61/007/001/015/015
B104/B204

AUTHOR: Makarov, L. O.

TITLE: All-Union Conference on Ultrasonics

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 1, 1961, 117-118

TEXT: On November 22, the Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu ul'trazvuka v promyshlenosti (All-Union Scientific and Technical Conference on the Application of Ultrasonics in Industry) was opened in the Tower Hall in the House of the Union in Moscow. It was attended by roughly 500 delegates from 13 Union Republics. The Deputy Chairman of the Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR (State Scientific- and technical Committee of the Council of Ministers, USSR), G. V. Aleksenko and Academician A. I. Berg opened the Conference. In the plenary session, lectures were held by Professor L. D. Rozenberg on "New Investigations on the Industrial Use of Ultrasonics". Engineer Yu. I. Kitaygorodskiy delivered the lecture entitled "Stage and Trend of Development of the Application of Ultrasonics in Machine Building". Candidate of Technical Sciences V. M. Fridman dealt with problems of the industrial application of

A Simple Method for Ultrasonic Cold Welding S/046/60/006/004/018/022
B019/B056

/c

ASSOCIATION: Akusticheskiy institut AN SSSR, Moskva (Institute of Acoustics of the AS USSR, Moscow)

SUBMITTED: February 10, 1960

Card 2/2

S/046/60/006/004/018/022
B019/B056

1.2310

AUTHOR: Makarov, L. O.

TITLE: A Simple Method for Ultrasonic Cold Welding

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 4, pp. 507 - 508

TEXT: A new device for ultrasonic cold welding is described. As shown by the figure, this device consists of an ultrasonic head 1, a semi-wave concentrator 2, the parts to be welded together 3 and 4, as well as the prism 5. The angle between the surfaces of the prism may be adapted to practical requirements. The main advantage offered by this device is the possible pressure exerted by the ultrasonic concentrator onto the material to be welded. By a power output of 250 watt it was possible to weld two aluminum foils having a thickness of 0.07 mm within 1 - 4 seconds. The parts to be welded could not be observed to stick to the concentrator and, in any case, this may be prevented by applying a coating of suitable media. M. G. Sirotyuk (Ref. 1) is mentioned. There are 1 figure and 1 Soviet reference.

Card 1/2

Bibliography

S/046/60/006/02/17/019
B014/B014

I. N. Yermolov; N. V. Babkin; M. R. Gubanova; N. A. Grekov; N. N. Yegorov.

Card 2/2

S/046/60/006/02/17/019
B014/B014

AUTHOR: Makarov, L. O.

TITLE: Bibliography

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 2, pp. 265-266

TEXT: This is a review of the collection "Primeneniye ultrazvuka v promyshlennosti" (Commercial Uses of Ultrasonic Waves), edited by V. F. Nozdrev, Doctor of Physical and Mathematical Sciences. Moscow, Mashgiz, 1959, 304 pages, 10 rubles and 25 kopecks. This collection contains 22 lectures delivered at the All-Union Conference on the Commercial Uses of Ultrasonic Waves which took place in Moscow in April, 1957. The following personalities are mentioned: L. M. Brekhovskikh, V. A. Krasil'nikov, L. D. Rozenberg; B. B. Kudryavtsev; D. S. Shrayber; Yu. V. Ponomarenko; M. G. Kogan, Yu. I. Kitaygorodskiy; Z. N. Bulycheva, Ye. I. Gurvich, Ya. P. Selisskiy; I. I. Golyamina; A. I. Markov; L. O. Makarov; M. G. Sirotyuk; Yu. B. Semennikov; B. N. Lyamin; M. M. Pisarevskiy, A. A. Klenov; P. Ye. D'yachenko, Yu. N. Mizrokhi, V. G. Aver'yanova; Kh. S. Bagdasarov; I. I. Teumin; N. A. Ol'shanskiy, A. V. Mordvintseva;

Card 1/2

Moskovskiy energeticheskiy institut (Moscow Institute of Power Economy). Furthermore, reports were made on other work done by various organizations in Moscow, Taganrog, and Saratov. The introductory speech was held by N. A. Ol'shanskiy, Candidate of Technical Sciences, with a survey of general problems. Various types of apparatus for ultrasonic cold welding were dealt with in lectures by I. A. Yerokhin, L. P. Batov, Yu. I. Kitaygorodskiy, and others. Factual suggestions on the application of the new method were made by B. V. Amosov, L. L. Silin, and V. A. Kuznetsov. L. N. Matsyuk, A. V. Mordvintseva, and N. A. Ol'shanskiy reported on the welding of plastics. The lecture by A. A. Yerokhin and L. L. Silin was the only one entirely devoted to the introduction of ultrasonic vibrations into the melt in electric welding. The lectures by G. F. Balandin and V. F. Kodolov, as well as L. F. Lependin, were devoted to the structural modification of the welding seam under the action of ultrasonics. A. V. Mordvintseva dealt with the problem of the change in mechanical properties of some welded joints treated with ultrasonics in a hardened state. Numerous discussions were held at the Conference.

S/046/60/006/01/30/033
B008/B011

AUTHOR: Makarov, L. O.

TITLE: Scientific-technical Conference on the Application of Ultrasonics in Welding

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 1, pp. 138-139

TEXT: This is a report on the Scientific-technical Conference on the Application of Ultrasonics in Welding held in Moscow from December 9 to 10, 1959. At this Conference, which had been convened by the sektsiya svarki metallov NTO Mashproma (Metal Welding Section of the NTO of Mashprom), 11 lectures and reports were heard. On the first day, 7 lectures were devoted to problems of ultrasonic cold welding of metals and plastics. On the second day, 5 lectures dealt with problems of the action of ultrasonics on the welding seam structure in electric welding. The major part of the studies reported on had been conducted at the Institut metallurgii im. A. A. Baykova AN SSSR (Institute of Metallurgy imeni A. A. Baykov AS USSR) and the Moskovskoye vyssheye tekhnicheskoye uchilishche im. N. E. Baumana (Moscow Technical College imeni N. E. Bauman) in cooperation with the

Card 1/2

ZHUKOVSKIY, S.R.; KAZANTSEV, V.F.; MAKAROV, L.O.

Using high speed cinematography for investigating the processes occurring in fluids under the action of ultrasonic waves. Zhur. nauch.i prikl.fot.i kin. 5 no.2:133-140 Mr-Ap '60. (MIRA 14:5)

1. Kafedra uchebnoy i nauchnoy fotografii i kinematografii Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova i Akusticheskiy institut AN SSSR.
(Motion-picture photography—Scientific applications)
(Ultrasonic waves)

S/194/61/000/008/056/092
D201/D304

Waveguide properties...

in processing hard materials when the wear of the instrument is considerable. It is especially emphasized that in designing T - the right choice of the instrument should be governed by the load. 2 figures. 4 references. [Abstracter's note: Complete translation]

Card 2/2

S/194/61/000/008/056/092
D201/D304

AUTHOR: Makarov, L.O.

TITLE: Waveguide properties of rod ultrasonic transmitters

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1961, 9, abstract 8 E67 (V sb. Primeneniye ul'trazvuk. kolebaniy dlya issledovaniya svoystv kontrolya kachestva i obrabotki metallov i splavov, Kiyev, AN USSR, 1960, 44-53)

TEXT: Relative merits are considered of exponential and tapered transmitters (T) used at ultrasonic benches for processing brittle materials and in other installations. It is shown that although the gain of a tapered T is proportional to the square of the area factor and that of an exponential T is proportional to its first power, the tapered shape cannot be considered as showing more possibilities, since the examination of matching properties of T shows that the use of tapered T should not be recommended especially

Card 1/2

Ultrasound in Engineering Today and in the Future SOV/4876

medicine, etc. Figures and drawings of some Soviet ultrasonic equipment are included. Some American and English ultrasonic equipment and contributions to the field are also discussed. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

From the Author 3

Ch. I. Ultrasound Changes the Properties of a Medium
Secrets of bubbles [ultrasonic cavitation in cleaning and emulsification] 5
Quiet workers [cavitation bubbles] 5
The bubbles float to the surface [coagulation of cavitation bubbles 10
Ultrasound cleans the air [coagulation of aerosols in an ultrasonic field] 12
Separation of mixtures 14
Ultrasound cuts glass 18
19

Card 2/4

MAKAROV, L O

PHASE I BOOK EXPLOITATION SOV/4876

Borisov, Yulian Yaroslavovich, and Leonid Olegovich Makarov

Ul'trazvuk v tekhnike nastoyashchego i budushchego (Ultrasound in Engineering Today and in the Future) Moscow, Izd-vo AN SSSR, 1960. 86 p. 25,000 copies printed. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya)

Resp. Ed.: L. D. Rozenberg; Ed. of Publishing House: Ye. P. Moskatov; Tech. Ed.: G. S. Simkina.

PURPOSE: This booklet is intended for physicists and engineers interested in the scientific and practical applications of ultrasound.

COVERAGE: The booklet is one of a popular science series and discusses practical possibilities of ultrasound engineering, some problems in ultrasonics which require laboratory research, and the use of ultrasound in the control and analysis of industrial processes, for precipitating dust and smoke, in

Card 1/4

where R is the reflection coefficient. Fig 3 shows the values of the t.w.r. plotted against the load coefficient $r_0/\rho_0 c$ (r_0 is the active component of the load impedance and $\rho_0 c$ is the wave impedance of the material used to make a concentrator). The continuous curves in Fig 3 represent an exponential concentrator of Fig 1 and the dashed curves represent a stepped concentrator of Fig 2. Fig 3 shows that between the load coefficient values of zero and 1.0 the t.w.r. of a stepped concentrator is smaller than that of an exponential concentrator for the same values of N (the area coefficient) and k (the displacement gain coefficient). After a short discussion of the use of concentrators in ultrasonic machining the author concludes that, although they have a high displacement-gain coefficient, stepped concentrators should be avoided when dealing with materials which are difficult to work and the wear on the instrument is great. There are 2 figures and 5 references, 4 of which are Soviet and 1 English.

ASSOCIATION: Akusticheskiy institut, AN SSSR, Moskva (Acoustics Institute, Ac.Sc. USSR, Moscow)

SUBMITTED: November 6, 1958

24(1) SOV/46-5-3-21/32

AUTHOR: Makarov, L.O.

TITLE: On the Operation of a Rod-Type Concentrator Under a Load (O rabote sterzhnevogo kontsentratora v nagruzhnom rezhime)

PERIODICAL: Akusticheskiy zhurnal, 1959, Vol 5, Nr 3, pp 372-374 (USSR).

ABSTRACT: Assuming that a rod-type acoustic concentrator possesses some of the properties of a transformer with distributed parameters, it can be shown that the input impedance Z_{BX} of an exponential half-wave concentrator (Fig 1) is given by

$$\dot{Z}_{BX} = N^2 \dot{Z}_H, \quad (1)$$

and that of a stepped half-wave concentrator (Fig 2) by

$$\dot{Z}_{BX} = N^4 \dot{Z}_H, \quad (2)$$

where $\dot{Z}_H$ is the impedance of a load at the output, $N = \sqrt{S_{BX}/S_{BblX}}$ is the "area coefficient", S_{BX} and S_{BblX} are the input and output cross-sectional areas of the concentrator. If the load impedance and properties of the contact between the acoustic source and the concentrator are known, matching conditions for the system radiator-concentrator-load can be found. The author deals also with the travelling-wave ratio (t.w.r.) defined as

$$\mathfrak{G} = (1 - R)/(1 + R)$$

Card 1/2

MAKAROV, L.O.

Use of ultrahigh-speed cinematography in the investigation of phenomena occuring in the acoustic field of fluids. Usp.nauch.fot. 6:211 '59. (MIRA 13:6)
(Ultrasonic waves--Industrial applications)
(Motion-picture photography, High speed)

PHASE I BOOK EXPLOITATION SOV/3528

MAKAROV, L. O.

Moscow. Dom nauchno-tekhnicheskoy propagandy

Primeneniye ul'trazvuka v promyshlennosti; sbornik statey (Industrial Use of Ultrasound; Collection of Articles) Moscow, Mashgiz, 1959. 301 p. 8,000 copies printed.

Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy RSFSR.

Ed. (Title page): V.F. Nozdrev, Doctor of Physical and Mathematical Sciences, Professor; Ed. (Inside book): O.F. Kochetova, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Machinery and Instrument Manufacturing (Mashgiz): N.V. Pokrovskiy, Engineer.

PURPOSE: This book is intended for engineers and technicians engaged in the application of ultrasonics in machinery manufacture and in other branches of industry.

COVERAGE: This is a collection of papers read at the first all-Union conference on the use of ultrasonics in industry. Attention is focused mainly on the description of ultrasonic equipment and on the use of ultrasound for the machining of hard materials and for flaw detection. The effect of ultrasound on metal-crystallation processes is also discussed. No personalities are mentioned. References accompany many of the papers.

Kitaygorodskiy, Yu.I., Engineer; and M.G. Kogan, Candidate of Technical Sciences. Ultrasonic Equipment for Industrial Applications 64

Markov, A.I., Candidate of Technical Sciences, Docent. Design and Construction of Vibrators for Ultrasonic Machining 77

Bulycheva, I.N., Candidate of Technical Sciences; Ye.I. Gurvich, Candidate of Technical Sciences; and Ya.P. Selisskiy, Candidate of Technical Sciences. Magnetic Alloys for Ultrasonic Applications 91

Makarov, L.O., Engineer. Methods of Making Design Calculations for Bar-Type Exponential Ultrasonic Concentrators 102

Golyamina, I.P. Use of Ferrites as Ultrasonic-Wave Radiators 115

Semennikov, Yu.B., Engineer. Method of Transforming Input Resistance of a T-Bar Radiator 125

Sirotyuk, M.G., Engineer. Matching a Generator of Electric Oscillations With a Quartz Radiator Directly Connected With the Generator Circuit 129

Lyamin, B.N., Engineer. Characteristics of the Ultrasonic Machining of Metals 136

Pisarevskiy, M.M., Candidate of Technical Sciences; and A.A. Klenov. Experience Gained at the Leningradskiy Metallicheskiy Zavod (Leningrad Metal-Products Plant) in the Ultrasonic Drilling of Holes in Quartz Plates 146

D'yachenko, P.Ye., Doctor of Technical Sciences, Professor; Yu.N. Mirnoshi, Engineer; and V.G. Aver'yanova. Some Problems in the Ultrasonic Machining of Materials 149

Temin, I.I., Candidate of Physical and Mathematical Sciences. Effect of Elastic Vibrations on the Crystallization and Processing Properties of Alloys 163

Bagdasarov, Kh.S., Candidate of Chemical Sciences. Effect of Ultrasonic Vibrations on the Process of Crystallization 175

Shrayber, D.S., Candidate of Technical Sciences. Ultrasonic Flaw Detection 184

Yermolov, I.N., Engineer. Ultrasonic Instruments Developed by TSNIITMASh for the Measurement of Thickness and Product Control 211

Gubanova, M.R., Candidate of Technical Sciences. Ultrasonic Detection of Flaws in Massive Welds 223

Yegorov, N.N. Ultrasonic Inspection of Case Depth in Electrically Hardened Steel Products 240

Babkin, N.V., Engineer. Design of Piezoelectric Transducers for Ultrasonic Flaw Detectors 253

Scientific-Technical Conference on the Application of Ultrasonic Vibrations to the Study of Properties, Testing and Processing of Metals and Alloys

of metals and alloys. Other contributors were L. D. Rozenberg (Acoustics Institute, Academy of Sciences, USSR), D. F. Yakhimovich (OKB ENIMS), Dotsent L. G. Merkulov (Leningrad Electro-technical Institute), I.N. Yermolov (VIAM) and others. Most of the papers read at the conference were concerned with applications of ultrasonic waves under industrial conditions.

1. Acoustics--USSR

SOV-40-4-3-16/18

AUTHOR: Makarov, L. O.

TITLE: Scientific-Technical Conference on the Application of Ultrasonic Vibrations to the Study of Properties, Testing and Processing of Metals and Alloys (Nauchno-tekhnicheskaya konferentsiya po voprosam primeneniya ul'trazvukovykh kolebaniy dlya issledovaniya svoystv, kontrolya kachestva i obrabotki metallov i splavov)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol 4, Nr 3, pp 291-292 (USSR)

ABSTRACT: This conference took place in Kiyev on April 21-23, 1958. 300 delegates from the Soviet Union took part. Professor I. G. Polotskiy (Institute of Physics of Metals of the Academy of Sciences, Ukrainian SSR) and his collaborators reported results of studies of the effect of ultrasonic waves on phase transformations in metals and alloys. They also reported results on the determination of elastic constants using ultrasonic vibrations. G. S. Pisarenko and V. A. Kuz'menko reported results on the elastic constants

Card 1/2

MAKAROV, L. O.

"The Waveguide Properties of Ultrasonic Concentrating Rods."

paper presented at the 4th All-Union Conf. on Acoustics, Moscow, 25 May - 2 Jun 58.

On the Causes of the Swelling of the Surface of a Liquid Under the Influence of Ultrasonics

rather by the sonic wind. There are 2 figures, and 2 references, 1 of which is Soviet .

ASSOCIATION: Acoustic Institute of the AS USSR (Akusticheskiy institut Akademii nauk SSSR)

PRESENTED: January 3, 1957, by N. N. Andreyev, Academician

SUBMITTED: December 21, 1956

AVAILABLE: Library of Congress

Card 3/3

On the Causes of the Swelling of the Surface of a Liquid Under the Influence of Ultrasonics

scheme of the experiment by means of a sketch. In a plane glass box (dimensions 50 x 50 x 15 mm) made of optical glass there is a layer of water and above it a layer of transformer oil. Through an opening in the rubber bottom of the box the end of an exponential concentrator is introduced, which is excited by a magnetic structure radiator of a frequency of 24 kilohertz. This process was recorded on normal 35 mm cinema film by a Zeiss slow motion cinema camera with a speed of 2000 pictures per second. In the moment when the sound is switched on at the end of the vibrator, there begins a turbulent occurrence of fine bubbles; the sonic wind carries these bubbles with it and at the end of the vibrator new bubbles are constantly created. Although the velocity of the shift of the front edge of the bubble cloud depends on the velocity of the sonic wind, these two velocities are not the same. A diagram shows the dynamic aspects of the phenomenon. The following can be assumed to be proved: Under the conditions prevailing in the experiment under discussion, a swelling of the separating surface between two liquids is observed, and this swelling is caused not by the pressure of the radiation, but

20-2-11/60

AUTHORS: Rozenberg, L. D. , Makarov, L. O.

TITLE: On the Causes of the Swelling of the Surface of a Liquid Under the Influence of Ultrasonics (O prichinakh vspuchivaniya poverkhnosti zhidkosti pod deystviyem ul'trazvuka)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp.275-276 (USSR)

ABSTRACT: The paper under review shows that radiation pressure is not the only cause for this swelling of a liquid surface. The same effect can also be brought about by the so-called sound wave, the velocities of which in water can reach values of 0,5 to 1,0 m/sec. The radiation pressure is one of the ponderomotoric forces of the sonic field and therefore is propagated with sound velocity. Naturally, also the beginning of all perturbations caused by this force is propagated in space with the same velocity. The sound wind belongs to the group of the hydrodynamic effects. In order to separate these phenomena it therefore will be of advantage to employ the investigation of a convexity.
The paper under review gives a clear picture of the basic

Card 1/3

46-4-15/17

On the Mechanism of Ultrasonic Cleaning.

ASSOCIATION: Acoustics Institute of the Academy of Sciences of the USSR, Moscow (Akusticheskiy institut AN SSSR, Moskva)

SUBMITTED: September 15, 1957.

AVAILABLE: Library of Congress.

Card 2/2 1. Ultrasonic cleaning-Application

46-4-15/17

AUTHORS: Makarov, L.O. and Rozenberg, L.D.

TITLE: On the Mechanism of Ultrasonic Cleaning (O mekhanizme ul'trazvukovoy ochistki)

PERIODICAL: Akusticheskiy Zhurnal, 1957, Vol.III, Nr 4, pp.377-378 (USSR)

ABSTRACT: In a previous paper (Ref.1) the authors have suggested the following two possible mechanisms for the phenomenon of degreasing of solid surfaces by the action of an acoustic field in a liquid: (1) catastrophic disintegration of the surface layer by the shock wave which appears during the annihilation of a cavitation bubble (2) gradual peeling off of the surface layer due to the penetration of bubbles in between the layer and the solid. Further experiments, using high speed photography, have now shown that the second mechanism may well be the predominant one. Photographs show that bubbles move with almost constant speed towards the solid surface until they come close to it (or other bubbles) when their speed rapidly increases. There are 3 figures and 1 Russian reference.

Card 1/2

AUTHOR: Makarov, L.O. and Yakhimovich, D.F. 46-1-18/20

TITLE: Notes on a patent (Ob odnom avtorskom Svidetelstve.)

PERIODICAL: "Akusticheskiy Zhurnal" (Journal of Acoustics), 1957, Vol. III, No. 1, pp. 91 - 92, (U.S.S.R.)

ABSTRACT: It is usually understood, with relation to the ultra-sound reinforcing systems, that the relevant apparatus has been first produced by W.P. Mason and R.F. Wick (1), for whom a U.S.A. patent No. 2573168, with priority from May 23, 1950, was granted.

Attention is drawn to the fact that there is an earlier patent for such a system, granted to Russian scientists, M.G. Lozinski and L.D. Rozenberg. / = 85193 with priority from 4th August, 1949 (4), which seems to be much more advanced as to the general theory and in its construction.

There are 4 references, of which one is Russian.

SUBMITTED: November 17, 1956.

AVAILABLE:

Card 1/1

MAKAROV, L.O.

Category : USSR/Acoustics - Ultrasound J-4

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2139

Author : Bebchuk, A.S., Makarov, L.O., Rozenberg, L.D.
Inst. : Acoust. Inst., Acad. of Science USSR; Scient. Res. Inst. of Min. of Radio-technical Industry, Moscow.
Title : On the Mechanism of Cavitational Destruction of Surface Films in the Sonic Field.

Orig Pub : Akust. Zh., 1956, 2, No 2, 113-117

Abstract : The subject of the study was a thin layer of rosin, coated in the form of an alcohol solution on the surface of a glass plate and then dried out. The better to distinguish the fragments of the film from cavitational bubbles, pulverized graphite was introduced into the layer. The film was placed in a cuvette measuring 4 x 1 x 5 cm, filled with distilled water. The sound pressure was produced in the cuvette with a magnetostriction vibrator operating at 8 kc. The distruction of the film by cavitation was photographed with a motion-picture camera capable of up to 4000 frames per second. A study of the film obtained showned that at least two destruction mechanisms take place. The first is due to the flapping of the bubbles near the surface of the film, and leads to strong local damages; the second is due to the penetration of the bubbles under the film, causing the latter to peel.

Card : 1/1

MAKAROV, L. O., ROSENBERG, L. D., and MEBCHUK, A. S.

"Mechanism of Destruction of Solid Surface Films by Acoustically Induced Cavitation," Paper presented at the Second International Congress on Acoustics, Cambridge, Mass., 17-23 Jun 56.

Acoustical Institute, of the AS USSR, Moscow, USSR.

MAKAROV, L. O.

"On Some Method of Getting Shear Ultrasonic Deformations."

report submitted for Ultrasonic Symp, Santa Monica, Calif, 14-16 Oct 64.

Acoustics Inst, AS USSR.

MAKAROV, L.N., doc. DrSc.

Coking of coal in circular kilns. Paliva 45 no.3:76-80 Mr '65.

1. D.I.Mendeleyev Institute of Chemical Technology, Moscow.

MAKAROV, L.N., doc. dr. tech.

Effect of the thermal preparation of coal and mixtures on their technological properties and coke quality. Paliva 45 no.2:41-45 F '65.

1. Moscow Institute of Chemical Technology, Moscow.

OSTROVSKIY, L.A.; MAKAROV, L.N.

Compressed air drilling of dry and water-bearing sands. Biul. nauch.-tekh. inform. VIMS no.2:61-63 '63. (MIRA 18:2)

1. Priaral'skaya gidrogeologicheskaya ekspeditsiya.

MAKAROV L.N.

Economic efficiency of air drilling on the Ustyurt Plateau.
Razved. i okh. nedr 29 no.10:30-31 O '63.
(MIRA 17:12)

1. Priaral'skaya gidrogeologicheskaya ekspeditsiya.

SPRISHEVSKIY, A.I., kand.tekhn.nauk; MAKAROV, L.M., inzh.

Over-all mechanization and automation in the bearing industry. Mekh. i avtom. proizv. 15 no. 5:1-7 My '61. (MIRA 14:5)
(Bearing industry—Technological innovations)
(Automation)

BAYKOV, S.P., kand. tekhn. nauk; BELENKO, I.S., kand. tekhn. nauk; BELKOV, S.F., inzh.; BELYANCHIKOV, M.P., inzh.; BERNSHTEYN, L.L., inzh.; BOGORODITSKIY, D.D., inzh.; BOLONOVA, Ye.V., kand. tekhn. nauk; EROZGOL', I.M., kand. tekhn.nauk; VLADIMIROV, V.B., inzh.; VOLKOV, P.D., kand. tekhn. nauk; GERASIMOVA, N.N., inzh.; ZHUKHOVITSKIY, A.F., inzh.; KABANOV, M.F., inzh.; KANEVTSOV, V.M., kand. tekhn. nauk; KOLOTENKOV, I.V., inzh.; KONDRAT'YEV, I.M., inzh.; KUZNETSOV, I.P., kand. tekhn. nauk; L'VOV, D.S., kand. tekhn. nauk; LYSENKO, I.Ya., kand. tekhn. nauk; MAKAROV, L.M., inzh.; OLEYNIK, N.D., inzh.; RABINER, Ye.G., inzh.; ROZHDESTVENSKIY, Yu.L., kand. tekhn. nauk; SAKHON'KO, I.M., kand. tekhn. nauk; SIDOROV, P.N., inzh.; SPITSYN, N.A., prof., doktor tekhn. nauk; SPRISHEVSKIY, A.I., kand. tekhn. nauk; CHIRIKOV, V.T., kand. tekhn.nauk; SHEYN, A.S., kand. tekhn. nauk; NIBERG, N.Ya., nauchnyy red.; BLAGOSKLONOVA, N.Yu., inzh., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Antifriction bearings; manual] Podshipniki kacheniia; spravochnoe posobie. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 828 p. (MIRA 15:2)
(Bearings (Machinery))

KONOV, I.I.; MAKAROV, L.M.

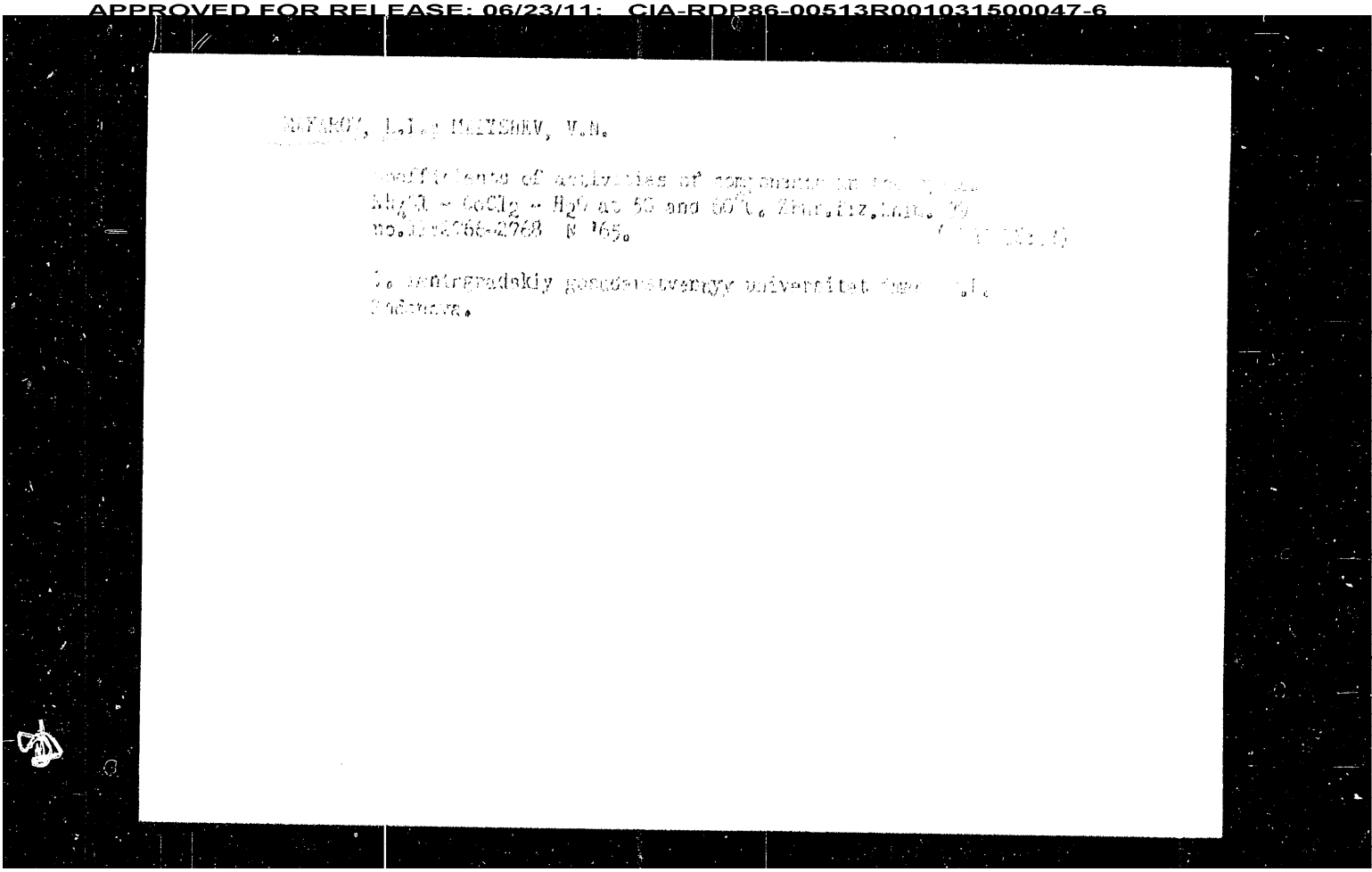
New method for the alignment of the disk spindle axle on internal grinding machines. Podshipnik no.7:31-32 Jl '53. (MLRA 6:8)
(Grinding and polishing)

MAKAROV, L. M., Eng.

Bearings (Machinery)

Increasing the strength of stamps for the cold stamping of large balls. Podshipnik No. 1, 1953.

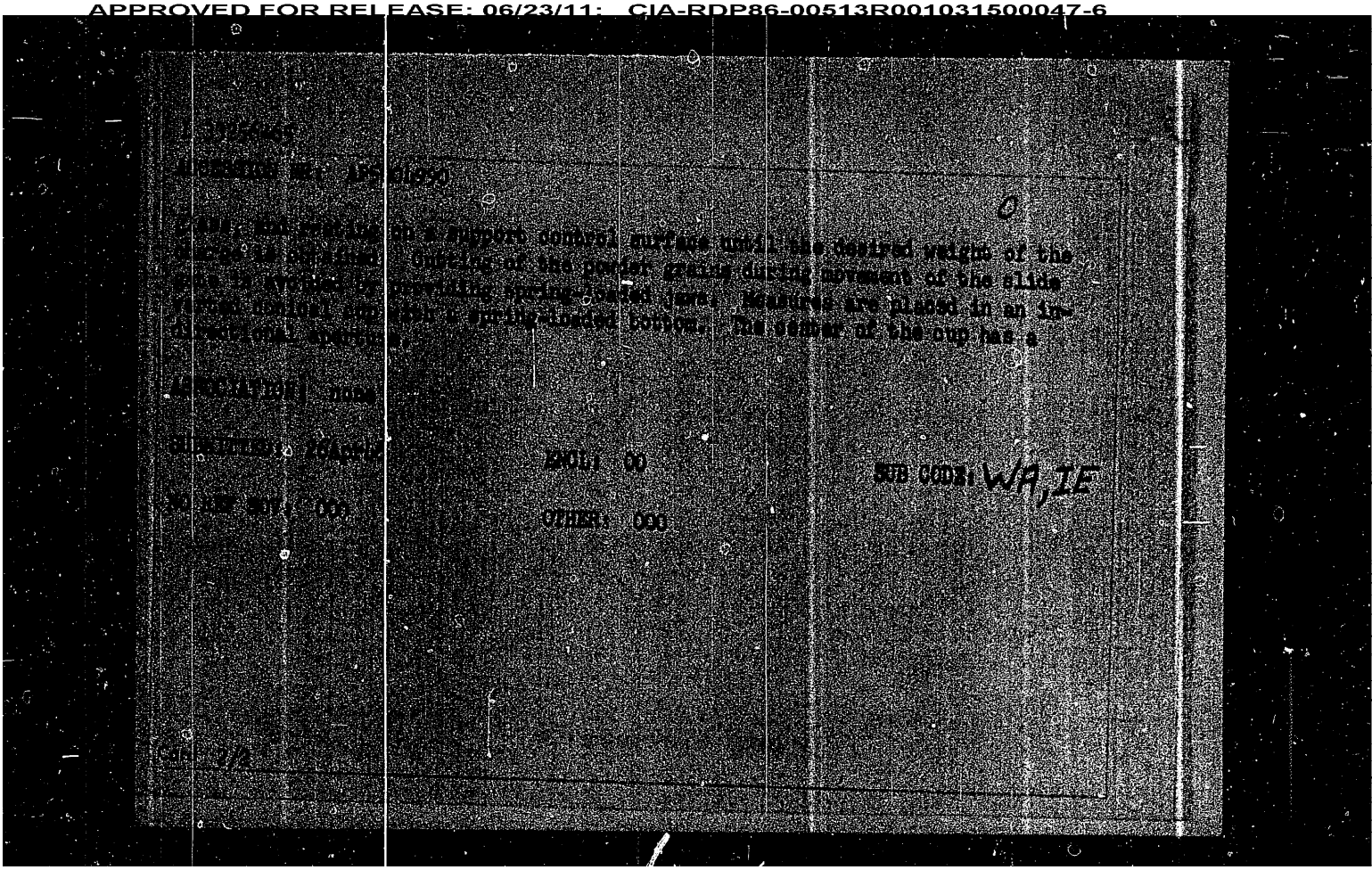
9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

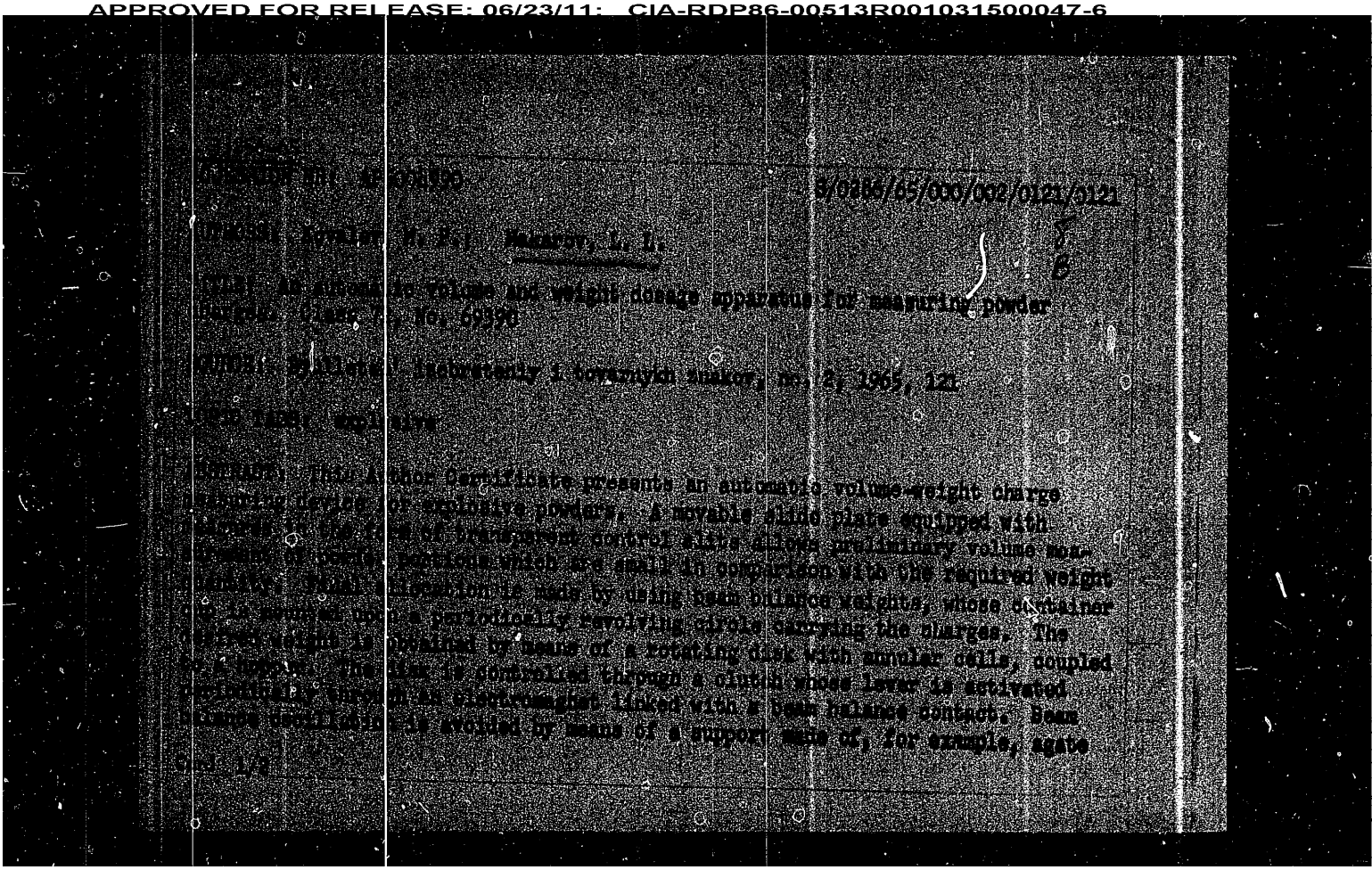


MALYSHEV, V.N.; SHUL'TS, M.M.; MAKAROV, L.L.

Equilibrium of anomalous mixed crystals. Zhur. fiz. khim. 39 no.6:1504-1507 Je '65. (MIRA 18:11)

1. Leningradskiy gosudarstvennyy universitet imeni Zhdanova. Submitted March 25, 1964.

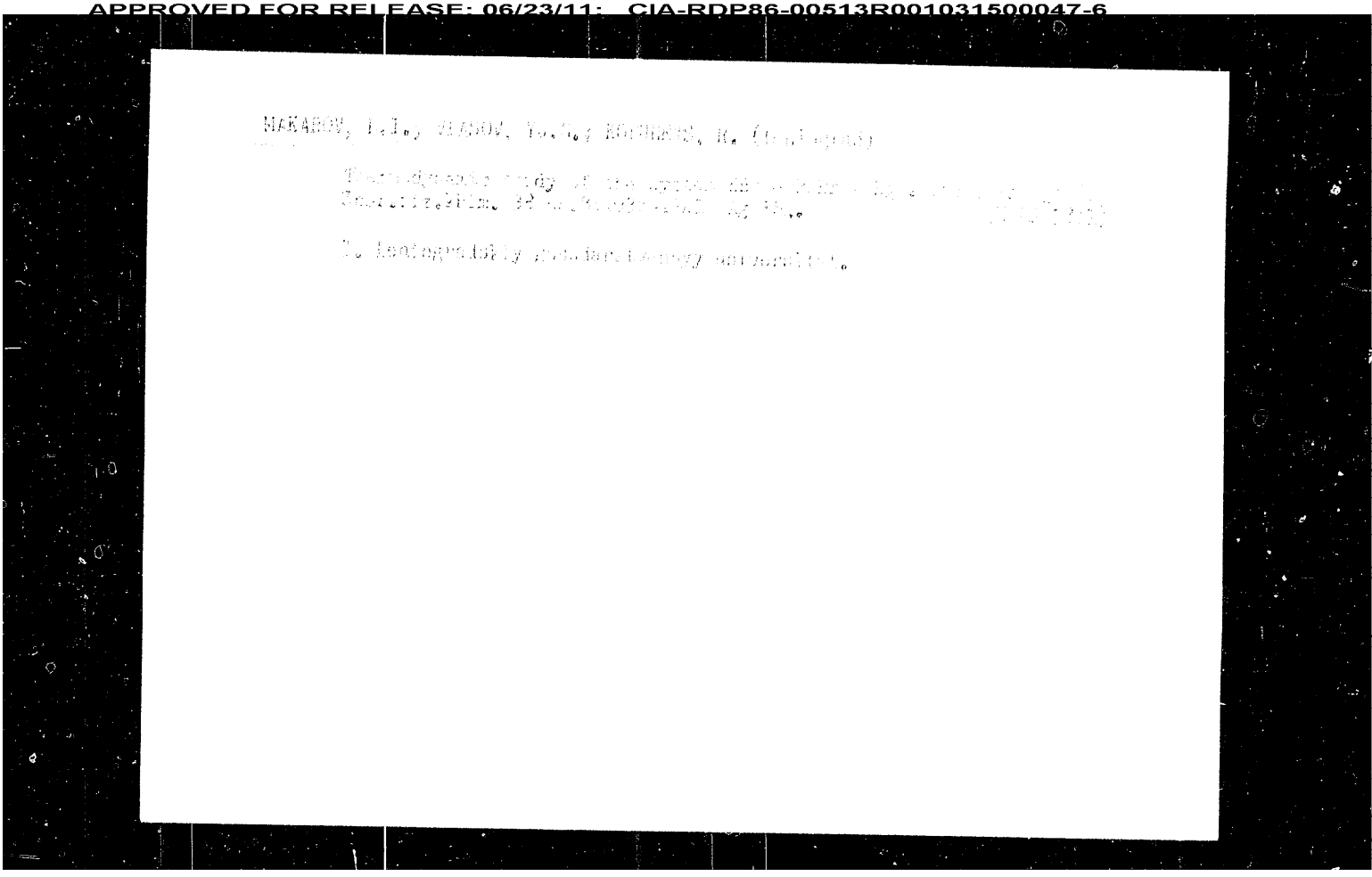




MAKAROV, L.L.; VLASOV, Yu.G.; IZOTOV, V.I. (Leningrad)

Thermodynamic investigation of the system RbBr - RbCl - H_2O at 25 and 45°C. Zhur. fiz. khim. 38 no.10:2403-2407 O '64. (MIRA 18:2)

1. Leningradskiy gosudarstvennyy universitet.



SUL'TS, M.M.; MAKAROV, L.L.; SU YU-ZHEN' [Su Yu-jên]

Activity coefficients of $NiCl_2$ and NH_4Cl in binary and ternary solutions at 25°. Zhur.fiz.khim. 36 no.10:2194-2198 O '62. (MIRA 17:4)

1. Leningradskiy gosudarstvennyy universitet imeni Zhdanova.

MAKAROV, L.L.; PANKOV, A.G.

System RbI - CsI - H_2O at 25°. Zhur.fiz.khim. 36 no.10:2241-2243 O '62. (MIRA 17:4)

1. Leningradskiy gosudarstvennyy universitet.

MAKAROV, L.L.; VLASOV, Yu.G.; KOPUNETS, R.

Thermodynamic study of the system KBr - RbBr - H_2O at 5 and 45°C. Part 1. Zhur. fiz. khim. 37 no.12:2763-2767 D '63. (MIRA 17:1)

1. Leningradskiy universitet imeni Zhdanova.

SHUL'TS, M.M.; MAKAROV, L.L.; MARINICHEV, A.N.; SU YU-ZHEN' [Su Yu-jên]

Thermodynamic study of the system NH_4Cl-$NiCl_2$-H_2O at 25°C. Zhur. fiz. khim. 37 no.6:1219-1222 Je '63. (MIRA 16:7)

1. Leningradskiy gosudarstvenyy universitet.
(Ammonium chloride) (Nickel chloride)
(Systems (Chemistry)—Thermodynamic properties)

S/076/62/036/010/002/005
B101/B186

Study of the RbI - CsI - H_2O ...

SUBMITTED: January 19, 1962

Table. Composition of coexisting phases, pressure of water vapor, activity coefficients of components, and change in isobaric potential on formation of 1 mole of solid RbI - CsI solutions. The horizontal line separates the solid solutions with different crystal structures. Legend: (Т) = solid; (Ж) = liquid; По [1] = according to McKay and Perring; По [2] = according to Storonkin and Shul'ts; $-\Delta Z$ is given in kcal/mole.

Card 3/4 3

$0.922 \leqslant x_{RbI} \leqslant 1$. Between 16.3 and 92.2 mole% RbI, the components do not mix. (3) The following equation holds for the equilibrium of ternary solutions at a constant activity a_{H_2O} of water:

$1/(m_{RbI} + m_{CsI}) = 1/M_{RbI} + \alpha m_{CsI}/(m_{RbI} + m_{CsI})$, where m_i and M_i are the molality of the i-th component in the ternary and binary solution, respectively, at given a_{H_2O}; and α is a constant almost independent of a_{H_2O}. (4) The fact that the solubility of Rb^+ is higher than that of Cs^+, although its radius is smaller, is explained by the deviating solubility of CsI in the series of alkali halides. There are 1 figure and 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet
(Leningrad State University)

41549

5.4110

S/076/62/036/010/002/005
B101/B186

AUTHORS: Makarov, L. L., and Pankov, A. G.

TITLE: Study of the RbI - CsI - H_2O system at 25°C

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 10, 1962, 2241 - 2243

TEXT: The following aspects of the RbI - CsI - H_2O system were determined at 25°C: solubility isotherms, the miscibility of components in the solid phase, and the change in isobaric potential on formation of solid RbI-CsI solutions. Furthermore, the activity coefficient (Table) was determined from the data of isopiestic equilibria according to H. A. C. McKay, J. K. Perring (Trans. Faraday Soc., 49, 163, 1953), and A. V. Storonkin, M. M. Shul'ts (Vestn. Leningr. un-ta, no. 11, 193, 1954). The solid phase was analyzed by using Rb^{86} and Cs^{134}. Results: (1) The system has a eutectic point with the composition 1.42 M CsI, 7.01 M RbI, and 17.962 mm Hg H_2O. (2) At 25°C RbI and CsI form solid solutions in extremely narrow concentration ranges; in CsCl-type solutions in the range $0 \leq x_{RbI} \leq 0.163$, and in an NaCl-type solutions in the range

Card 1/3

RATNER, A.P. [deceased]; MAKAROV, L.L.

Crystallization coefficients of some alkali metal halides in the presence of microconcentrations of one of the components. Radiokhimia 4 no.1:13-19 '62. (MIRA 15:4)
(Alkali metal halides) (Crystallization)

SHAUMYAN, Grigor Arutyunovich; MAKAROV, L.L., nauchnyy red.; KLIMOVICH, Yu.G., red.; BARANOVA, N.N., tekhn. red.

[Program control of machine tools] Programmnoe upravlenie metallorezhushchimi stankami. Moskva, Profitekhizdat, 1962. 174 p.
(MIRA 15:7)
(Machine tools--Numerical control)

MAKAROV, L.L.; STUPIN, D.Yu.

Change of isobaric potential during formation of KI - RbI solid solutions at 25°C. Zhur. fiz. khim. 35 no. 4:743-747 Ap '61. (MIRA 14:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.
(Potassium iodide) (Rubidium iodide)
(Solutions, Solid)

MAKAROV, L.L.; STUPIN, D. Yu.

Activity coefficients of KI and RbI in their concentrated aqueous solutions at 25°. Zhur. fiz. khim. 35 no.3:605-609 Mr '61. (MIRA 14:3)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.
(Potassium iodide) (Rubidium iodide)
(Activity coefficients)

MAKAROV, L. L.

Cand Tech Sci - (diss) "Several problems of the theory of portion automatic machines." Moscow, 1961. 20 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Lenin and Order of Labor Red Banner Higher Technical College imeni N. E. Bauman); 200 copies; price not given; (KL,10-61 sup, 216)

RATNER, A.P. [deceased]; MAKAROV, L.L.

Thermodynamic investigation of the system KCl - RbCl - H_2O at 25° C. Part 2. Zhur. fiz. khim. 34 no. 11:2495-2502 N '60. (MIRA 14:1)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.
(Potassium chloride) (Rubidium chloride)

the values ΔZ calculated from the equation

$$\Delta Z_{p,T} = x_1\Delta\mu_1 + x_2\Delta\mu_2 \qquad (4),$$

where μ denotes the chemical potential. Fig. 3 shows a comparison between the values ΔH and $T\Delta S$ for the formation of solid KBr - KI solutions from pure crystals. Fig. 3 also gives the values of the deformation energy E, calculated from the Neuman relation, on the assumption that disorder prevails in the distribution of the mixing ions, and that the law of the additivity of molecular volumes holds. The activity coefficients f_{KBr} and f_{KI} as well as the mean ion coefficients $\gamma_{\pm KBr}$ and $\gamma_{\pm KI}$ in saturated aqueous solutions at 25°C are given in Table 3. The authors thank Professor A. N. Murin, Professor A. V. Storonkin, and Docent M. M. Shul'ts. There are 3 figures, 4 tables, and 16 references: 5 Soviet, 4 US, 2 German, 2 Italian, and 3 Finnish.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

SUBMITTED: December 16, 1958

S/076/60/034/009/027/041 XX
B020/B056

AUTHORS: Makarov, L. L. and Yevstrop'yev, K. K.

TITLE: Thermodynamic Study of the System KBr - KI - H_2O at 25°C

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 9, pp. 1967 - 1972

TEXT: The authors wanted to give a definition of the solubility isothermal lines of the system mentioned in the title, to determine the limits of existence of solid solutions of KBr - KI, and to determine the change in the isobaric line potential ΔZ in their formation at 25°C. When evaluating results, the relations suggested by I. Wasastjerna and V. Hovi (Ref. 7), and T. H. Neuman (Ref. 8) were used. The solubility isothermal lines of the system mentioned in the title at 25°C is given in Fig. 1, and the vapor pressure isothermal line of water over solutions saturated with the KBr - KI mixture is given in Fig. 2. The error in determining the activity coefficients is estimated at $\pm$ 1 - 3%, which corresponds to an error of the quantity ΔZ of $\pm$ 4%. For every range of existence of the solid solutions, the constancy of the activity coefficients is characteristic. Table 4 gives

Card 1/2

S/145/60/000/008/010/014/XX
D211/D304

AUTHOR: Makarov, I.L., Engineer

TITLE: Calculating output accuracy of proportioning automatic devices

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 8, 1960, 58 - 67

TEXT: With the aid of the theory of random functions, dispersion formulas are deduced for two errors occurring in automatic weight proportioning of liquid and granulated substances: 1) The error due to additional material falling on the balance after the latter has responded; 2) The error in the angle of response of the balance (two types of automatic devices are considered separately in determining the second error). A formula for total error is deduced. It is stated that practical checking showed satisfactory agreement of the actual dispersion with the theoretical results. There are 4 figures.

ASSOCIATION: MVTU im. N.E. Baumana (MVTU im. N.E. Bauman)
SUBMITTED: February 11, 1960
Card 1/1

tia, its sensitivity, and to the rate of feed. The dynamical error causes the irregular motion of the beam. Its reduction requires a lower feed and sensitivity which would affect the efficiency of the weighing machine. This is overcome by various arrangements. The logarithmic decrement of damping is then discussed. There are 6 figures.

ASSOCIATION: MVTU im. Baumana (MVTU im. Bauman)

SUBMITTED: December 3, 1959

Legend to Fig. 1:
A - position of beam during switching;
B - position of beam at the stop, when t = 0;
C - position of beam at the instant that is being considered;
D - the feed of material in g/sec; v, cm/sec.

Some problems of the ...

of ϱ = constant, and general solutions are given which provide the value of φ when the reduced gravity center is above, below or in line with the fulcrum. Each case is discussed in detail. The curve plotted after simplifications for $c > 0$ agrees with the experimental oscillogram. When $c < 0$, there is no "balancing" of the measured dose. The corresponding curves reveal a rise of steepness with $c \to 0$. If $c = 0$, the curve of beam motion rises less abruptly than in the previous instance. For $\mu = 0$ and $c = 0$, $\varphi = l_1 \varrho / 6J \cdot t^3$. If $d\varphi_o/dt = \omega_o$, then $\varphi = \omega_o t - b_1 q / 2J \cdot t^2 + l_1 \varrho / 6J \cdot t^3$, where q is the underweight of the dose, and the beam is imparted a speed of ω_o. The above two equations are applied for all automatic devices which balance the dose in the last stage of the weighing process. When $c > 0$, the beam produces oscillations, the period of which is given by $T = 2\pi\sqrt{\frac{J}{Qc}} = 2\pi\sqrt{J\lambda}$, where $\lambda = \frac{1}{Qc}$ is the sensitivity of the balance. The equation of the dynamic error for ϱ = constant contains variable and constant parts. The variable part of the dynamical error is proportional to the square root of the product of the weigher iner-

Card 3/5

$$\frac{d}{dt}\left(\frac{\partial T}{\partial \alpha'}\right) - \frac{\partial T}{\partial \alpha} + \frac{\partial U}{\partial \alpha} + \frac{\partial R}{\partial \alpha'} = M_{\phi} \qquad (3)$$

where T is the kinetic energy; U is the potential energy; $R = 1/2\ \mu\left(\frac{d\alpha}{dt}\right)^2$. Mathematical transformations demonstrate that the kinetic energy of the system does not depend on angle α, and the second term of the equation is zero. The potential energy is determined with the beam in equilibrium ($\alpha = 0$). The final differential equation is

$$J\frac{d^2\varphi}{dt^2} + \left(\mu + \frac{l_1^2 \rho k}{g}\right)\frac{d\varphi}{dt} + Qc\,\varphi = l_1 \int_0^t \rho\,dt + \frac{l_1 vk}{g}\rho - M_o. \qquad (18)$$

where $vk/g\ \rho$ represents the dynamic pressure produced by the material fed at a speed v and intensity ρ. The quantity $l^2 \rho\, k/g$ is the coefficient of the reactive resistance. Eq. (18) is reduced to a linear differential equation with constant parameters for the most frequent case

S/145/60/000/005/001/010
D221/D301

AUTHOR: L.L. Makarov, Engineer

TITLE: Some problems of the theory of automatic dosimeters

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 5, 1960, 11 - 25

TEXT: The system of the weigher is non-linear and only its final phase is considered, where the problem is reduced to a linear dynamic system. The beam displacement as well as the trickle feed at this stage are small. Therefore, the mechanism (Fig. 1) can be reduced to the kinematic chain of the beam weighing Q_b, its inertia in respect to the gravity center J_b, and to the two suspended pans. One pan holds the dose and weighs Q_1, whereas the other carries the counterbalance and weighs Q_2. It is assumed that the terminal knife edges and the fulcrum have finite radii of rounding. Due to low speed the resistance produced by the viscous friction is proportional to the former. The process of the dosimetering is expressed analytically by the Langrange equation

Card 1/5

Examination of the Densities of Mixed KCl-RbCl Crystals and of the Diffusion of Rubidium Ions Therein

S/181/60/002/01/20/035
B008/B014

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: April 9, 1959

Card 3/3

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500047-6

Examination of the Densities of Mixed KCl-RbCl Crystals and of the Diffusion of Rubidium Ions Therein

S/181/60/002/01/20/035
B008/B014

was found between the melting-point curves, the "outflow", the diffusion coefficients D, and the defectiveness of the mixed crystals. The temperature dependence of the diffusion coefficients was studied on three samples (KCl, RbCl, and an equimolecular mixed crystal) (cf. Table 4). The results obtained are represented as a function $\log D = f\left(\frac{1}{T}\right)$ in Fig. 3. The three straight lines run parallel within the experimental limit of error. This indicates that the diffusion process in the preparations under consideration requires the same activation energy. Calculations have shown that it amounts to 35000 ± 300 cal/mole. This may be explained by the fact that the binding energy between the K^+ (or Rb^+) ions and the Cl^- anion is virtually equal in crystals of any composition. The authors refer to N. S. Kurnakov's papers. The X-ray structural analysis was carried out by Ye. V. Stroganov and Engineer I. Kozhina. The authors thank Professor A. N. Murin for his helpful advice. There are 3 figures, 4 tables, and 12 references, 5 of which are Soviet.

Card 2/3

S/181/60/002/01/20/035
B008/B014

24.7500

AUTHORS: Makarov, L. L., Lur'ye, B. G., Malyshev, V. N.

TITLE: Examination of the Densities of Mixed KCl-RbCl Crystals and of the Diffusion of Rubidium Ions Therein

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 88-92

TEXT: The authors examined the densities of mixed KCl-RbCl crystals at 25°C and determined their concentration of vacancies according to Shottki (Table 1). Fig. 1 represents the dependence of the degree of occupation of the elementary lattice n upon the composition. The difference between the results obtained by the authors and M. S. Ivankina (Ref. 7) is probably due to the different preparation of the samples. The configuration component of the entropy change in the development of mixed KCl-RbCl crystals was calculated with regard to the vacancies (Table 2). The results obtained are in agreement with experimental data. Next, the authors studied the diffusion of Rb^+ ions at 670°C by means of the radioisotope R^{86}. The results of diffusion measurement are given in Table 3. An analogy

4

The Thermodynamics of the Solid Solutions CsCl - RbCl at 25° SOV/20-120-1-29/63

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova (Leningrad State University imeni A.A.Zhdanov)

PRESENTED: December 27, 1957, by A.N.Terenin, Member, Academy of Sciences, USSR

SUBMITTED: December 24, 1957

1. Alkali metals--Thermodynamic properties 2. Alkali metals-water systems--Analysis 3. Rubidium isotopes (Radioactive)--Applications 4. Cesium isotopes (Radioactive)--Applications 5. Mathematics --Applications

Card 3/3

The Thermodynamics of the Solid Solutions CsCl - RbCl SOV/20-120-1-29/63
at 25°

93,3 molecular percent. The coefficients of the activity in the saturated solutions remain constant within the limits of error along the whole length of the isothermal line of solubility. In the solid phase the coefficients of the activity of the solvent on which the crystal structure of the solid solution depends are with great accuracy equal to unity. The coefficients of the activity of the dissolved substance maintain a constant value different from unity. In the latter case the deviation from the mean value is, however, greater. A table and a diagram show the results of the final calculation of the change of the chemical potentials $\Delta \mu_{CsCl}$ and $\Delta \mu_{RbCl}$ and of the change of the free energy in the formation of the solid solution CsCl-RbCl. The solid solution forms corresponding to the condition $\partial \Delta \Phi / \partial x_2$, where x_2 denotes the molecular proportion of the dissolved substance. The composition of the saturated solutions is determined by the coefficients of the activity of the two components. There are 1 figure, 2 tables, and 3 references, 2 of which are Soviet.

Card 2/3

AUTHORS: Makarov, L. L., Vlasov, Yu. G. SOV/20-120-1-29/63

TITLE: The Thermodynamics of the Solid Solutions CsCl - RbCl at 25° (Termodinamika tverdykh rastvorov CsCl - RbCl pri 25°)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 1, pp. 111 - 113 (USSR)

ABSTRACT: The present paper determines the system CsCl - RbCl - H_2O at 25° in order to determine the limits of the existence of the solid solution CsCl - RbCl and in order to investigate its thermodynamic properties. The experimental data as well as the results of the calculations carried out according to the relations by A. V. Storonkin and M. M. Shul'ts (Ref 2) are given in a table. The state of equilibrium between the liquid and solid phase was determined by means of a method elaborated by V. G. Khlopin which uses the isothermal removal of oversaturation with subsequent long term mixing (10 hours). The solid phase was investigated according to the method by Shreynemakers, using the radioactive isotopes Rb^{86} and Cs^{134} for the analysis. The experimental results compiled in a table show the following: CsCl and RbCl form solid solutions with a gap of mixability reaching from 10,7 to

Card 1/3