Thermal Explosion of Dinitroxydiethylnitramine Under Conditions of Purely Convective Heat Transfer

81936
S/062/60/000/06/08/011
B020/B061

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: October 6, 1959

Card 2/2

81937
S/062/60/000/06/09/011
B020/B061

11.5000

AUTHORS: Dubovitskiy, F. I., Rubtsov, Yu. I., Barzykin, V. V., Manelis, G. B.

TITLE: Kinetics of the Thermal Decomposition of Dinitroxydiethylnitramine

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 6, pp. 1126-1128

TEXT: The kinetics of the thermal decomposition of dinitroxydiethylnitramine is investigated here by three different methods, the evolution of gas, the change of weight, and the evolution of heat. When studying the kinetics on the basis of the evolution of gas, the same method as earlier (Ref. 5) was used. The curves of the rate of heat evolution are graphically illustrated in Fig. 1, and the temperature dependence of the reaction rate constants in Fig. 2. The values obtained for the reaction heat of the thermal decomposition of dinitroxydiethylnitramine are tabulated. As may be seen from the Table, the thermal effect of the

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Kinetics of the Thermal Decomposition of Dinitroxydiethylnitramine

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B020/B061

reaction rises slowly with increasing temperature, the temperature rise in the range 150 - 170° being about 6%. The decomposition takes place as a reaction of the first order. The rate constants were experimentally determined, and the activation energy and the factor of the exponential function were calculated. There are 2 figures, 1 table, and 6 references: 2 Soviet, 3 Canadian, and 1 British.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: October 6, 1959

Card 2/2

11.6300
26.5200

27685
S/076/61/035/009/008/015
B106/B110

AUTHORS: Merzhanov, A. G., Barzykin, V. V., Abramov, V. G., and Dubovitskiy, F. I.

TITLE: Thermal explosion in the liquid phase under conditions of a purely convective heat transfer

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 9, 1961, 2083 - 2089

TEXT: The authors tried to realize the thermal explosion of explosives in the liquid phase for the limiting case of purely convective heat transfer. The heat exchange is of such intensity that no temperature distribution takes place in the reaction zone, and the total temperature gradient falls to the wall of the reaction vessel. Such a heat exchange may be achieved by intensive artificial intermixing of the substance. Under these conditions, the heat-transfer coefficient from the reaction zone to the ambient medium may easily be measured since it is derived from the heat-transfer coefficient through the wall of the vessel. Moreover, these conditions may serve as starting point for a detailed study of the complicated convective heat transfer. Two explosives with strongly different

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properties were chosen for the experiments: Dina (dinitrooxydiethylnitramine; melting point 52.5°C) and Tetryl (melting point ≃ 130°C). The decomposition of Dina is a reaction of first order and only leaves a small condensated residue. The rate of heat development per unit volume is independent of the extent of transformation, and is only determined by the temperature. Under the conditions of a purely convective heat transfer, Dina represents, therefore, the simplest example for the theory of thermal explosion according to N. S. Semenov (Ref. 7: Zh, Uspekhi fiz. nauk, RFKhO, 60, 241, 1928; 23, 251 1940). On the other hand, the decomposition of Tetryl has an autocatalytic course and leaves a very large condensated residue. Tetryl is a good example for the quasisteady theory of thermal explosion developed by the authors (Ref. 6: A. G. Merzhanov, F. I. Dubovitskiy, Dokl. AN SSSR, 124, 362, 1959; Ref. 9: same authors, Dokl. AN SSSR, 120, 1068, 1958; Zh. fiz. khimii, 34, 2235, 1960). The investigation method had been elaborated previously (Ref. 2: A. G. Merzhanov, V. G. Abramov, F. I. Dubovitskiy, Dokl. AN SSSR, 128, 1238, 1959) and was only completed by a device for the intermixing of the substance. This method permits a determination of all fundamental characteristics of thermal explosion. In Table 1, the experimental results

Thermal explosion in the liquid phase ...

on the thermal explosion of Dina are compared with the values calculated according to Semenov's theory; they agree well. The data for the calculations were obtained independently of the experiments. Table 2 gives a comparison of results of experimental investigation of the thermal explosion of Tetryl with the critical temperature and heating calculated by means of the equations derived in Ref. 6 and Ref. 9. Also in this case, the agreement is good. D. A. Frank-Kamenetskiy (Ref. 1: Diffuziya i teploperedacha v khimicheskoy kinetike (Diffusion and heat transfer in chemical kinetics), M.-L., 1947) is mentioned. There are 2 figures, 2 tables, and 9 references: 7 Soviet and 2 non-Soviet-bloc. The two references to English-language publications read as follows: A. J. B. Robertson, Third Symposium on Combustion, 1949, 545; W. G. Chute, K. G. Herring, L. E. Toombs, G. F. Wright, Canad. J. Res., B26, 89, 1948.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki
(Academy of Sciences USSR, Institute of Chemical Physics)

SUBMITTED: February 5, 1960

Card 3/5

ACCESSION NR: AP4041201 S/0207/64/000/003/0118/0125

AUTHORS: Barzy*kin, V. V. (Moscow); Gontkovskaya, V. T. (Moscow); Merzhanov, A. G. (Moscow); Khudyayev, S. I. (Moscow)

TITLE: Nonstationary theory of thermal explosion

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1964, 118-125

TOPIC TAGS: thermal explosion, heat transfer, Newtonian heat exchange, thermophysics, approximate formula

ABSTRACT: The authors use an electronic computer to analyze and solve a system of partial differential equations for thermal explosion for a reaction of zeroth and first order with conductive heat transmission in the reaction zone and Newtonian heat exchange on the boundary. They analyze

and $\frac{\partial \eta}{\partial \tau} = \gamma \varphi(\eta) \exp \frac{\theta}{1+\beta\theta}$ $\frac{\partial \theta}{\partial \tau} = \varphi(\eta) \exp \frac{\theta}{1+\beta\theta} + \frac{1}{\delta}\left(\frac{\partial^2 \theta}{\partial \xi^2} + \frac{n}{\xi}\frac{\partial \theta}{\partial \xi}\right)$ (1)

$\theta = \frac{E}{RT_0^2}(T - T_0)$, $\tau = \frac{QEk_0 t}{c\rho RT_0^2} \exp\left(-\frac{E}{RT_0}\right)$, $\xi = \frac{x}{r}$,

$\delta = \frac{QEr^2 k_0}{\lambda RT_0^2} \exp\left(-\frac{E}{RT_0}\right)$, $\gamma = \frac{c\rho RT_0^2}{QE}$, $\beta = \frac{RT_0}{E}$. (2)

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ACCESSION NR: AP4041201

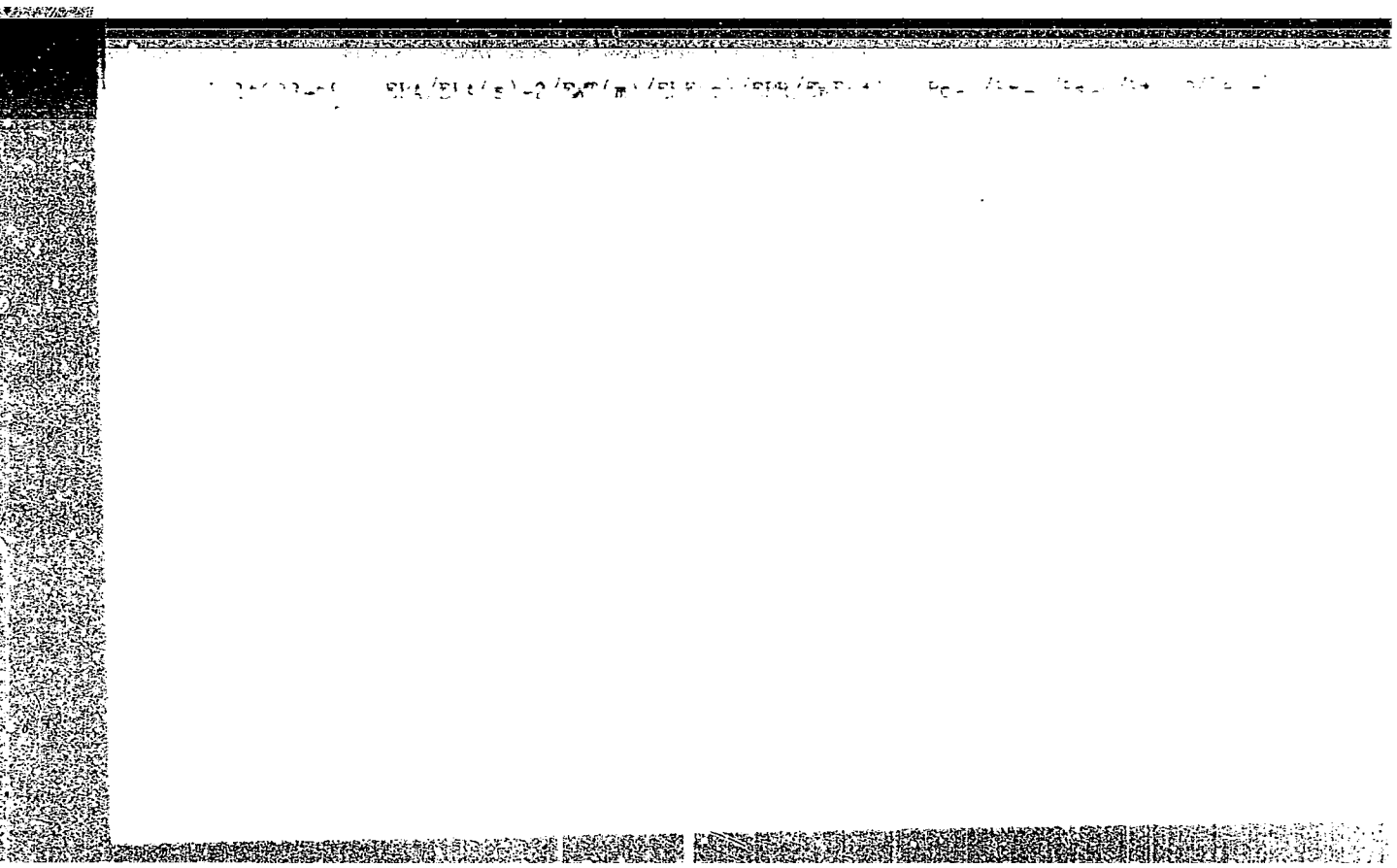
where θ is heating, τ is time, ξ is a coordinate, δ is the criterion of Grank-Kamenetskiy, n = 0,1 and 2 respectively for plane-parallel, cylindrical, and spherical containers, η is the depth of transformation. The dimensionless variables are: T(x,t) - temperature in the reaction region, T_0 - temperature of the ambient medium, Q - thermal effect of the reaction, k_0 - pre-exponent, E - activation energy, λ - coefficient of heat conductivity, c - specific thermal capacity, ρ - density, R - universal gas constant, r - radius of the container (for plane-parallel - half of the thickness). The authors refine the determination of the basic characteristics of thermal explosion. They present the results in the form of approximate formulas relating the characteristics of thermal explosion with all the parameters of the problem in a wide range of variation. A criterion is given for applicability of the equation averaged over the region for computing the period of induction in the case of conductive heat transmission in the reaction region, and a method for averaging the system of equations for thermal explosion is proposed. Orig. art. has: 5 figures, 6 tables, and 9 formulas.

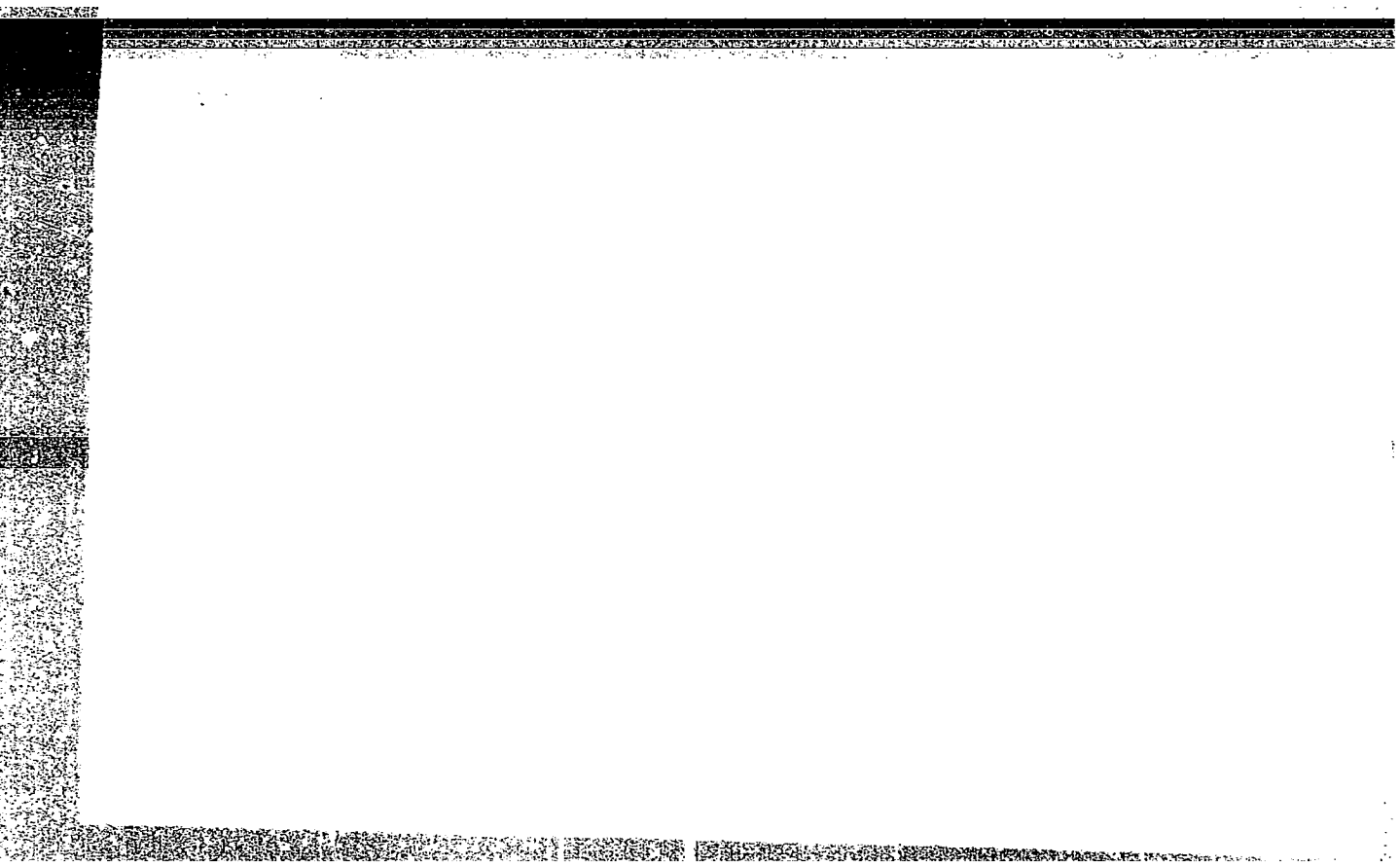
ASSOCIATION: none

SUBMITTED: 23Jan64

SUB CODE: TD NO REF SOV: 008 ENCL: 00

Card 2/2 OTHER: 005





APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000203810019-7"

BARZYKIN, V.V.; MERZHANOV, A.G.

Thermal explosion of condensed systems under conditions of weak heat exchange with surrounding medium. Zhur.fiz.khim. 38 no.11:2640-2647 N '64. (MIRA 18:2)

1. Institut khimicheskoy fiziki AN SSSR.

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L 37710-66 EWP(j)/EWT(m)/T RM/WW/JW/JWD

ACC NR: AP6024416 SOURCE CODE: UR/0020/66/169/001/0158/0161

AUTHOR: Averson, A. E.; Barzykin, V. V.; Merzhanov, A. G. 52 B

ORG: Institute of Chemical Physics, Academy of Sciences, SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Thermal theory of ignition of condensed substances

SOURCE: AN SSSR. Doklady, v. 169, no. 1, 1966, 158-161

TOPIC TAGS: ignition theory, condensed system, ignition ~~delay~~ lag, ignition, computer calculation

ABSTRACT: Generalized equations are derived for the ignition of condensed systems under various boundary conditions, i.e., at a constant surface temperature, a constant heat flux to the surface of the combustible, and under the conditions of Newtonian heat-exchange on the surface of the condensed system. The numerical solution of the derived system of equations on an electronic computer yielded a generalized equation for calculating the ignition delay of condensed systems over a wide range of parameters. Ignition parameters calculated by the proposed theory are in good agreement with both published theories and published experimental data obtained for the ignition of pyroxylin (V. I. Lisitskiy, A. G. Merzhanov, Nauchno-tekhnich. problemy goreniya i vzryva, no. 2, 1965). The authors thank Z. S. Andrianova for programming the electronic computer calculations. Orig. art. has: 1 table, 2 figures, and 6 formulas. [PS]

SUB CODE: 21/ SUBM DATE: 17Sep65/ ORIG REF: 005/ OTH REF: 004/ ATD PRESS: 5041

Card 1/1 UDC: 536.46

L 23274-66 EWT(m) RM/JW/JWD

ACC NR: AP6012677 SOURCE CODE: UR/0170/66/010/004/0482/0486

AUTHOR: Shteynberg, A. S.; Ulybin, V. B.; Barzykin, V. V.; Merzhanov, A. G.

ORG: Branch of the Institute of Chemical Physics, AN SSSR, Moscow Oblast (Filial Instituta khimicheskoy fiziki AN SSSR)

TITLE: Ignition of condensed substances at a constant surface temperature

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 4, 1966, 482-486

TOPIC TAGS: ignition delay, condensed explosive, surface temperature, pyroxylin

ABSTRACT: To verify the previously postulated theory of the ignition of condensed explosives (Averson, A. E., Barzykin, V. V., Merzhanov, A. G. IFZh, 9, No. 2, 1965), the ignition of pyroxylin No. 1 charges having a constant initial surface temperature (T_1 = 255—369K) by contact with an aluminum block with a varying temperature (T_0 = 485—525K) was studied experimentally using a specially developed experimental unit (see Fig. 1). The initial temperature of the pyroxylin was set by a thermostat, and the temperature of the igniter was set by a current control system. The ignition delay t_z was visually observed

Card 1/4 UDC: 536.46

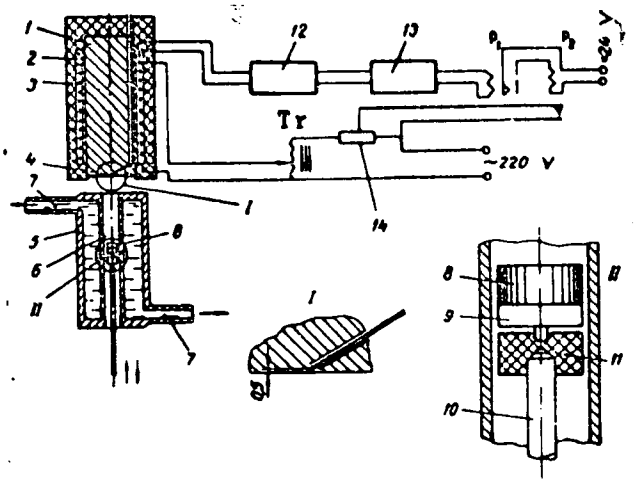

Fig. 1. Experimental unit for studying the ignition of condensed explosives by a hot body

1 - Aluminum block (igniter); 2 - Pt resistance thermometer; 3 - heating element; 4 - Pt—Pt-Rh thermocouple; 5 - thermostat; 6 - steel cylinder; 7 - jacket with heat transfer agent; 8 - charge; 9 - textolite plate; 10 - lifting device; 11 - ebonite sleeve; 12, 13, 14 - current control system; Tr - transformer.

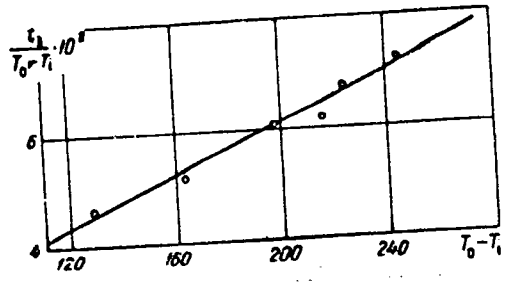

Fig. 2. Dependence of the ignition delay time on the initial temperature

(t_z in sec; T_0-T_i in °K; T_0 = 489K)

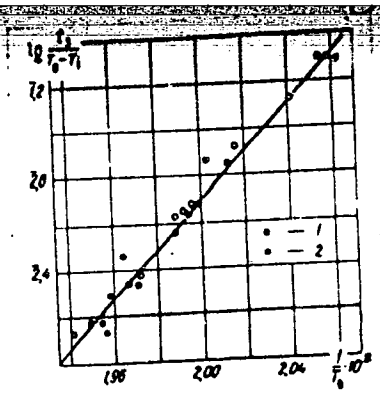

Fig. 3. Dependence of the ignition delay time on the temperature of the igniter

1 - Explosive charge 12 mm in diameter; 2 - charge 18 mm in diameter; (t_z in sec; T_0 in °K; T_i = 293—298K)

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and recorded using a stopwatch. The temperature of the ignition block was varied to obtain an ignition delay of 3—20 sec. The experimental data were treated by an equation derived by mathematical transformation of the published theoretical equation for t_z. The graphed results (see Fig. 2 and Fig. 3) show satisfactory agreement between the theoretical and the experimental data. The activation energy calculated from the graphs was found to be 200 kj/mole. The authors thank B. M. Dmitriyev and O. A. Kochetov for their assistance in setting up the apparatus. Orig. art. has: 3 figures and 3 formulas. [PS]

SUB CODE: 19/ SUBM DATE: 31Aug65/ ORIG REF: 004/ ATD PRESS: 4235

Card 4/4 UDC

L 06232-67 EWT(m) WW/JW/WE

ACC NR: AP6030658 SOURCE CODE: UR/0020/66/169/006/1366/1369

AUTHOR: Barzykin, V. V.; Khudyayev, S. I.

ORG: none

TITLE: Problem of critical ignition conditions with heat losses

SOURCE: AN SSSR. Doklady, v. 169, no. 6, 1966, 1366-1369

TOPIC TAGS: ignition, heat loss, heat coefficient

ABSTRACT: The authors examine the problem of critical ignition conditions of a semi-infinite cylinder with the constant temperature T_0 on the end, with Newtonian heat transfer from the side surface, characterized by the heat loss coefficient α at an ambient temperature of $T_\infty < T_0$. An equality is derived which with a practical allowable error can be considered as the critical ignition condition for any Bi which is a function of the distance from a certain fixed axis in the cylinder to the side surface. Two solutions are given--for plus and minus signs of solvability conditions. When $\delta = \delta_{crit}$, both solutions merge. A graphic form of these solutions is also given. Equations are written for a circular cross section of a cylinder, but a two-dimensional surface can also be used. The authors thank A. G. Merzhanov for his valuable advice. Presented by Academician V. N. Kondrat'yev on 27 November 1965. Orig. art. has: 2 figures, 13 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 005

Card 1/1 UDC: 536.46

BARZYKOWSKI, J.; ZAKOWSKI, W.

Study of the properties of the generalized Van der Pol equation. Bul Ac Pol tech 11 no. 12:763-768 '63.

1. Department of Basic Electrotechnical Problems, Technical Military College, Warsaw, and Department of Mathematics E, Telecommunication Faculty, Technical University, Warsaw. Presented by S. Ziemba.

LYZWINSKI, M., mgr inz.; BARZYKOWSKI, J., mgr inz.

Electric rocket engines. Pt. 1. Techn lotn 19 no. 1: 3-11 Ja '64.

LYZWINSKI, M., mgr ins.; BARZYKOWSKI, J., mgr inz.

Electric rocket engines. Pt. 2. Techn lotn 19 no.2:29-36 F '64.

BAS, F.

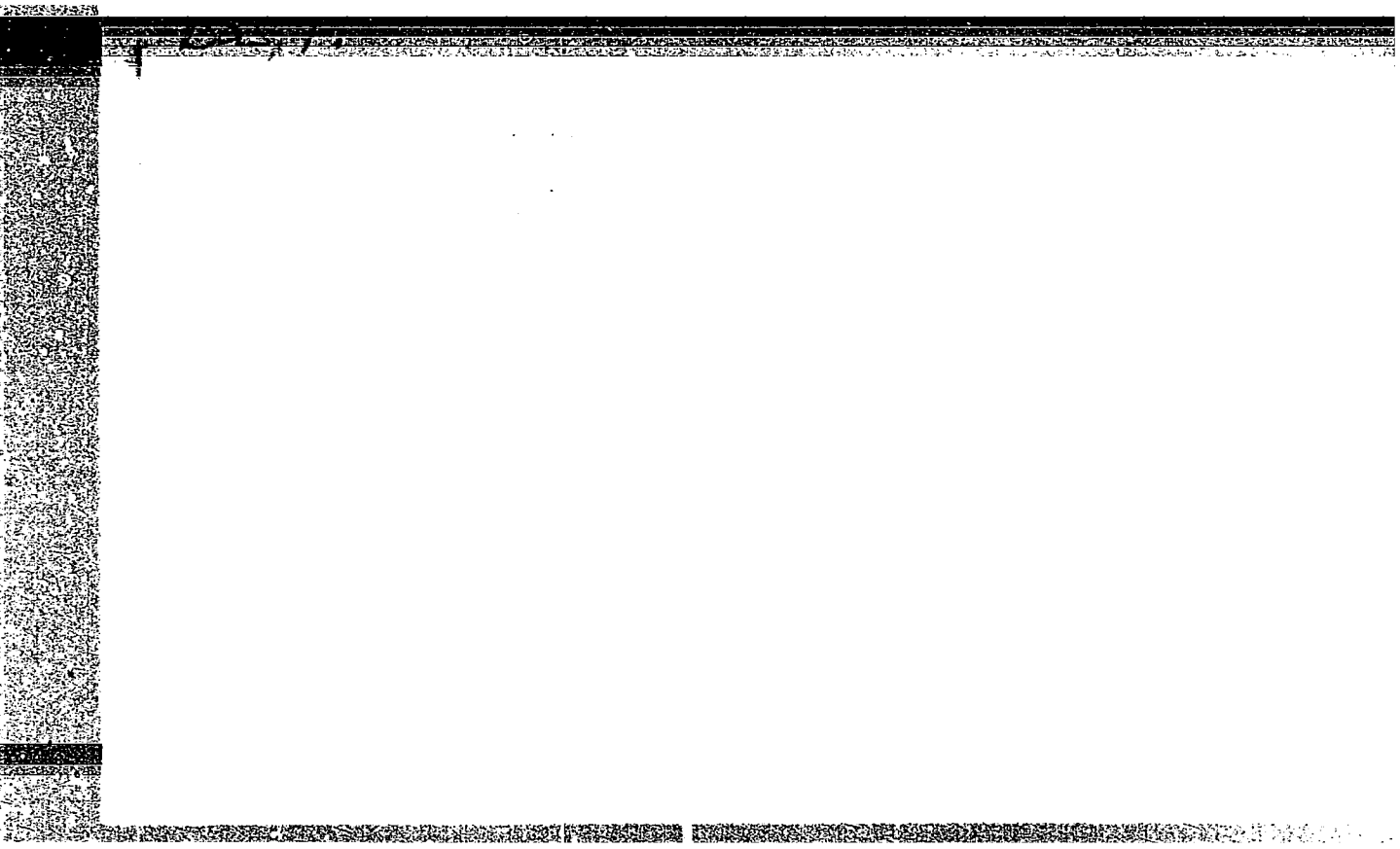
Technical Museum of Slovenia. p. 120. (NOVA PROIZVODNJA, Vol. 5, no. 2, July 1954. Ljubljana, Yugoslavia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 4, Apr 1955, Uncl.

BAS, Franjo

BAS, Franjo (direktor Tehnicnega muzeja - Ljubljana)

To dr. Mirko Cernic on his 70th birthday. Zdrav. vest., Ljubljana 23 no.3-4:55-56 1954.
(BIOGRAPHIES
*Cernic, Mirko)



APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000203810019-7"

BAS, H.

Contribution to the pathogenesis of meralgia paresthetica.
Cesk. neurol. 28 no.6:454-457 N ' 65.

1. Neurologicke oddeleni Obvodniho ustavu narodniho zdravi v Jindrichove Hradci (vedouci MUDr. H. Bas.).

L 47269-66 T JK

ACC NR: AP6034709 SOURCE CODE: CZ/0082/65/028/006/0454/0457

AUTHOR: Bas, H.

ORG: Neurological Department, Okresni Institute of National Health/headed by Doctor of medicine H. Bas/, Jindrichuv Hradec (Neurologicke oddeleni OUNZ)

TITLE: Pathogenesis of meralgia paraesthetica

SOURCE: Ceskoslovenska neurologie, v. 28, no. 6, 1965, 454-457

TOPIC TAGS: pathogenesis, nervous system disease, bone disease

ABSTRACT: Meralgia paraesthetica is found only in 0.2% of neurological patients. Highest incidence is between 50 and 65 years of age, and is caused by changes affecting the upper lumbar spinal column. Essential factor of the disease are the changes in the upper lumbar vertebrae; the disease is a manifestation of a vertebrogenic lesion and does not affect the whole body. The majority of patients complained of low back pain and sciatica. Orig. art. has: 4 tables. [Based on author's Eng. abst.] [JPRS: 34,161]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 015

Card 1/1

0921 1338

Bas, L.

BRODSKIY, V.; BAS, L.; LACHINOV, A.

Pneumatic tool for polishing car bodies. Avt.transp.33 no.9: 23-24 S'55. (MLRA 8:12)
(Automobiles--Apparatus and supplies)

GLAZUNOV, Sergey Vasil'yevich; SABININ, Andrey Aleksandrovich; BAS, Lev Ruvimovich; PAPMEL', S.V., redaktor; MANINA, M.P., tekhnicheskiy redaktor

[Automobile and motorcycle racing in foreign countries] Avtomobil'-nye sorevnovaniia za rubezhom. Pod obshchei red. A.Sabinina. Moskva, Gos. izd-vo "Fizkul'tura i sport," 1956. 266 p. (MLRA 9:8)
(Motorcycle racing) (Automobile racing)

BAS, LEV RUVIMOVICH

SEROV, Aleksandr Vladimirovich; BAS, Lev Ruvimovich; YERMOLIN, Aleksey Ivanovich; PRIGOZHIN, Vladimir Borisovich; IVANITSKIY, S.Yu., redaktor; PAPMEL', S.V., redaktor; MANINA, M.P., tekhnicheskiy redaktor

[Working principle of a motorcycle] Ustroistvo mototsikla. Izd. 2-oe, ispr. Moskva, Gos.izd-vo "Fiskul'tura i sport," 1956. 350 p. (Motorcycles) (MIRA 9:3)

BAS, L., inzhener; BRODSKIY, V., inzhener.

The GARO (model 155) compressor. Avt. transp. 34 no.6:14-16 Je '56. (MLRA 9:9)

(Air compressors)

BAS, L., inzhener; GRINGAUT, Ye., zaslushennyy master sporta SSSR.

A quarter of a century in automobile racing. Za rul. 15 no.4:8-9 Ap '57. (MLRA 10:6)

(Lorent, Eduard Osipovich)

RAS, L.

Automobile racing; ten new records. Avt.transp. 35 no.1:27-28 Ja '57. (MLRA 10:3)

1. Zamestitel' Glavnogo sud'i sorevnovaniy.
(Automobiles, Racing)

BAS, L.

LACHINOV, A., BAS, L.

Tire marking device. Avt.transp. 35 no.4:32 Ap '57. (MLRA 10:5)

(Automobiles--Tires) (Marking devices)

Bas, L.

BAS, L., inzh.

Stands used in repairing engines, front and rear axles.
Avt.transp. 35 no.11:19-20 N '57. (MIRA 10:12)
(Automobiles--Repairing)

BAS, L., inzh., sud'ya respublikanskoy kategorii

Improve racing motorcycles. Za rul. 16 no.9:15-16 S '58.
(Motorcycles) (MIRA 11:10)

BAS, L.

BRODSKIY, V.; BAS, L.

Equipment for checking and adjusting automobile headlights. Avt. transp. 36 no.3:14 Mr '58. (MIRA 11:3)
(Automobiles--Lighting--Testing)

BAS, L.

The 427-type traveling crane. Avt. transp. 36 no. 7:22-23 Jl '58.
(MIRA 11:8)

(Cranes, derricks, etc.)

DROBYSHEVSKIY, V.; BAS, L.

New machines for mounting and dismounting automobile tires. Avt. transp. 36 no.9:24-25 S '58. (MIRA 11:10)
(Automobiles--Tires)

SHCHESLAVSKIY, A., inzh.; BAS, L., inzh.

Testing stand for hydraulic drives. Avt.transp. 37 no.4:18-20 Ap '59. (MIRA 12:6)

(Oil-hydraulic machinery--Testing)

BAS, L., inzh.

Repairing body panels. Avt. transp. 37 no.5:59 My '59.
(MIRA 12:8)

(Automobiles—Bodies—Maintenance and repair)

BAS, L., insh.; EPSHTEYN, M., insh.

New cylinder boring machine. Avt.transp. 37 no.11:31-32 N '59. (MIRA 13:2)
(Drilling and boring machinery)

BAS, L.

Electric vulcanizers. Avt.transp. 38 no.7:25-26 Jl '60.
(MIRA 13:7)
(Vulcanization)

BAS, L.

Automobile records broken on a new natural track. Avt.transp. 38 no.11:53-54 N '60. (MIRA 13:11)
(Baskunchak region--Automobile racing)

EXCERPTA MEDICA Sec.9 Vol.11/5 Surgery May 1957

BAS M.M.

2541. BAS M.M. Med. Inst. A.A. Bogomolts, Kiev. *The closure of extensive defects of the diaphragm in diaphragmatic herniae (homoplastic in experiments) (Russian text) VESTN.KHIR. 1955, 10 (71-78) Illus. 4

Report of successful experiments on dogs to close an artificially caused defect in the diaphragm by homoplastic material (diaphragmatic muscle from other dogs) taken usually 2-3 hr. before the operation. This has been performed in 5 cases, in 4 of which the time of observation was prolonged up to 207 days.

Adámek - Náchod

BASA, F.; LABUZA, S.

The present stage in the development of the theory and computation of globoid gears.

P. 502, (Strojirenstvi) Vol. 7, no. 7, July 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

Z/032/60/010/07/010/030
E073/E335

AUTHORS: Báša, Fr., Engineer and Nozar, K.

TITLE: Manufacture of Globoidal Worm Gears on Worm Milling Machines

PERIODICAL: Strojírenství, 1960, Vol 10, Nr 7, pp 509 - 521

ABSTRACT: In spite of the great advantages of globoidal worm gears, they are not used in Czechoslovakia to sufficient extent. The authors published in the Nr 7, 1957, issue of Strojírenství an article relating to the calculation of globoidal gear transmissions and numerous Czech works are at present using this method for designing such gear transmissions. However, considerable difficulties have been encountered in the manufacture and the Czech manufacturers are not satisfied with the quality of the globoidal gears they produce. It is stated that this deficinecy is due to incorrect technology and the aim of the paper is to supplement information given in the paper published earlier and to acquaint the Czech engineering community with the correct technology of manufacturing globoidal worm gears on current-type worm milling machines, which are available in most of the larger works. The

C. Card1/2

BASA, Frantisek, inz.

"Gear wheels" by D.W. Dudley, [dr. ing.] H. Winter. Reviewed by Frantisek Basa. Stroj vyr 11 no.7:374 '63.

[illegible], A., MD; [illegible], A., MD; [illegible], I., MD; [illegible], T., MD; DRAGUSANU, I., MD.

Bucharest, Igiena, No 6, Nov-Dec 63, pp 621-523

"Methods of Controlling Tuberculosis on Building Sitos."

(5)

BASAGIC, E.; CATOVIC, S.; ZEC, R.

Our experiences with Ulcosan in the treatment of gastrointestinal ulcer. Med. arh. 18 no.6:57-68 N-D'64.

1. II. interni klinika Medicinskog fakulteta u Sarajevu (Sef: Prof. dr. Miron Simic); Istrazivacka laboratorija tvornice " Bosnalijek".

L 41207-66 EWT(1) IJP(c) SOURCE CODE: UR/0057/66/036/006/1075/1083 56 B

ACC NR: AP6018734

AUTHOR: Basargin, Yu.G.

ORG: none

TITLE: On the second order chromatic aberrations of a sector type magnetic analyzer with a radially inhomogeneous field and curved boundaries

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 6, 1966, 1075-1083

TOPIC TAGS: electron optics, chromatic aberration, magnetic field, mass spectrometer, MAGNETIC ANALYZER

ABSTRACT: Formulas are derived for the second order chromatic aberration coefficients of a sector type magnetic analyzer with a radially inhomogeneous magnetic field bounded by arcs of circles. The formulas are valid for arbitrary positions of the source and detector. The geometry of the analyzer discussed in this paper is the same as that of the analyzer discussed by Hidetsugu Ikegami (Rev. Scient. Instrum., 29, 943, 1958), and the present paper is regarded as supplementary to that one. The inclination to the optic axis of the focal line is calculated and means are briefly discussed for achieving a focal line that is perpendicular to the axis. The approximations employed in the paper are not adequate for calculation of the curvature of the focal line. For the case of a uniform magnetic field the formulas reduce to those given by K.L.Brown,

UDC: 537.533.3

Card 1/2

BASAK, U.

Tragedy of Mar'ia B.; the truth about the Israeli "paradise."
Rab.i sial. 34 no.3:18 Mr '58. (MIRA 11:3)
(Israel--Social conditions)

BASALAY, F.

Students will go soon to the new lands. Prof.-tekh.obr. 12 no.4:33 Ap '55. (MLRA 8:7)
(Kazakhstan--Reclamation of land)

BASALAYEV, A.A.

Clinical course of hemorrhagic fever in White Russia. Zdrav.Belor. 5 no.9:54-58 S '59. (MIRA 12:12)

1. Iz okruzhnogo voyennogo gospitalya (nachal'nik M.V. Khiteyev).
(WHITE RUSSIA--HEMORRHAGIC FEVER)

BASALAYEV, A.A., podpolkovnik med.sluzhby; ARANSON, S.B., podpolkovnik med.sluzhby

Treatment of influenza with cutisone. Voen.-med. zhur. no. 2:78-79 F '61. (MIRA 14:2)

(INFLUENZA) (CUMALDEHYDE)

BASALAYEV, A.A., polkovnik meditsinskoy sluzhby; PRIKHOD'KO, G.F., podpolkovnik meditsinskoy sluzhby; IVANKIN, P.K., podpolkovnik meditsinskoy sluzhby

Cases of tonsillitis of adenoviral etiology. Voen.-med. zhur. no.2:48-49 '65. (MIRA 18:11)

BASALAYEV, A.M., inzhener.

Utilizing peat deposits by the peat enterprises of the White Russian SSR. Torf.prom. 31 no.5:4-5 '54. (MLRA 7:8)

1. Glavtorffond BSSR.
(White Russia--Peat industry) (Peat industry--White Russia)

BASALAYEV, A.V.; SHNEYDERMAN, Z.M.

Case of water supply pollution by chromium. Gig. i san. 21 no.9: 68-69 S '56. (MLRA 9:10)

1. Iz Gor'kovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.
(CHROMIUM--TOXICOLOGY) (WATER--POLLUTION)

L 43876-65 EPF(n)-2/EPR/EPA(s)-2/EWA(c)/EWT(d)/EWT(l)/EWT(m)/EPA(bb)-2/T-2/EWP(t)

ASSOCIATION: Kolomenskiy teplovozostroitel'nyy zavod im. V. V. Kuybyshev
(Kolomna Diesel Locomotive Plant)

ACC NR: AP6021564

AUTHOR: Basalayev, G. (Lieutenant colonel)

ORG: None

TITLE: Maintenance and repair of motor vehicles

SOURCE: Tyl i snabsheniye sovetskikh vooruzhennykh sil, no. 3, 1966, 73-80

TOPIC TAGS: motor vehicle, servicing technique

ABSTRACT: The servicing technique used for keeping military vehicles in operating condition is discussed on the basis of the experience acquired by a military unit. The service station of this unit is provided with modern equipment including elevated platforms, a lubricating circulation system, a new battery charging station and a hot-water washing installation. The drivers are subjected to special training in order to make them familiar with the servicing technique, maintenance inspection and repair procedures. The importance of checking the reliability of fastenings (screw, bolts, etc.) is stressed and some failures are cited as examples. It is recommended that various adjustments and control operations be conducted without applying excessive measures such as disassembling engines or machinery. In many cases, the restoring of malfunctioning parts can be done by a simple adjustment or replacement. Careful use of lubricants is also taken into consideration, and various factors controlling the maintenance of lubrication systems are

Card 1/2

ACC NR: AP6021564

examined. The same careful approach to the maintenance of electrical equipment is recommended. Some examples of carelessness in handling electric circuit elements are presented. Special training, lectures and exercises are conducted in order to increase the standard of proficiency in the use and maintenance of electric circuits. A preliminary preheating of engines before starting is strongly recommended with reference to the skill displayed by a driver in operation and maintenance of vehicle engines. A strict observation of rules and regulations established for the use of tires is also stressed especially in regard to the regular maintenance of prescribed inflation pressures. Some practical cases are examined and recommendations are given. Orig. art. has: 2 photos.

SUB CODE: 13, 15/ SUBM DATE: None

Card 2/2

BASALAYEV, G. I.

Propeller pump for pumping sodium nitrate melt at 500° C. in patenting baths. Trudy LPI no.215:173-177 '61. (MIRA 14:11)
(Pumping machinery)

S/123/62/000/001/001/003
A004/A101

AUTHOR: Basalayev, G. I.

TITLE: Screw-impeller pump for the pumping of molten sodium nitrate at 500°C temperature in patenting baths

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 1, 1962, 31, abstract 1B182 ("Tr. Leningr. politekhn. in-ta", 1961, no. 215, 173 - 177)

TEXT: For the heat treatment of fixtures 8 - 14 mm in diameter a patenting bath is used, which the steel wire, upon leaving the furnace, passes straight through cylindrical nozzles in the face end walls. The level of the melt in the bath is maintained at 100 - 120 mm above the nozzle axis. The 5ПВ-80 (5PV-80) pump has been developed to pump the molten salpeter, which pours out through the nozzles into the overflow pockets of the bath, back into the working space. The pump capacity is 80 m^3/hour (22.2 l/sec), the pressure head is 1 m, the impeller speed 1,420 rpm, the driving motor power 1kW, while the high-speed coefficient n_s = 820. Tests proved the satisfactory operation of the pump. The pump cooling system ensures dependability during operation and safety in that way that it is

Card 1/2

S/123/62/000/001/001/003
A004/A101

Screw-impeller pump for the...

impossible for the water to get into the molten salpeter. There are 3 figures and 2 references.

N. Il'ina

[Abstracter's note: Complete translation]

Card 2/2

ACCESSION NR: AT4042134 S/2563/64/000/231/0065/0071

AUTHOR: Basalayev, G. I., Sinel'nikov, V. P.

TITLE: Design and results of experimental tests of an axial forerunner with a small hub ratio

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 231, 1964. Gidromashiny* (Hydraulic machinery), 65-71

TOPIC TAGS: centrifugal feed pump, pump rotor cavitation, anticavitation forerunner, worm forerunner, axial forerunner, forerunner hub ratio, forerunner design calculation, pump power characteristic, rotor cavitation characteristic, banded forerunner

ABSTRACT: The report presents design calculations for a three-bladed wormtype forerunner with a hub ratio of 1.69, intended to improve the anticavitation properties of a centrifugal feed pump. The executed design (see Table 1. in the Enclosure) was tested and improved the critical cavitational factor of high speed operation of a stage from $C_{cr} = 1050$ to $C_{cr} = 2420$ at feed $Q = 0.032\ m^3/sec$, evaluated from comparative C_{or} values, where $C_{or} = \frac{5.62n\sqrt{Q}}{(H_{sv.\ min})^{3/4}}$

Card 1/3

ACCESSION NR: AT4042134

and H_{sv} is excess head at the suction stage. Test results indicate that addition of the designed forerunner does not diminish the power characteristics, nor does it change the head pattern. A banded variant of the forerunner, while presenting more complex manufacturing problems, did not provide additional operating advantages. It is concluded that the design of the basic stage is equally important in obviating cavitation of the centrifugal rotor. Orig. art. has: 3 graphs, 1 table and 8 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 01

SUB CODE: IE NO REF SOV: 006 OTHER: 000

Card 2/3

ACCESSION NR: AT4042134

ENCLOSURE: 01

Table 1.

Cross section	D_1 mm	α_l degrees	ζ degrees	l mm	$\frac{l}{t}$
peripheral	129.5	17°54'	6°40'	142	1,05
central	103.0	22°05'	8°09'	153	1,42
hub	76.5	28°35'	10°22'	137	1,71

α_l = tangent angle of blade chord pitch
ζ = angle of attack
l = length of profile chord
$\frac{l}{t}$ = grid density

Card 3/3

BASALAYEV, G.I.

Outdoor system for studying full-sized feed pump units. Trudy LPI no.246:64-68 '65. (MIRA 18:6)

ACC NR: AP6017989 (N) SOURCE CODE: UR/0413/66/000/010/0090/0090

INVENTOR: Basalayev, G. V.; Lozinskiy, O. Yu.; Frenkel', P. G.

ORG: None

TITLE: A method for measuring and registering the temperature in plasma electric heating units. Class 42, No. 181845 [announced by the All-Union Scientific Research Institute of Electric Heating Equipment (Vsesoyuznyy nauchno-issledovatel'skiy institut elektrotermicheskogo oborudovaniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 90

TOPIC TAGS: temperature measurement, plasma heating, electronic measurement

ABSTRACT: This Author's Certificate introduces a method for measuring and registering the temperature in plasma electric heating units based on the generalized method of spectrum reversal. The procedure is designed for improved measurement accuracy as well as for obtaining more detailed information on temperature field distribution. The optical system of the pickup is mechanically oscillated with respect to the zone being monitored with an amplitude greater than the dimensions of this zone and in a direction normal to the optical axis of the pickup. Working signals are received when the optical axis of the pickup is passing through the zone being monitored, while calibration signals are received when the optical axis of the pickup passes

UDC: 536.5.087:533.9

ACC NR: AP6017989

beyond the limits of this zone. A special device is used for scaling the signals on the basis of the generalized method of spectrum reversal with statistical averaging into a continuous signal proportional to the temperature of the object.

SUB CODE: 13, 09, 20/ SUBM DATE: 18Sep64

Card 2/2

BASALAYEV, I. M.

KUZNETSOV, P.K.; BASALAYEV, I.M.

Pivoted-filler loading machine. Metallurg 2 no.7:38 Jl '57. (MLRA 10:8)

1. Gur'yevskiy metallurgicheskiy zavod.
(Loading and unloading)

Basalayev

109-10-3/19

AUTHORS: Mints, A.L., Basalayev, M.I., Oganov, N.I. and Rudnev, Ye.V.

TITLE: A Continuously-evacuated Power Triode Type PTM-500 (Generatornyy triod s nepreryvnoy otkachkoy RGM-500)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.10, pp. 1240 - 1252 (USSR)

ABSTRACT: The authors of this article have been engaged during the last few years on the development of a 500 kW triode, whose construction differs substantially from that of the earlier models. Four such triodes, type PTM -500, have been employed successfully at one of the Moscow medium-wave broadcasting stations and two triodes have given a satisfactory performance in high-power, short-wave transmitters. Design of the triode was carried out on the basis of the theory given by Kuzunoza (Ref.4) and Zusmanovskiy (Ref.3). Some of the technical data of the triode are as follows: emission current 350 A, cathode efficiency 8.55 mA/W, cathode life 3 000 hours, heater power 40 kW, length of the active portion of the cathode wires 350 mm, diameter of the cathode wires 1.2 mm, number of cathode wires 36 (12 wires per phase), heater voltage 17.2 V, heater current in each phase 780 A, diameter of the cathode "cylinder" 160 mm, diameter of the grid "cylinder" 170 mm,

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a spherical copper terminal. The triode can be easily assembled or dismantled (if necessary). While assembling the triode, the flanges and the insulators are made vacuum-proof by means of a special sealing wax. The evacuating system for the tube (see Fig.9) consists primarily of a high-vacuum oil-diffusion pump and two vacuum gauges. The system produces a vacuum of the order of 2×10^{-6} mmHg. The authors thank N.M. Il'ovskaya, who took part in the development work and A.A. Skvortsov and A.V. Demchuk for their help in the preparation of the triodes. Also, the experimental work done by A.V. Ivanov et al. from the USSR Ministry of Communications (Ministerstvo Svyazi SSSR) is acknowledged. There are 11 figures, 2 tables and 3 Slavic references.

SUBMITTED: May 13, 1957.

AVAILABLE: Library of Congress.

Card 3/3

SOV/120-58-2-19/37

AUTHORS: Basalayev, M. I. and Basalayeva, N. Ya.

TITLE: A Vacuum Flow-Meter (Vakuumnyy potokomer)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958 Nr 2, pp 75-78 (USSR)

ABSTRACT: An instrument is described which may be used to measure the rate of flow of a gas and is designed for use in vacuum technique. It is based on the measurement of a quantity proportional to the rate of flow of gas, namely, the difference in pressure between the two sides of a diaphragm through which the gas is flowing. The difference in pressure is measured by two Pirani gauges included in two arms of a Wheatstone bridge and placed on either side of the diaphragm. The off-balance current in the bridge is a measure of the difference in pressure. The maximum sensitivity is: 5×10^{-6} mm l/sec per μamp. Maximum measurable flow is 1.6×10^{-2} mm l/sec. The error of measurement does not exceed 15%. There are 6 figures, no tables and 3 references,

Card 1/2

A Vacuum Flow-Meter. SOV/120-58-2-19/37

2 of which are Soviet and 1 English.

SUBMITTED: May 3, 1957.

Card 2/2 1. Gas flow--Measurement 2. Flowmeters--Performance
3. Vacuum apparatus--Applications

41396

S/089/62/013/004/003/011
B102/B108

24.6730

AUTHORS: Voronkov, R. M., Pevzner, M. I., Flerov, N. N., Aref'yev, A. V., Basalayev, M. I., Korolev, V. M., Moskalev, S. S., Osipov, V. P.

TITLE: 30-Mev linear electron accelerator designed for neutron spectroscopy

PERIODICAL: Atomnaya energiya, v. 13, no. 4, 1962, 327 - 336

TEXT: The accelerator, designed by the Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute AS USSR) and used for neutron spectroscopy at the Ordena Lenina Institut atomnoy energii im. I. V. Kurchatova AN SSSR (Lenin Order Institute of Atomic Energy imeni I. V. Kurchatov AS USSR), is a traveling-wave accelerator which produces a pulsed electron beam with an energy of 30 Mev and a current of up to 500 ma. It operates on 2764 Mc/sec at a pulse repetition frequency of 100 cps and with pulse durations of 0.6, 0.2, or 0.05 μsec. At the input of the diaphragmed waveguide there is a field of 150 kv/cm. The efficiency of h-f energy conversion is 30-35%. The maximum h-f power for λ = 10.8 cm is 20 Mw. The diaphragmed waveguide

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30-Mev linear electron ...

was designed as a homogeneous system with constant phase velocity (Fig. 2). Each of its six cells has four 4-mm openings to improve the evacuation of the system. The h-f power from the generator is fed to the accelerator through a standard square feeder waveguide (34 by 72 mm, 6 m long) wherein H_{10}-type waves are excited. This waveguide is enclosed on each side by glass windows of circular conical shape. The h-f generator is an unsoldered klystron equipped with a titanium getter and fed by a thyratron modulator. The modulator is fed with direct current from a rectifier with a voltage regulator at its primary winding. Modulator and klystron are connected by a 65-Mw pulse transformer (boost 4.63). The klystron operates at a maximum voltage of 320 kv. Its h-f excitation is made by a magnetron with a power of 10-15 kw. To prevent h-f breakdown in the klystron, its voltage supply is cut off automatically when excess currents amount to 30%, or if an h-f breakdown occurs in the accelerator part. The pulsed injection current is supplied by a three-electrode electron gun designed similarly to Pierce's double-electrode gun (Fig. 6). The vacuum system of the accelerator is connected to three titanium ion getter pumps as designed by the Fiziko-tekhnicheskiy institut AN USSR (Physicotechnical Institute AS UkrSSR). The necessary operating vacuum of $(2-4)\cdot10^{-6}$ mm Hg can be created

by one such pump and the three ensure continuous operation for 10-12 hrs a day during three to four months. A set of mechanical pumps is used as a forepump (10^{-2} to 10^{-3} mm Hg). The controls and switch gear are installed in a separate building. The accelerated electron beam is focused onto a U^{238} target in a water pool. The bremsstrahlung which occurs in the target produces neutrons by (γ, n) or (γ, f) reactions. The neutrons of ~1.5 Mev have Maxwellian energy distribution. The yield is 10^{14} neutrons per sec. The entire unit is enclosed by a concrete shield (1.5 m thick) provided with several experimental channels (100, 200, and 300 mm wide)(Fig.7). The current, spectrum, pulse shape, and radial distribution of the current density of the electron beam were measured. Numerical data are given for time of flight and background. There are 9 figures and 2 tables.

SUBMITTED: Dezember 18, 1961

Card 3/3

CHERNICHENKO, V.Ya.; RODIONOV, R.A.; BASALAYEV, V.D.

A good and useful tradtion. Elek.i tepl.tiaga 7 no.2:43 F '63.
(MIRA 16:2)
1. Zamestitel' nachal'nika Kazakhskoy dorogi (for Chernichenko).
2. Zamestitel' nachal'nika sluzhby lokomotivnogo khozyaystva Kazakhskoy dorogi (for Rodionov). 3. Nachal'nik otdela remonta sluzhby Kazakhskoy dorogi (for Basalayev).
(Railroads—Employees)
(Railroads—Maintenance and repair)

AKHLYNOV, I.Ya.; BASALAYEV, V.N.; DANILENKO, O.T.; ZAKHAROV, A.D.; OL'KHOVSKIY, V.Ye.; YAKOVLEV, V.I.; KUZ'MINA, V.S., red.

[Manual for navigators of fishing fleets; navigation of fishing boats and sea fishery practices] Spravochnik dudovoditelia rybolovnogo flota; promyslovaia navigatsiia i morskaia promyslovaia praktika. Moskva, Pishchevaia promyshlennost', 1965. 194 p. (MIRA 18:9)

1. Glavnoye upravleniye rybnoy promyshlennosti Azovo-Chernomorskogo basseyna (for Basalayev). 2. Polyarnyy nauchno-issledovatel'skiy institut rybnogo khozyaystva i okeanografii (for Danilenko). 3. Murmanskoye vyssheye morekhodnoye uchilishche (for Yakovlev). 4. Gosudarstvennaya inspektsiya bezopasnosti moreplavaniya i portovogo nadzora flota rybnoy promyshlennosti SSSR (for Zakharov).

SOV/120-58-2-19/37

AUTHORS: Basalayev, M. I. and Basalayeva, N. Ya.

TITLE: A Vacuum Flow-Meter (Vakuumnyy potokomer)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958 Nr 2, pp 75-78 (USSR)

ABSTRACT: An instrument is described which may be used to measure the rate of flow of a gas and is designed for use in vacuum technique. It is based on the measurement of a quantity proportional to the rate of flow of gas, namely, the difference in pressure between the two sides of a diaphragm through which the gas is flowing. The difference in pressure is measured by two Pirani gauges included in two arms of a Wheatstone bridge and placed on either side of the diaphragm. The off-balance current in the bridge is a measure of the difference in pressure. The maximum sensitivity is: 5×10^{-6} mm l/sec per μamp. Maximum measurable flow is 1.6×10^{-2} mm l/sec. The error of measurement does not exceed 15%. There are 6 figures, no tables and 3 references,

Card 1/2

A Vacuum Flow-Meter. SOV/120-58-2-19/37

2 of which are Soviet and 1 English.

SUBMITTED: May 3, 1957.

Card 2/2 1. Gas flow--Measurement 2. Flowmeters--Performance
3. Vacuum apparatus--Applications

AUTHORS: Alekseyeva, A.P., Basalayeva, N.Ya., Yelinson, M.I., Zernov, D.V., Kul'varskaya, B.S., Lifshits, T.M., Savitskaya, Ya.S., Sena, L.A., Shabel'nikova, A.E. and Yurasova, V.Ye. SOV/109-3-8-17/18

TITLE: The Eighth All-Union Conference on Cathode Electronics (8-ye vsesoyuznoye soveshchaniye po katodnoy elektronike)

PERIODICAL: Radiotekhnika i Elektronika, 1958, vol 3, Nr 8, pp 1092 - 1103 (USSR)

ABSTRACT: The conference took place during October 17 - 24, 1957 in Leningrad at the Fiziko-tekhnicheskiy institut AN SSSR (Physics-engineering Institute of the Ac.Sc.USSR). It was organised by the Soviet Ac.Sc. and was attended by Soviet scientists from Moscow, Leningrad, Kiyev and other towns of the Soviet Union as well as by delegates from Hungary, Czechoslovakia and Romania. Altogether, over one hundred lectures were delivered at the conference. These were divided into the following sections: thermionic emission and the technology of thermionic cathodes; secondary electron emission; photo-electron emission; field electron emission; cathode conductivity phenomena; ionic processes and gas discharges. Some of the papers

Card1/2

read at the conference are published in the present issue of the journal: in fact, all the papers in this issue were read at the conference. Some of the papers were published in an earlier issue of the journal (Vol 2, Nr 12, 1957). A number of papers from the conference are being published in "Izvestiya AN SSSR, Ser. Fiz" Nrs 4 and 5 and also in various other journals. The present report gives brief summaries of a large number of the papers presented at the conference.

SUBMITTED: February 4, 1958

Card 2/2 1. Cathodes (Electron tube) 2. Thermionic emission 3. Secondary emission 4. Photoemission 5. Field emission

SOV/109-3-9-19/20

AUTHORS: Basalayeva, N. Ya. and Savitskaya, Ya. S.

TITLE: News Item (Khronika)

PERIODICAL: Radiotekhnika i elektronika, 1958, Vol 3, Nr 9, pp 1221-1222 (USSR)

ABSTRACT: The Inter-Departmental Seminar on Cathode Electronics (10th Session) (Mezhduvedomstvennyy seminar po katodnoy elektronike (10-ye zasedaniye)). The 10th Session of the Interdepartmental Seminar on cathode electronics took place on May 5, 1958, in the Institute of Radio Engineering and Electronics of the Soviet Academy of Sciences. The following lectures dealing with the problems of oxide cathode technology were read and discussed: 1) Yu. N. Buznikov read a paper entitled "Double-layer oxide cathodes". 2) A. L. Shustina et alii reported some results on the investigation of the processes taking place in an oxide cathode during its activation. 3) L. M. Lipkovskiy gave a lecture entitled "Analysis of the grid currents in a triode and investigation of the parameters of an oxide cathode". 4) A.A.Yeroshenkov

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News Item

spoke on "Investigation of the factors increasing the insulation strength of the heaters in oxide cathodes". 5) B. D. Luft dealt with the problem of the application of alundum suspensions for the electro-phoretic coating of the heaters in receiving tubes. 6) I. L. Gandel'sman described the construction and the operation of an experimental equipment for the coating of the heaters by using a corona discharge. 7) M. Yu Gorina presented some results on the investigation of the cathaphoretic coating of thorium-oxide cathodes. 8) V. P. Dzerganovskiy et alii dealt with the problem of preparing high temperature joints of thorium and lanthanum boride with molybdenum, tungsten and tantalum. 9) V. C. Neshpor and G. V. Samsonov gave some data on "The problem of the emissive characteristics of the hexaborides of rare-earth metals".

SUBMITTED: June 4, 1958.

AUTHOR: Basalayeva, N. Ya. 57-28-5-32/36

TITLE: Gas Elimination From Metals Used in Vacuum Technique (Gazo-otdeleniye metallov, primenyayemykh v vakuumnoy tekhnike)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 1102-1107 (USSR)

ABSTRACT: In the present paper the author communicates the results of velocity measurements of gas separation in various metals which previously were subjected to various treatments. The measurements were conducted by means of the "substitution method" proposed by Oganov. The results are shown in figure 2. The quantity Q_m/R denoting the velocity of gas separation per unit of surface of the investigated sample in $cm^3/h.cm^2$ was plotted in a logarithmic scale on the vertical axis at a pressure of 760 mm of mercury column. The time of evacuation, from the moment of starting the operation of the vapor pump was plotted on the abscissa. The determined dependences for $T \geqslant 2 \div 3$ hours show the shape of straight lines with the equation $\lg(\frac{Q_m}{R}) = A - Bt$, which corresponds to the equation $Q_g = kC_o e^{-kt}$. Figure 3 shows analogous results for welding

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seams in copper and brass samples. The coefficients A and B of equation (4) of the corresponding functions (figures 2 and 3) are given in the table. An etching with subsequent washing out with benzene and acetone in all cases reduced the velocity of gas separation by about 70 times. The welding seams exhibit a stronger gas separation than the welded metals. The obtained results of the values of the velocity of gas separation can be utilized for the computation of the productivity of the vacuum system according to the equation $S = n \frac{Q_t + Q_g}{P}$

There are 3 figures, 2 tables, and 7 references, 6 of which are Soviet.

SUBMITTED: July 1, 1957

1. Metals--Degasification

S/109/60/005/05/020/021
E140/E435

AUTHORS: Basalayeva, N.Ya., Vikhlyayeva, R.P., Zhdan, A.G. Zernov, D.V., Kofanova, T.I., Pervova, L.Ya., Politova, N.M., Polyakova, M.A., Popov, B.N., Spivak, G.V., Shabel'nikova, A.E. and Yasnopol'skaya, A.A.

TITLE: Report on the Ninth All-Union Conference on Cathode Electronics

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 5, pp 866-879 (USSR)

ABSTRACT: This conference took place in Moscow from 21-28th October 1959 with the participation of Soviet scientists and guests from Hungary, Eastern Germany, the Chinese Peoples' Republic and Czechoslovakia. The chairman of the organization committee was Academician Vekshinskiy. The report consists of brief abstracts of 125 papers presented at the plenary sessions and the sections of the conference. 15 Reports were presented in the section on surface properties of solids dealing with electron adsorption and structural properties of active surface films. Electron-optical studies of "patch fields" on emitting surfaces were discussed. 6 Papers on the

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S/109/60/005/05/020/021
E140/E435

Report on the Ninth All-Union Conference on Cathode Electronics

physics of semiconductor cathodes were given in the section on thermionic emission. 17 Papers were presented in the section on photoelectric emission. Many papers discussed industrial technology of photocells and multipliers. 16 Papers were presented at the section on secondary-electron emission. The section on field emission heard 11 papers discussing pulse field emission at high current densities, surface phenomena, field emission of semiconductors and the "condenser" cathode. More than 30 papers and brief communications were presented at the section on properties, new types and technology of cathodes, relating to the technology of various types of cathodes, their behaviour in practical devices and the operating mechanisms of individual cathodes. 19 Papers were given at the section on interaction of solid bodies with streams of charged particles and residual gases. Notes of conference discussion indicated that several sharp and critical exchanges of views took place.

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29321
S/109/61/006/010/019/027
D/246/D302

9,3130 (1003, 1138, 1160, 1331)

AUTHORS: Basalayeva, N.Ya., Yekimenko, T.M., Yelinson, M.I., Zernov, D.V., Savitskaya, Ya.S., and Yasnopol'skaya, A.A.

TITLE: Investigating some properties of a cold magnesium-oxide cathode with self-enhancing emission

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 10, 1961, 1729 - 1740

TEXT: The aim of this work was to study some properties of cold magnesium oxide cathodes which were not investigated in technical literature. In the experimental apparatus, cathodes made by cataphoresis and spraying were used, with varying thicknesses (6 - 35 μ and 12-60 μ, respectively). They both had high porousness (80 % of the total volume). They had nickel substrate of the type NM (magnesium added) and platinized nickel. The instrument used was a diode with tubular cathode of oval cross-section and a mesh-anode. The starter used was a thin (100 μ ∅) tungsten filament. The ca-

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29321
S/109/61/006/010/019/027
D246/D302

Investigating some properties ...

thode was activated by baking it for 10 min. at 850°C. Number of specimens approx. 400. Their volt-ampere characteristics corresponded to those in the literature. a) To investigate the effect of oxygen, specimens were oxidized in cycles, at 850°C in atmosphere, starting at 0.1 mm of Hg pressure. Then the max. stable current, I_e was measured with the corresponding potential difference, U_a, between anode and cathode. I_e/U_a was then taken as an approximate criterion of the quality of the cathode. Fig. 4 shows I_e/U_a as a function of the number of cycles (N) for cataphoresis cathodes. Fig. 5 - the same for sprayed cathodes. The same types of curves were obtained for platinized nickel substrate (Pt layer ~50 μ thick), which proves that NiO layer does not play any significant role in the mechanism of emission. b) Investigation of temperature-dependence showed that there are both reversible and irreversible changes of the emission. If the cathode is heated higher than 400°C, irreversible processes start. It was shown that heating up the MgO layer is responsible for limiting current density, hence, improvement by its cooling. c) The time dependence of the starting process was also investigated. It was shown that it is sufficient to

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illuminate the cathode to start the cold emission. On the other hand the decrease of the incandescence of the starter electrode greatly increases the starting time. d) The influence of the presence of a magnetic field is shown in Fig. 14. e) The increase in thickness (up to 30 - 40 μ) of sprayed cathodes improves their emitive properties. The opposite is true for cataphoresis cathodes, but comes from single centers, situated in cracks for thick ones. g) By positively charging up the MgO layer, it was impossible to start the emission, thus it is necessary to introduce a small amount of free electrons for starting. At the end the authors discuss the various hypotheses proposed in technical literature to explain the effect and state they intend to test them in their future experiments. There are 14 figures and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: D. Dobischek, Electronics and Communs, 7, 5, 26, 1959; A.M. Skellett, B.G. Firth, D.W. Mayer, Proc. I.R.E., 47, 10, 1704, 1959; Y. Mizushima, Y. Igarashi, T. Imai, J. Phys. Soc. Japan, 15, 4, 729, 1960; H.N. Daglish, Proc. I.E.E., 108B, 37, 103, 1961.

SUBMITTED: May 23, 1961

Card 3/3

L 12923-63 EWT(1)/EWG(k)/EWP(q)/EWT(m)/ES(w)-2/BDS AFFTC/ASD/SSD/ESD-3 Pz-4/Pat-4 JD/AT/IJP(C)

ACCESSION NR: AP300[illegible]

AUTHOR: Pasalayeva, N. Ya.; Yelinson, M. I.; [illegible]

TITLE: [illegible] of self-sustained [illegible] temperature

SOURCE: Radiotekhnika i elektronika, v. [illegible]

TOPIC TAGS: self-sustained [illegible]

ABSTRACT: A [illegible] has been developed [illegible]

[illegible]

Card 1/[illegible]

L 12923-63
ACCESSION NR: AP3000573

increase in temperature, current increase[illegible] at first and then [illegible]

SUBMITTED: 12Jan63

DATE ACQ: 30May63

ENCL: 00

SUB CODE: PH

NO REF SOV: 003

OTHER: 000

Card 2/2

L 10490-63 EWT(1)/EWG(k)/EWT(m)/BDS/ES(w)-2 AFFTC/ASD/ESD/SSD
Pz-4/Pab-4--AT(W)

ACCESSION NR: AP3

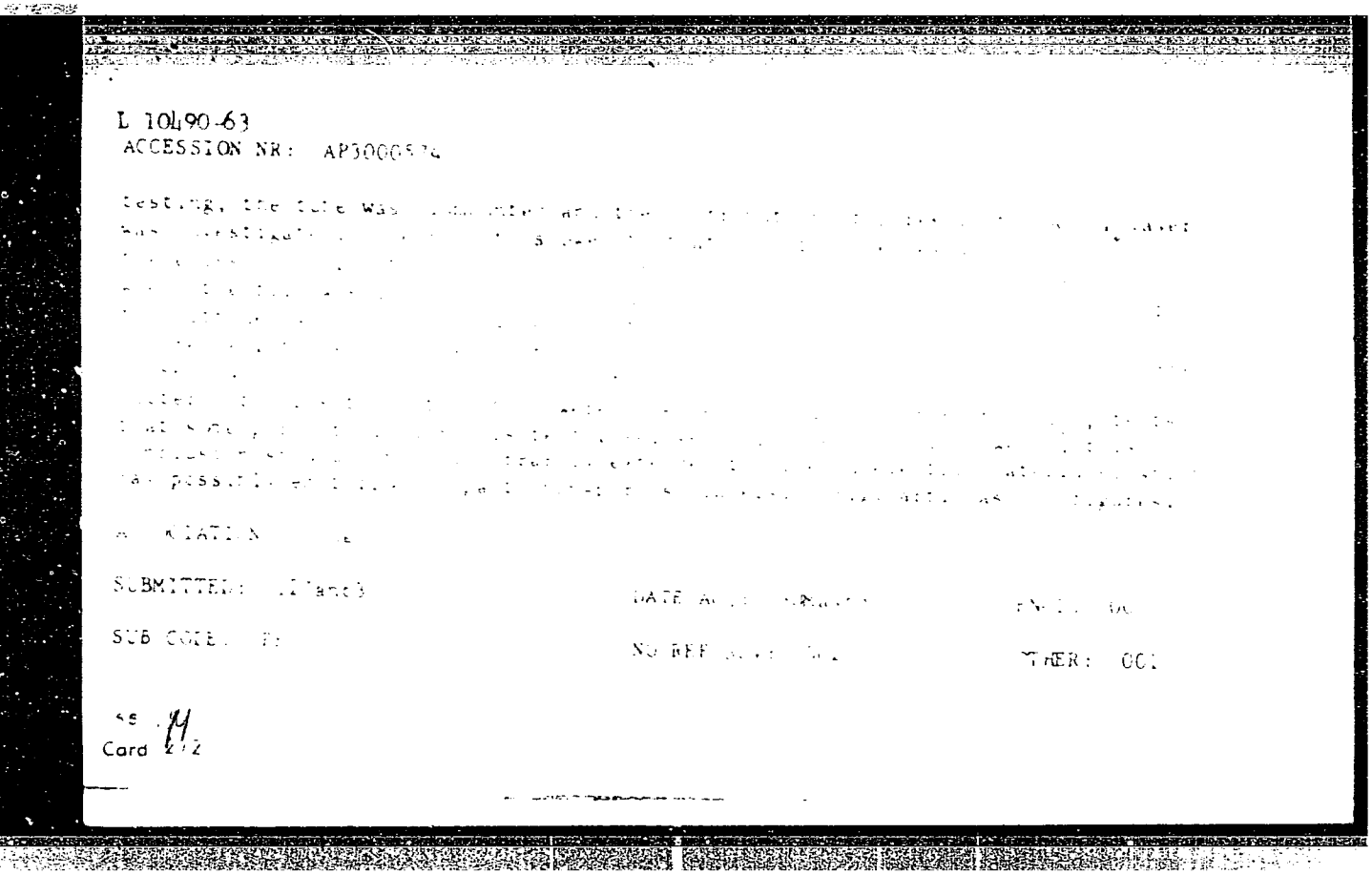
AUTHOR: Basalayeva, N. ...; ...son, M. I.; Zernov, D. V.; Savitskaya, Ya. S.

TITLE: [illegible]

SOURCE: Radiotekhnika i elektronika, v. 8, no. 5, 1963, 881-883

TOPIC TAGS: [illegible] porosity, current [illegible] voltage, [illegible] magnetic field

ABSTRACT: [illegible]



L 10490-63
ACCESSION NR: AP3000[illegible]

SUBMITTED: [illegible]

SUB CODE: [illegible]

Card 1/2

KHARSHAK, Ye.M., dotsent; BASALKEVICH, V.K.

Table of recorded results of vocal audiometry. Zhur. ush., nos. i gorl. bol. 23 no.4:85-86 Jl-Ag'63. (MIRA 16:10)

1. Iz surdo-akusticheskoy laboratorii Nauchno-issledovatel'skogo instituta otolaringologii Ministerstva zdravookhraneniya UkrSSR (direktor - zasluzhennyy deyatel' nauki prof. A.I. Kolomiychenko).

(AUDIOMETRY)

SVISHCHUK, A.A.; GRINBERG, F.L.; BASALKEVICH, Ye.D.; OVERCHUK, Ye.D.

Preparation of trimethylhydroquinone. Ukr. khim. zhur. 29 no.4: 411-412 '63. (MIRA 16:6)

1. Institut organicheskoy khimii AN UkrSSR.
(Hydroquinone)