IVANOV, V.I.; KOLOBASHKIN, V.M.; ZHARKOV, V.P.

Allowing for self-absorption and self-scattering of β-radiation in a gas. Vop. dozim. i zashch. ot izluch. no.2:133-136 '63.
(MIRA 17:3)

COUNTRY	: USSR	T
CATEGORY	: Human and Animal Physiology, Metabolism	
ABS. JOUR.	: RZhBiol., No. 5 1959, No. 21769	
AUTHOR	: Zharkov, V.P.	
INST.	: -	
TITLE	: Calcium and Phosphorus in the Human Diet.	
ORIG. PUB.	: Zdravookhr. Kazakhstana, 1958, No. 5, 40--44	
ABSTRACT	: No abstract	

Card: 1/1

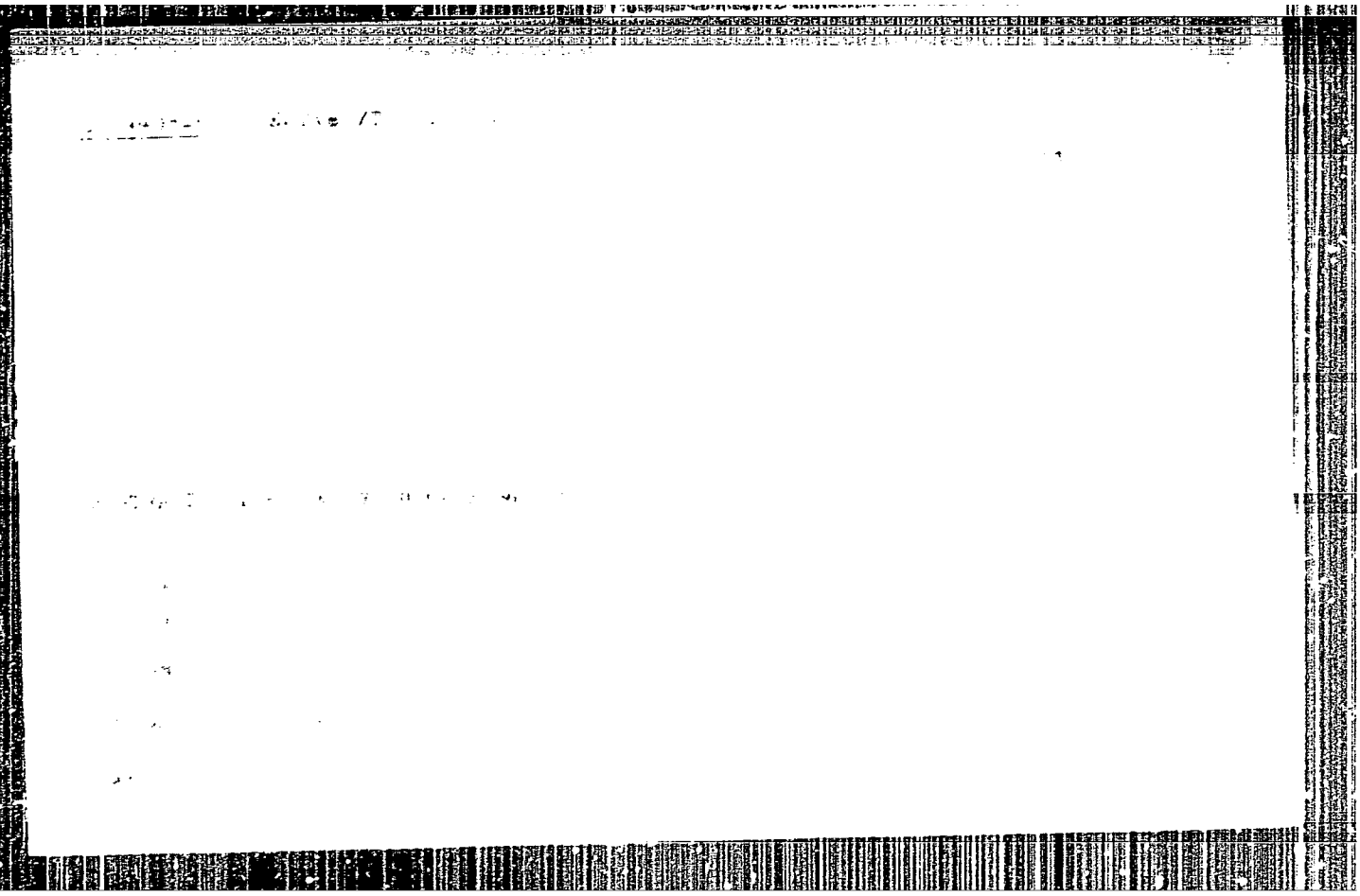
ANTYSHEV, P.I.; VASIL'YEV, V.M.; ZHARKOV, V.P.; LOZOVOY, V.I.; POPOV, N.I.; PUZANOV, V.S.; PUZRYAKOV, V.A.; SMIRNOV, N.I.; SOLODNIKOV, V.N.; YUR'YEV, G.I.; KHYUKOV, V.L., red.; PEVZNER, V.I., tekhn.red.

[Agricultural machinery in the seven-year plan] Sel'skokhoziaistvennaia tekhnika v semiletke. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 94 p. (MIRA 13:10)

(Agricultural machinery)

ZHARKOV, V.P.; CHAYEVSKIY, M.I.

Designing slide-wire pickups for measurements of large linear displacements. Avtom. kont. i izm. tekh. no.1:112-116 '57.
(Electric measurements) (MIRA 11:6)



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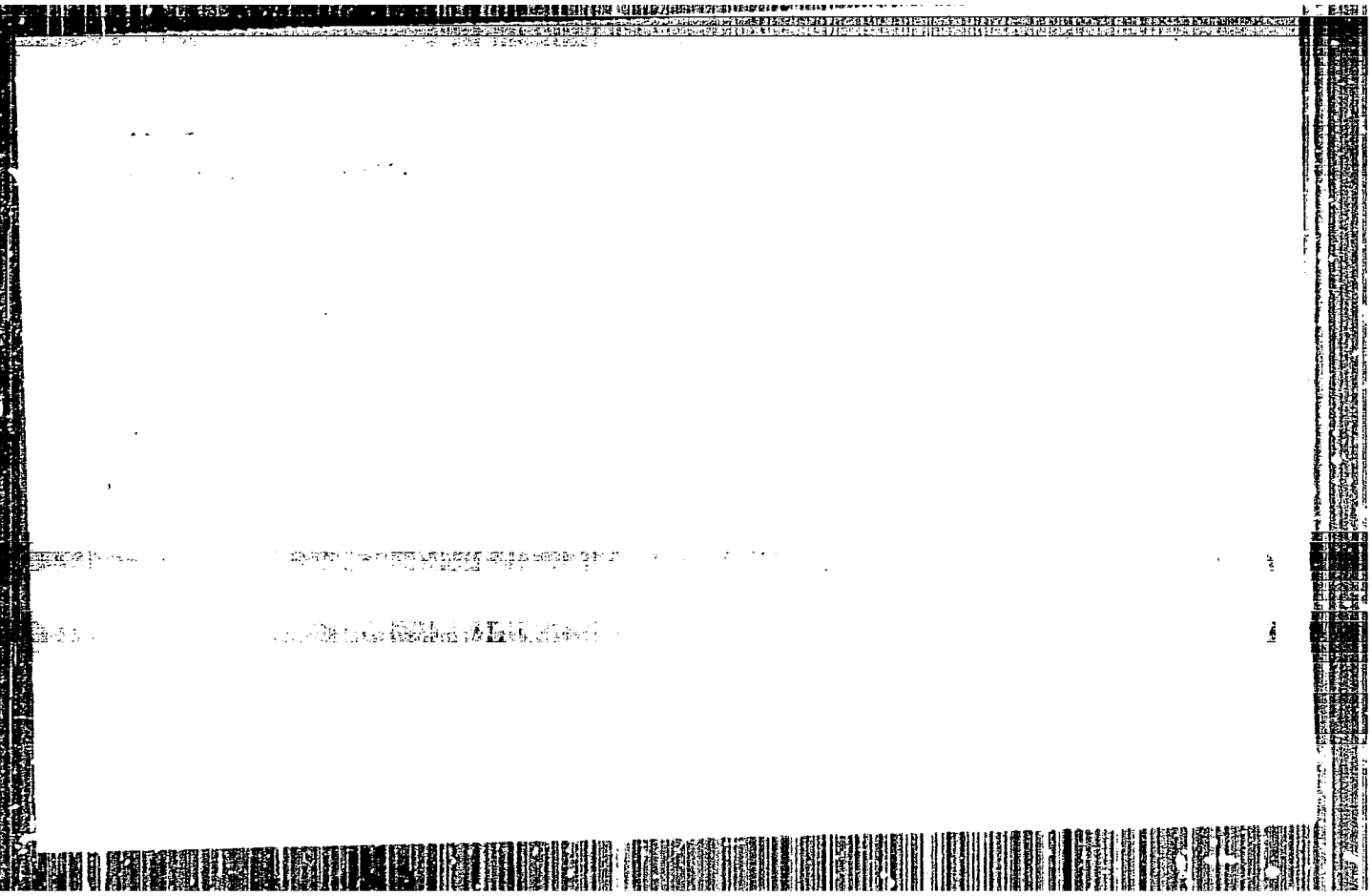

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610003-9"

ZHARKOV, V.S.

Work practice of the caramel production line of the "Rot-Front" Plant. Khleb. i kond. prom. 1 no.3:40 Mr '57. (MLRA 10:4)

1. Brigadir potochnoy linii konditerskoy fabriki "Rot-Front".
(Caramel)

MIKHEYEV, V.P.; ZHARKOV, V.T.

Defects of the instruments for measuring the wear of overhead contact lines. Trudy OMIIT 41:119-130 '63. (MIRA 18:7)

MIKHEYEV, V.P.; ZHARKOV, V.T.

Concerning the angle of wear of contact wires. Trudy TEIIZHT 35: 119-126 '62. (MIRA 16:8)
(Electric railroads--Wires and wiring)

S/2892/63/000/002/0133/0136

ACCESSION NR: AT4021261

AUTHOR: Ivanov, V. I., Kolobashkin, V. N., Zharkov, V. P.

TITLE: On calculating the self-absorption and self-scattering of β radiation in gas

SOURCE: Voprosy* dozimetrii i zashchity* ot izlucheniy, no. 2, 1963, 133-136

TOPIC TAGS: self-absorption, self-scattering, β radiation, gas, gas pressure

ABSTRACT: The authors derive an experimental method of accounting for self-absorption and self-scattering of β radioactive gases. Their results are plotted in a graph together with adjustment for self-absorption according to the well known formula:

$$\eta = \frac{1 - e^{-\frac{\mu\rho_0 H x}{(1+\alpha t)\cdot 760}}}{\frac{\mu\rho_0 H x}{(1+\alpha t)\cdot 760}} \qquad (4)$$

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ACCESSION NR: AT4021261

where ρ_0 is the density of the gas 760 mm mercury and 0°C; x is the linear dimensions of the measuring compartment, as well as the formula

$$\eta = e^{-\frac{\mu\rho_0 H x}{(1+\alpha t)\cdot 760}} \quad (5)$$

The theoretical calculation and the adjustment according to the above formulas can lead to an error of 20%. In each specific case, the authors obtain an empirical formula for introducing the adjustment of self-absorption and self-scattering by means of a graph. Orig. art. has: 9 formulas and 2 figures.

ASSOCIATION: Moskovskiy Inzhenerno-fizicheskiy institut (Moscow Physics and Engineering Institute)

SUBMITTED: 00 DATE ACQ: 06Apr64 ENCL: 00

SUB CODE: NS NO REF SOV: 003 OTHER: 001

Card 2/2

L 41039-66 EWT(m)

ACC NR: AP6013731 (A) SOURCE CODE: UR/0089/66/020/004/0344/0345

35
B

AUTHOR: Zharkov, V. P.; Panov, Ye. A.

ORG: none

TITLE: The inleakage of radiation in cylindrical channels and plane slits in the shielding

SOURCE: Atomnaya energiya, v. 20, no. 4, 1966, 344-345

TOPIC TAGS: radiation shielding, radiation intensity

ABSTRACT: The inleakage of radiation is discussed for the case of cylindrical channels and plane slits in the shielding. It depends on the part of the source located beyond the inlet cross section of the channel or slit. In deriving the appropriate equations, it is assumed that the radiation attentuation in the shielding is exponential. The analysis shows that within the limits of validity of the newly derived formulas the contribution of the inleakage to the overall radiation flow at the outlet of the channel or slit does not depend on the radius of the channel or the height of the slit but only on the overall thickness of the shield. The theoretical formulas agree well with experimental tests using a plane slit and a linear γ-radiation source perpendicular to the plane of the slit. Orig. art. has: 7 formulas.

SUB CODE: 18/ SUBM DATE: 03Feb65/ ORIG REF: 000/ OTH REF: 000

Card 1/1 UDC: 539.122:539.121.72

5.3100
24.3410

SOV/51-7-6-36/38

AUTHORS: Zharkov, V.V. and Rudnevskiy, N.K.

TITLE: The Internal Molecular Hydrogen Bond in Isopropylbenzene Hydroperoxide

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, No 6, pp 848-850 (USSR)

ABSTRACT: The authors investigated the internal hydrogen bond between the hydroxyl group and the π-electrons of the aromatic ring in isopropylbenzene hydroperoxide (cumene hydroperoxide). The infrared spectra were recorded with an IKS-2 spectrometer and an LiF prism. The spectral slit width was 13 cm^{-1} and the scanning rate - 18 cm^{-1}/min. Cumene hydroperoxide of 99-100% purity was supplied by B.A. Redoshkin. It was dissolved in CCl_4 (concentration of the solution was 0.0035 mole/litre). A thermostat in which temperature was kept constant to ± 0.2°C was used to obtain the infrared spectra at several temperatures. The absorption band corresponding to the fundamental vibration of the hydroxyl group was obtained in the form of an overlapping doublet with the two components of about the same intensity and width. The frequencies of the components were 3497 and 3530 cm^{-1} (Fig 1). The ratio of the component intensities did not depend on the cumene hydroxide concentration but it did change with temperature. The 3530 cm^{-1}

Card 1/2

The Internal Molecular Hydrogen Bond in Isopropylbenzene Hydroperoxide

frequency was due to vibrations of a free --OH group and the 3497 cm^{-1} frequency was due to a bound --OH group. The temperature dependence of the ratio of the doublet-component intensities (Fig 2) was used to calculate the energy of the internal hydrogen bond; this energy was found to be 0.90 ± 0.10 kcal/mole. There are 2 figures and 9 references, 1 of which is Soviet, 7 English and 1 German.

SUBMITTED: May 4, 1959

Card 2/2

5(3) SOV/32-25-3-14/62

AUTHORS: Rudnevskiy, N. K., Zharkov, V. V.

TITLE: Application of the Quantitative Molecular Spectrum Analysis in Several Stages of the Production of Phenol and Acetone (Primeneniye kolichestvennogo molekulyarnogo spektral'nogo analiza na nekotorykh stadiyakh proizvodstva fenola i atsetona)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 297-298 (USSR)

ABSTRACT: This paper was read at the XII Vsesoyuznoye soveshchaniye po spektroskopii (Twelfth All-Union Congress for Spectroscopy) in Moscow in November 1958. At present, phenol together with acetone is being produced by the catalytic decomposition of isopropyl hydrogen peroxide (I) which is obtained by cumene oxidation. A method of the quantitative determination of (I), dimethyl-phenylcarbinol (II), and acetophenone (III) in technical hydrogen peroxide from the infrared adsorption spectra is described. The absorption spectra were obtained by means of a mirror-monochromator ZMR-2 and a NaCl-prism. (I) was determined at an absorption wave length $\lambda = 11.98\ \mu$ (Fig), whereas (II) was determined at $\lambda = 11.55\ \mu$ and (III) at $\lambda = 5.92\ \mu$. The determinations were carried out by means of corresponding calculation formulas and calibration diagrams. Tests with

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Application of the Quantitative Molecular Spectrum Analysis in Several Stages of the Production of Phenol and Acetone.

artificial mixtures and according to gravimetric analyses showed that the error of determination is ± 1.7% for (I), 1-5% for (II), and ± 5% for (III).
There are 1 figure and 7 references, 3 of which are Soviet.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet
(Gor'kiy State University)

Card 2/2

S/190/60/002/007/004/017
B020/B052

AUTHORS: Mironova, V. N., Zharkov, V. V.

TITLE: Quantitative Determination of the Residual Monomer in Polystyrene by Ultraviolet Absorption Spectra

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 7, pp. 1013-1014

TEXT: In the investigation of the polymerization kinetics with high degrees of conversion it is necessary to determine very low concentrations of the residual monomer quantitatively. The spectrophotometric method therefore seems to be suited best. The so-called "basis line method" was applied for measuring the optical density of the components. If the optical density of styrene with a wavelength of 292 mμ is to be measured by this method, the basis line connects those points of the absorption curve which correspond to wavelengths 288 and 297 mμ. Polystyrene does not affect the determination of the monomer, since its optical density determined by this method equals zero. This supposition was applied in working out a method for the determination of the residual monomer in foam

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Quantitative Determination of the Residual Monomer in Polystyrene by Ultraviolet Absorption Spectra

S/190/60/002/007/004/017
B020/B052

polystyrene, and styrene-methyl methacrylate-copolymers. Before polymerization, gas formers ($(NH_4)_2CO_3$, Na_2CO_3, $NaHCO_3$, and isobutyric acid dinitrile) were added to styrene and methyl methacrylate during the production of copolymers. Silicone oils were also added. The absorption was measured by the CΦ-4 (SF-4) quartz spectrophotometer. Benzene was used as solvent for cryoscopic purposes. The solution layer in the cuvettes was 1.0 cm thick, and the slit of the spectrophotometer was 0.25 mm wide. The calibration curve for the concentration range of 0.02 to 0.10 g/l was drawn with a styrene solution in benzene. The dependence of the optical density of the benzene styrene solution on concentration is expressed by the equation $C = D/(K.l)$ with D denoting the optical density, l the cuvette thickness, C the concentration, and K the absorption coefficient (in this case 3.75 ± 0.05 l/g.cm). The absorption curves of styrene and polystyrene are given in a figure. The accuracy of the method applied is ±1.5%. There are 1 figure and 4 references: 1 Soviet and 3 US.

Card 2/3

Quantitative Determination of the Residual Monomer in Polystyrene by Ultraviolet Absorption Spectra

S/190/60/002/007/004/017
B020/B052

ASSOCIATION: Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol (Vladimir Scientific Research Institute of Synthetic Resins)

SUBMITTED: March 7, 1960

Card 3/3

ZHARKOV, V.V.

Determination of methyl methacrylate in a composition used in preparing foam plastics, based on its ultraviolet absorption spectra. Plast.massy no.3:74-75 '61. (MIRA 14:3)
(Methacrylic acid--Spectra)

ZHARKOV, V.V.

Determination of main impurities in commercial propylene oxide based on infrared adsorption spectra. Plast.massy no.11:43-45 '61. (MIRA 14:10)

(Propylene acid--Spectra)

KOLOKOL'TSEV, Ye.F.; YEGOROCHKIN, A.N.; ZHARKOV, V.V.

Use of molecular spectral analysis for identifying some species of fungi. Sud.-med. ekspert. 4 no.3:35-38 Jl-S '61. (MIRA 14:10)

1. Kafedra sudebnoy meditsiny (zav. - prof. A.I.Zakonov) Gor'kovskogo meditsinskogo instituta imeni S.M.Kirova i spektral'naya laboratoriya (zav, - dotsent N.K.Rudnevskiy) Gor'kovskogo nauchno-issledovatel'skogo instituta khimii.
(FUNGI) (SPECTRUM, MOLECULAR)

ZHARKOV, V.V.

Composition of industrial propylene oxide as determined from infrared absorption spectra. Zav.lab. 27 no.7:823-825 '61. (MIRA 14:7)

(Propylene oxide--Spectra)

MIRONOV, D.P.; KHIN, N.N.; ZHARKOV, V.V.; PROKOF'YEVA, M.V.; SHULAYEV, N.P.

Preparation of butyric anhydride by the reaction of butyric acid with acetic anhydride in a continuous fractionating column. Zhur. prikl. khim. 38 no. 10:2309-2312 O '65. (MIRA 18:12)

1. Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol. Submitted Sept. 3, 1963.

ZHARKOV, V.N.

Effect of pressure on anharmonicity. Dokl. AN SSSR. 154 no.2:302-305 Ja'64. (MIRA 17:2)

1. Institut fiziki Zemli im. O.Yu. Shmidta AN SSSR. Predstavleno akademikom Ya. B. Zel'dovichem.

L 10248-66 FSS-2/EWT(1) TT/GW

ACC NR: AP6001539 SOURCE CODE: UR/0384/65/000/006/0016/0023

AUTHOR: Zharkov, V. N. (Doctor of physico-mathematical sciences); Berikashvili, V. Sh.

ORG: none

TITLE: Problems of seismic investigations on the moon

SOURCE: Zemlya i Vselennaya, no. 6, 1965, 16-23

TOPIC TAGS: lunar surface, seismic wave, selenology, moon, seismograph, seismography, space station

ABSTRACT: Problems related to the successful execution of a lunar seismic experiment, i.e., the soft-landing of a seismograph on the moon, are discussed and the importance of such an experiment to selenology, cosmogony, and the establishment of lunar space stations is emphasized. Analysis of various lunar models suggests the existence of three lunar seismic regions: 1) the crust, 2) a layer of decreased velocities, and 3) a liquid core. Lunar seismic activity may be attributable to any of several processes: a) thermoelastic stresses and other physicochemical processes, b) volcanic activity, and c) meteorite impact. To construct meaningful lunar travel-time curves, the following data would have to be obtained: 1) the time of seismic wave generation, 2) the arrival time of seismic waves at different epicentral distances, and 3) identification of the different phases on the seismograms with surface and volumetric waves,

Card 1/2

ACC NR AP6001539

The primary goal of the lunar seismic experiment would be to compile a lunar seismic velocity profile. Comparison of the amplitudes of surface waves with those of longitudinal and transverse waves would yield data on both the nature of the waveguides and the temperature distribution on the moon. The ratio of the amplitude of the volumetric and surface waves would indicate the existence or absence of a shadow zone or zone of amplitude attenuation on the moon. Were it possible to land a 3-component seismograph on the moon, it would be possible to compute the location of moonquakes and the relationship between relief and seismic activity zones. Eventually, it may be possible to conduct lunar explosion soundings. Orig. art. has: 8 figures. [DM]

SUB CODE: 03, 08/ SUBM DATE: none/ ATD PRESS: 4160

Card 2/2

MIRONOV, D.P.; ZHARKOV, V.V.

Analysis of mixtures of organic acids and anhydrides from their Raman spectra. Zav.lab. 29 no.12:1441-1443 '63. (MIRA 17:1)

1. Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol.

L 12973-63 EWP(j)/EWT(m)/BDS AFFTC/ASD Pc-4 RM
ACCESSION NR: AT3002346 S/2513/63/013/000/0174/0177 (20)
39

AUTHOR: Rudakova, S. Ye.; Zharkov, V. V.

TITLE: The determination of epoxy oxygen in epoxy resins

SOURCE: AN SSSR. Komissiya po analiticheskoy khimii. Trudy*. v. 13, 1963. Organicheskiy analiz, 174-177

TOPIC TAGS: epoxy resin, IR absorption, epichlorohydrine

ABSTRACT: An infra-red absorption method has been developed for the determination of epoxy oxygen in resins with epichlorohydrine and diphenylolpropane bases. Metaphenylenediamine was used as hardener. The [illegible] of the direct dependence of the absorption intensity of the epoxy resin at a frequency of 910cm sup -1 on the number of epoxy groups. Palmitic acid which has a band absorption at 1705cm sup -1 was used as an internal standard. The method of analysis is based on the Buger-Lambert-Bear law and the law of additivity of optical densities. The calculation of optical densities for the analytical frequency was performed by the "heterochromatic point" method, and the internal standard frequency was calculated by the base-line method. A ploy has been made of the percentage content of epoxy groups vs. the ratio of optical density of

Card 1/2

L 12973-63
ACCESSION NR: AT3002346

the analytical frequency to the optical density of the internal standard. The graph follows a straight line for all the samples tested. In total 20 samples have been analyzed both chemically and spectrometrically, and the relative error of the method does not exceed plus-minus 6%. Orig. art. has: 3 figures.

ASSOCIATION: Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol (Vladimir Scientific Research Institute of Synthetic Resins)

SUBMITTED: 00 DATE ACQ. 13Jun63 ENCL: 00

SUB CODE: MA NO REF SOV: 000 OTHER: 000

Card 2/2

KHARKOV, V.V.; KOPUSOV, L.I.

Use of infrared spectroscopy in studying the association of acetaldehyde in the low temperature range. Opt. i spektr. 18 no.2:345-347 F '65. (MIRA 18:4)

ZHARKOV, V.V.; RUDNEVSKIY, N.K.

Spectroscopic study of the hydrogen bond between the molecules of tertiary butyl hydroperoxide in a tetravalent carbon solution. Opt. i spektr. 7 no.4:479-483 Ap '62. (MIRA 15:5)
(Butyl peroxide--Spectra) (Hydrogen bonding)

RUDAKOVA, S.Ye.; ZHARKOV, V.V.

Determination of epoxide oxygen in foamed epoxide resins at advanced stages of hardening. Plast.massy no.10:62-64 '61. (MIRA 15:1)
(Epoxy resins) (Oxygen--Analysis)

USHAKOVA, A.G.; ZHARKOV, V.V.; MIRONOVA, V.N.

Quantitative determination of the reaction products obtained in the preparation of butyric anhydride. Zav. lab. 29 no.6: 699-701 '63. (MIRA 16:6)

1. Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol.
(Butyric anhydride) (Spectrum, Infrared)

ZHARKOV, V.V.

Quantitative determination of diketene from its infrared absorption spectra. Zav. lab. 29 no.6:701-702 '63.
(MIRA 16:6)

1. Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol.
(Ketene--Absorption spectra)

~~Shcherbov, Yu. A.~~
ZHARKOV, V. K.

PHASE I BOOK EXPLOITATION SOV/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

Eds. (Title page): G. P. Skornyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skornyakov; Ed. of Publishing House: M. L. Kryzhova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to G. V. Chentsova for help in preparing the materials for the press. References follow the individual articles.

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ZHARKOV, V. V.

PHASE I BOOK EXPLOITATION SOV/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

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Card 1/15

Materials of the Third Ural Conference (Cont.) SOV/6181

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TABLE OF CONTENTS:

VASIL'TSOV, V.D.; VOLCHENKO, M.Ya.; GERTSOVICH, G.B., kand.ekon. nauk; ZHARKOV, Ye.I.; KONOVALOV, Ye.A., kand. ekon. nauk; MATVIYEVSKAYA, E.D.; OLEYNIK, I.P., kand. ekon. nauk; RAYEVSKAYA, E.S.,; SKVORTSOVA, A.I.; SOKOLOVA, N.V.; SOTNIKOVA, I.A.; TANDIT, V.S.; TRIGUBENKO, M.Ye.; FIRSOVA, Yu.V.; SHABUNINA, V.I.; YUMIN, M.N.; STOROZHEV, V.I., kand. istor. nauk, red.; LEPNIKOVA, Ye., red.; SMIRNOV, G., tekhn. red.

[Economy of the people's democracies in figures for 1960] Ekonomika stran sotsialisticheskogo lageria v tsifrakh 1960 g. Pod red. G.B.Gertsovicha, I.P.Oleinika, V.I.Storozheva. Moskva, Izd-vo sotsial'no-ekon. lit-ry, 1961. 238 p. (MIRA 15:4)
(Communist countries--Economic conditions)

ZHARKOV, Yu.A. (Moskva)

Methodology of determining thymidine in rat urine with paper chromatography and the Diche reaction. Lab. delo 10 no.5:296-300 '64. (MIRA 17:5)

ZHARKOV, YU. N.

SESSION A—4—3 : Post-Irradiation Treatments in Mammals

5

(a)

Changes in the Content of Nucleosides in Animal Urine Following Radiation Damage

P. D. Gorizontov, T. A. Fedorova, M. F. Shitneva, Yu. A. Zharkov and V. S. Kalchov

Changes in the level of DNA metabolites of body fluids are a specific index of radiation damage, and the estimation of their content in the urine may serve as a good biochemical test for this damage. The test may be used to evaluate therapeutic agents applied for the treatment of radiation sickness, as well as for the evaluation of drugs protecting animals against lethal radiation doses.

Using paper chromatography and ion exchange column methods the deoxyribosides deoxycytidine, deoxythymidine, deoxyadenosine and deoxyguanosine were identified in the urine of normal and irradiated animals. Quantitative changes in their content in the 24 hr specimens of rat, mouse and dog urine were established during the course of radiation diseases induced by lethal doses of X- and γ-rays.

The deoxyribosides were estimated in the urine of normal and irradiated rats following the transplantation to them of the bone marrow cells. This was done in order to elucidate some aspects of the mechanism of biochemical changes, and to evaluate therapeutic effects. It was established that the transplantation of bone marrow cells to normal rats lowers the level of deoxyribosides (deoxycytidine included) by 30 to 60%. Intravenous injection of bone marrow cells to rats irradiated with lethal doses also lowers the content of nucleosides in the urine. It points to the intensification of DNA synthesis, which has been inhibited by irradiation.

Institute of Pathology, Academy of Sciences, Moscow, USSR

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report presented at the 2nd Intl. Congress of Radiation Research, Harrogate/Yorkshire, Gt. Brit. 5-11 Aug 1962

L 13581-63 EWT(l)/EWT(m)/BDS AMD/ASD/AFFTC AR/K

ACCESSION NR: AP3003925 S/0203/63/003/004/0514/0517

AUTHOR: Gorizontov, P. D.; Fedorova, T. A.; Zharkov, Yu. A.; Tereshchenko, O. Ya.; Khny*chev, S. S.; Sbitneva, M. F.

TITLE: Changes in nucleoside content in rat urine during radiation injury

SOURCE: Radiobiologiya, v. 3, no. 4, 1963, 514-517

TOPIC TAGS: nucleoside, radiation injury, urinalysis, DNA metabolism, Dische reaction, Dische-positive, desoxyriboside, desoxycytidin, timidin, chromatography, x-ray, cobalt-60, gamma ray, bone marrow, biomycin

ABSTRACT: Disruption of DNA metabolism during radiation injury leads to the appearance of unusual amounts of nucleosides in the urine, which can serve as an index of radiation injury. Experiments were performed to determine the post-irradiation appearance of substances in urine producing the Dische reaction and to test the effect of the introduction into irradiated animals of bone-marrow cells possessing a therapeutic effect. The presence of desoxyribosides (desoxycytidin and timidin) in the urine of experimental animals was investigated by chromatography. White rats were subjected to absolute minimum lethal doses (600 r) of gamma rays from Co^{60} and of x-rays. X-ray irradiation was produced by

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L 13581-63
ACCESSION NR: AP3003925

RUM-3 equipment at 180 kv, 15 mamp, 0.5 mm Cu filter and 1 mm Al filter at 32.3 μ/min. Gamma irradiation involved the use of EGO-2 equipment at 295—276 μ/min. Survival span of the animals was 6—12 days after irradiation. The introduction of bone-marrow cells, accompanied by the oral administration of 5 mg of biomycin two times a day, resulted in survival of 50% of the experimental animals (compared to no survival in the controls) and a smaller increase of Dische-positive substances in the urine of the experimental animals than in the control animals. During the first day after irradiation by the absolute minimum lethal dose the urine of animals not given bone-marrow cells was found to contain 25—30 times as much desoxycytidin and 5 times as much timidin as normal non-irradiated animals. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 10Sep62 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: AM NO REF SOV: 004 OTHER: 008

Card 2/2

ZHARKOV, Yu.A.; FEDOROVA, T.A.; MIKHAYLOVA, L.F.

Excretion of thymidine with urine by rats following whole-body X-ray irradiation in varying doses. Radiobiologiia 5 no.5:675-680 '65. (MIRA 18:11)

Zharkov, Yu.D

PA - 2580

AUTHOR: SHEVCHIK,V.N., ZHARKOV,YU.D.

TITLE: Cascade Grouping of Electrons for Application to Analysis of Interaction between the Electronic Flow and the Travelling Electromagnetic Wave. (Kaskadnaya gruppirovka elektronov v primenenii k analizu vzaimodeystviya elektronnogo potoka s begushchey elektromagnitnoy volnoy, Russian)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol 2, Nr 2, pp 237-243 (U.S.S.R.)

Received: 4 / 1957 Reviewed: 5 / 1957

ABSTRACT: The cascade grouping of electrons is investigated in the course of a series of high-frequency intervals. Such a scheme is best realized e.g. in MIL'MAN'S lamp, but is also characteristic of most other devices that form return waves. The current grouped in the field and the efficiency of interaction are computed and the corresponding formulae are derived. The analysis of the equations obtained shows that this is a periodic function of the angle of flight of the electrons with respect to the wave φ_0 with a period of 2π . The analysis makes it possible to obtain the fundamental relations which are used on the occasion of the electrodynamic investigated of the inhomogeneous decelerated systems and thus to give an other interpretation of space-harmonic oscillations . The

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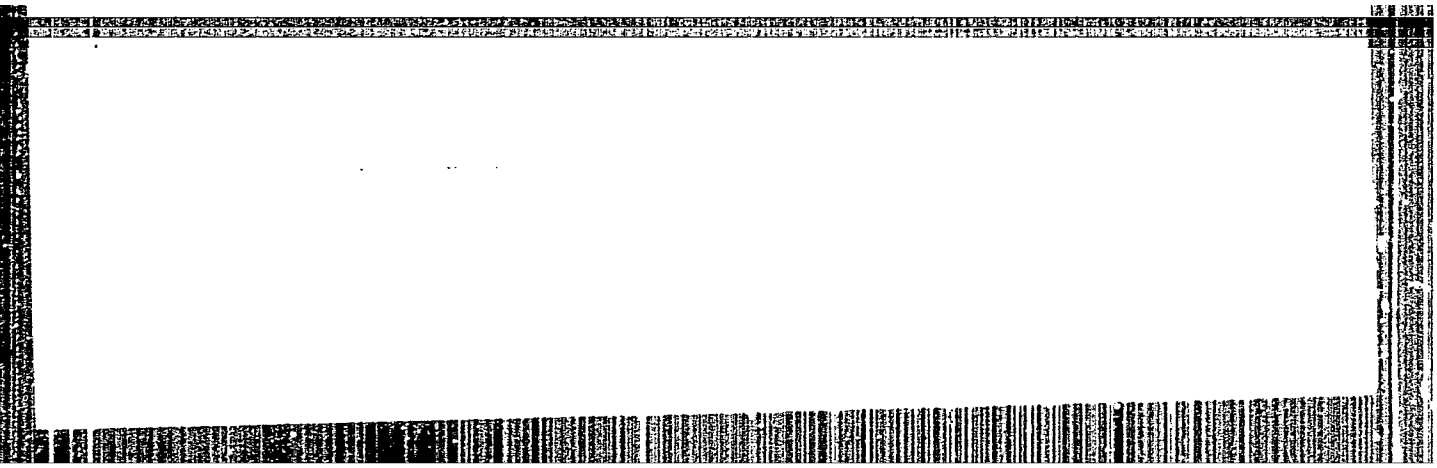
Cascade Grouping of Electrons for Application to Analysis of Interaction between the Electronic Flow and the Travelling Electromagnetic Wave.

interaction between the nonsynchronous space-harmonic oscillations and power output is investigated and the results obtained are used for the determination of the start current of the return wave. (4 Illustrations and 3 Citations from Slav Publications).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 10.4.1956
AVAILABLE: Library of Congress

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610003-9"



APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002064610003-9"

ZHARKOV, YU. D.

SUBMITTED: December 7, 1957

AUTHORS: Golubkov, P.V. and Tsimring, Sh. Ye. SOV/109-3-3-22/23

TITLE: The Second All-Union Conference on Radioelectronics of the Ministry of Higher Education of the USSR (Vtoraya vsesoyuznaya konferentsiya MVO SSSR po radioelektronike) - News Item

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 3, pp 440 - 444 (USSR)

ABSTRACT: The conference took place during September 23 - 29, 1957, at Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo (Saratov State University imeni N.G. Chernyshevskiy). Apart from the universities, the conference was attended by the representatives of some scientific research institutes of the Soviet and Ukrainian Academies of Science, various industrial establishments and the interested ministries. This arrangement stimulated the discussion and evaluation of the papers presented and permitted the determination of plans for the future research to be carried out by the universities in the field of radioelectronics.

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During the plenary session on September 23, two papers were read: "Development Trends of UHF Electronics in the Soviet Union" by N.D. Devyatkov and "Electromagnetic Waves in the System of Vari-directional Electron Beams" by V.M. Lopukhin. N.D. Devyatkov presented numerous factual data illustrating the rapid development of the U.H.F. electronics in the Soviet Union and the vast contribution of the Soviet scientists to the theoretical foundations of this science; he also discussed the development trends of U.H.F. electronics in the immediate future. The paper described a number of original Soviet U.H.F. devices. The work of V.M. Lopukhin was concerned with the theoretical investigation of the phenomena taking place in multi-ray devices whose electron beams have different directions. The author showed that the presence of the electron beams which are perpendicular to the axis x facilitates the appearance of the solutions which are increasing functions of x for the case of n rays directed along the axis x; it also leads to the

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appearance of exponentially increasing solutions in the presence of one beam in the above direction. The Electronics Section comprised 50 papers; more than one-third of these were concerned with the theoretical and experimental investigation of wide-band electronic devices for U.H.F. The lecture by V.N. Shevchik, L.Ya. Mayofis and L.D. Pokrovskiy dealt with the extension of the known theories of travelling-wave tubes and backward-wave tubes to the practically important cases when the delay structure necessitated the taking into account of the discrete character of the interaction of the electron beam with the high-frequency field. The lecture by V.C. Stal'makhov, V.N. Shevchik and Yu.D. Zharkov was devoted to the simplified analysis of the operation of a backward-wave tube by employing the cosinusoidal approximation of the given field. The papers by V.B. Braginskiy, A.S. Gorshkov, A.I. Kostiyenko, G.P. Lyubimov, I.T. Trofimenko and V.V. Anisimov were concerned with the detailed experimental and theoretical investigation of the possibility (first indicated by V.N. Shevchik in 1954) of expanding the bandwidth of the electronic trimming of reflex klystrons by means of the

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mutual synchronisation of several klystron tubes. The operation of reflex klystrons with multi-circuit resonant systems was also investigated. The results of experimental and theoretical investigation of two-ray amplifying and multiplying tubes were given in the communication by L.Z. Aitova, V.M. Lopukhin, L.A. Shkudova and in the communication of V.I. Kanavets. Some of the papers in the Electronics Section dealt with the investigations which were concerned with the development of novel U.H.F. devices, suitable for the generation and amplification of the waveforms in the millimetre and sub-millimetre ranges. The papers of great interest were: "Experimental Investigations of the Radiation of the Electron Bunches in the Vicinity of Non-homogeneities" by V.B. Braginskiy and Ye.P. Mustel'; "Comparison of the Efficiency of Certain Methods of the Generation of Millimetre Waves" by A.S. Tager and "Application of the Higher Spatial Harmonics of the Electromagnetic Field in Slowing-down Systems" by A.S. Tager and V.A. Solntsev,

06501

SOV/141-58-4-17/26

AUTHORS: Stal'makhov, V.S., Shevchik, V.N. and Zharkov, Yu.D.

TITLE: Analysis of the Operation of the Backward-Wave Oscillator by Employing a Cosinusoidal Approximation of the Field (Analiz raboty LOV v kosinusoidal'nom priblizhenii polya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 4, pp 131-136 (USSR)

ABSTRACT: The exact linear theory of backward-wave oscillators (Ref 6), which is based on the simultaneous solution of the field and electron equations, shows that the distribution of the field amplitude during the start regime of the tube can be approximately described by the cosinusoidal law (Ref 11). The longitudinal component of the high frequency electric field in the interaction space can, therefore, be written as:

$$E_1 = E_o \cos \frac{\pi z}{2L} e^{j(\omega t - \beta z)} \qquad (1)$$

where E_o is the amplitude of the field at $z = 0$, $\beta = \omega/v$ and v_f is the propagation constant.

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Analysis of the Operation of the Backward-Wave Oscillator by Employing a Cosinusoidal Approximation of the Field

Eq (1) can also be written as Eq (2). The electron beam has an average velocity v_0 in the direction of the axis z and its average space charge density is ρ_0. The basic equations describing the electron beam can be written as

$$i = \rho v + \frac{1}{4\pi}\left[\frac{\partial E_1}{\partial t} + \frac{\partial E_2}{\partial t}\right] ;$$

$$\frac{\partial E_2}{\partial z} = 4\pi\rho \qquad (3)$$

$$\frac{\partial v}{\partial t} + v\frac{\partial v}{\partial z} = \frac{e}{m}\left[E_1 + E_2\right]$$

Card 2/4 where E_2 is the field of the space charge. By employing the notation defined by Eq (4), the

Analysis of the Operation of the Backward-Wave Oscillator by Employing a Cosinusoidal Approximation of the Field

alternating velocity component of the electrons can be found from Eq (5) where ω_e is the plasma frequency, ωt_1 is the input phase and φ is the absolute transit angle in the interaction space. By carrying out the double integration of Eq (5), it is shown that φ is given by Eq (6). By employing the space charge conservation law, the density of the bunched electron current is given by Eq (7). The real interaction power is, therefore, given by Eq (8) where $\Phi_o = \varphi_o(1-v_o/v_\varphi)$ is the so-called relative transit angle for the interaction space, $\xi = E_o L/V_o$ and $\Theta_o = \omega_e L/v_o$. The variations of the real power P_{ea} are plotted in Fig 1 as a function of Φ_o. The function Φ_o is plotted in Fig 2 against Θ_o. The above analysis permits the evaluation of the starting current for the oscillator tube. This current is expressed by:

$$I_{st} = \frac{8V_o}{Z_o(2\pi N)^3} F(\Theta_o) \qquad (9)$$

Analysis of the Operation of the Backward-Wave Oscillator by Employing a Cosinusoidal Approximation of the Field

where $F(\theta_o)$ is a function reciprocal to Eq (8). The start-current characteristic of the system can also be written as Eq (10), where $C^3 = Z_o/4V_o$ and $N = L/\lambda$. Eq (10) is plotted in Fig 3 (the solid curve); the dashed curve in Fig 3 was evaluated by using the formula from Ref 3. It is seen that the results obtained by either formula do not diverge appreciably. The results obtained from Eq (10) are also compared with values obtained by Johnson (see Fig 4) and by Walker (see Fig 5); the works of Johnson and Walker are mentioned in Ref 7 and 9 respectively. There are 5 figures and 13 references, 9 of which are Soviet and 4 English.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet (Saratov State University)

SUBMITTED: 8th January 1958

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9.4231
26.2322

S/058/60/000/010/006/014
A001/A001

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 10, p. 309, # 27426

AUTHORS: Shevchik, V.N., Zharkov, Yu.D.

TITLE: Cascade Grouping of Electrons as Applied to Analysis of "Karsinotron"

PERIODICAL: Tr. Konferentsii po elektronike SVCh, 1957, Moscow-Leningrad, Gosenergoizdat, 1959, pp. 226 - 235

TEXT: Interaction of an electron beam with the field of a non-homogeneous decelerating system is considered as interaction with the fields of successive hf-gaps (slots) separated by regions of drift free of hf fields. In distinction from the method of space harmonics, such an approach reflects better the actual physical nature of the phenomenon and makes it possible to account for the effect of harmonics, asynchronous with the beam, on energy transfer. Expressions for the real and reactive powers of interaction are derived. The transfer of energy to the field is possible at certain relations between the phase velocity of the hf-wave in the slots and the electron speed when the electrons, passing one gap after another, get into the same phase of the hf-field. This corresponds to interaction

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Cascade Grouping of Electrons as Applied to Analysis of "Karsinotron"

of the electron beam with one or another harmonic when using the electro-dynamic approach. The effect of asynchronous space harmonics on the interaction power is the greater, the less is the number of hf-gaps; at a number of slots > 40-50, it can be neglected. A formula for the starting current of the ЛОВ (LOV)-generator (backward-wave tube) has been derived and compared with an analogous formula which was obtained on the assumption that only interaction with a single space harmonic is essential.

G.N. Shvedov

Translator's note: This is the full translation of the original Russian abstract.

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S/194/62/000/006/144/232
D201/D308

AUTHORS: Shevchik, V.N. and Zharkov, Yu.D.

TITLE: Theory of carcinotron

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, 13, abstract 6 Zh 93 (Nauchn. yezhegodnik Saratovsk. un-t. Fiz. fak. i N.-i. in-t mekhan. i fiz. 1955. Saratov, 1960, 109-110)

TEXT: The results of a theoretical investigation of interaction between the electron stream and the retarding system in a backward-wave tube oscillator are given, the whole range of space harmonics being considered. The analysis of the interaction reduces to the study of cascaded electron bunching in the sequence of m HF gaps. A formula for active power of the interaction of the electron stream with m HF gaps is derived. It is emphasized that taking into account the interaction with higher space harmonics is essential especially when m is small. [Abstracter's note: Complete translation.]

Card 1/1

S/194/62/000/004/084/105
D271/D308

9,4231

AUTHOR: Zharkov, Yu. D.

TITLE: Problems of carcinotron efficiency

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 4, 1962, abstract 4zh117 (Uch. zap. Saratovsk. un-t, 1960, 69, 95-97)

TEXT: A brief report on the results of a theoretical study of backward-wave oscillator efficiency. Calculations are based on the concept of cascade bunching of electrons in the field of travelling wave. The influence is taken into accout of non-synchronous harmonics on the mutual reaction power and on the starting current of the backward-wave oscillator. Formulas are obtained for the HF voltage on an arbitrary gap and for the electron efficiency. A graph is given of the efficiency in function of the number of slots.
[Abstracter's note: Complete translation.]

Card 1/1

9,423/

S/109/60/005/012/030/035
E192/E582

AUTHORS: Shevchik, V.N. and Zharkov, Yu. D.

TITLE: The Effect of Reflections on the Operation of a Backward Wave Tube

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.12, pp. 2059-2060

TEXT: The influence of the reflections from the terminals of the delay system of the tube on its operation is analysed by the field method (Refs.1-4). It is assumed that the oscillation condition for a backward wave tube can be written as

$$\rho G = 1, \qquad (1)$$

where

$$\rho = r_K r_\Pi e^{j(\psi_K + \psi_\Pi + 2\beta L)} = re^{j\psi};$$

where r_K, r_Π, ψ_K, ψ_Π are the moduli and phases of the reflection coefficients for the collector and cathode terminals of the tube, respectively; L is the length of the delay system, β is the propagation constant and G is the gain of the tube. The gain of

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The Effect of Reflections on the Operation of a Backward Wave Tube

the tube can be expressed by $G = E_1/(E_1 + E_2)$, where E_1 is the amplitude of the field at the output of the tube and E_2 is the amplitude of the "secondary" field. Equations for E_2 and $1/G$ are derived and on the basis of Eq.(1) it is shown that the oscillation conditions for the tube can be expressed as

$$\Phi_o = 2 \text{ arc tg } \frac{r \cos\psi - 1}{r \sin\psi} \qquad (2)$$

$$I_{CT} = I_{CTO}\sqrt{1 - 2r \cos\psi + r^2} \qquad (3)$$

where I_{CTO} is the starting current which does not take into account the reflections. Eqs. (2) and (3) coincide with similar formulae obtained by G. Bolz (Ref.7). There are 8 references, 5 Soviet and 3 non-Soviet.

SUBMITTED: June 25, 1960

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9,3130 (1532, 1538)

31987
S/142/61/004/004/008/018
E192/E382

AUTHOR: Zharkov, Yu.D.

TITLE: Ionic focusing of a ribbon-shaped electron beam

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v.4, no. 4, 1961, 446 - 452

TEXT: Thin electron beams of rectangular cross-section find wide application in modern electronic devices and it is therefore of interest to investigate the ionic focusing of such beams, especially if the thermal velocities of the electrons are taken into account. Analysis of this effect can be carried out under a number of simplifying assumptions, such as:
1) the beam is thin in comparison with the pulsation waves of its boundaries so that the longitudinal component of the electric field can be neglected.
2) The effect of the secondary electrons and the thermal velocities of the ions is negligible.
3) The beam current is constant.
4) The beam is infinitely wide in the transverse direction z.
The basic equations for the system are the ion-balance equation,

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Ionic focusing of ....

the Poisson equation, the equation of motion in the Euler form, the continuity equation and the equation of state. For the above beam, having a width of 2y , these equations are in the form:

$$n_+(y) = \sqrt{\frac{m_+}{2e}}\, epv \int_0^y \frac{n(y_1)\,dy_1}{\sqrt{\varphi(y_1) - \varphi(y)}}; \qquad (1)$$

$$\frac{\partial^2 \varphi}{\partial y^2} = -4\pi e (n_+ - n); \qquad (2)$$

$$mn\left(v_y \frac{\partial v_y}{\partial y} + v \frac{\partial v_y}{\partial x}\right) = -e\varphi_r \frac{\partial n}{\partial y} + en \frac{\partial \varphi}{\partial y}; \qquad (3)$$

$$n \frac{\partial v_y}{\partial y} + v \frac{\partial n}{\partial x} + v_y \frac{\partial n}{\partial y} = 0; \qquad (4)$$

$$v \frac{\partial}{\partial x}\left(\frac{\varphi_r}{n}\right) + v_y \frac{\partial}{\partial y}\left(\frac{\varphi_r}{n}\right) = 0, \qquad (5)$$

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Ionic focusing of ....

where n is the electron concentration,
n_+ is the ion concentration,
ε the specific ionisation,
p the gas pressure,
v longitudinal electron velocity,
v_y transverse electron velocity,
φ electric potential in the beam, and
φ_T the transverse temperature of the electron gas expressed in potential units.

Simultaneous solution of the aboveequations should provide the differential equation for the effective boundary of the beam. The solution of Eqs. (1) and (2) is assumed to be in the form of :

$$n = n_o - n_2 y^2 - \ldots , \quad (6)$$

$$\varphi = \varphi_o - \varphi_2 y^2 - \varphi_4 y^4 - \ldots . \quad (7)$$

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Ionic focusing of ....

where the higher terms of the series are neglected. It is shown that the differential equation for the effective boundary of the beam is in the form:

$$\frac{d^2Y}{dx^2} = \frac{\varphi^o{}_T Y_o}{V_o Y^2} - \frac{\varphi_2 Y}{V_o} \qquad (15)$$

where V_o is the accelerating potential,

Y is the effective half-width of the beam (defined by the reduction of the electron density by e times),

φ_2 is given by:

$$\varphi_2 = \frac{2\sqrt{\varphi_2} I}{vY}\left(\frac{\pi C}{2\sqrt{\varphi_2}} - 1\right) \qquad (16)$$

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Ionic focusing of ....

where I is the overall current of the beam per unit length in the direction z , and
C is given by :

$$u = \frac{n_{0+} - n_0}{n_0} = \frac{\pi}{2} \frac{C}{\sqrt{\varphi_2}} - 1 , \quad C = \sqrt{\frac{m+}{2e}}\, \varepsilon p v .$$

Eqs. (15) and (16) can be used to determine the boundary as a function of the axial length of the beam. In particular, they are used to evaluate the equilibrium half-width of the beam Y_1 for $u \geq 1$, where $u = (n_{0+} - n_c)/n_0$. Further, Eq. (15) is used to determine the pulsation of the beam boundaries. The above equations are employed to construct graphs showing the dependence of the effective stable half-width Y_1 and the length of the pulsation wave on the gas pressure for the accelerating voltage V_0 = 500 V, Y_0 = 0.6 mm (this being the

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Ionic focusing of ....

half-width of the cathode) and $I = 40$ mA; these functions are shown in Fig. 1. Y and λ are also plotted as a function of V_o. A graph of Y_1 as a function of Y_0 is also shown. It is found from these figures that for increasing accelerating voltages the focusing power becomes reduced and the beam becomes wider, while the wavelength of the pulsations increases. On the other hand, the beam current can be changed over wide limits without changing the wavelength of the pulsations.
There are 5 figures and 3 Soviet-bloc references.

ASSOCIATION: Kafedra elektroniki Saratovskogo gos. universiteta im. N.G. Chernyshevskogo (Department of Electronics of Saratov State University im. N.G. Chernyshevskiy)

SUBMITTED: June 27, 1960 (initially)
August 30, 1960 (after revision)

24469
S/109/61/006/006/010/016
D204/D303

9,3140

AUTHORS: Bakhrakh, L.E., and Zharkov, Yu.D.

TITLE: Geometric parameters of ion-focused electron beams

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 6, 1961, 976 - 981

TEXT: The ionic focusing of solid and hollow cylindrical, and flat beams is analyzed using a simplified method which can extent the results of B.I. Davydov and S.I. Braginskiy (Ref. 1: K teorii gazovoy kontsentratsii elektronnykh puchkov, Sb., posvyashchennyy 70-letiyu akad. A.F. Ioffe, Izd.. AN SSSR, 1950, 72-91) to beams of these types. Among the non-magnetic methods of focusing, the ionic focusing is of some interest. The equilibrium state in ionic focusing is reached when the number of ions formed in unit time is equal to the number of ions lost through exit from the beam under the influence of the space-charge field. The thermal motion of electrons is of great importance under these conditions, since the

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Geometric parameters of ...

transversal velocity component of this motion can be of the same magnitude as the focusing potential difference between the axis and boundary of the beam. It is assumed that the temperature of the electron gas varies according to an adiabatic rule when the diameter of the beam changes. With some further simplifying assumptions the author obtains equations for the motion of the boundary electron in a solid cylindrical, rectangular and hollow cylindrical beam, respectively. The balance equations, expressing the equilibrium condition of the beam, are:

$$\rho_+ = \frac{\sqrt{\frac{m_+}{2e}}\varepsilon P v \rho_-}{\sqrt{\pi(\rho_+ - \rho_-)}},$$

$$\rho_+ = \frac{\sqrt{\pi}\sqrt{\frac{m_+}{2e}}\varepsilon P v \rho_-}{2\sqrt{2}\sqrt{\pi(\rho_+ - \rho_-)}},$$

$$\rho_+ = \sqrt{\frac{m_+}{2e}}\frac{\varepsilon P v \rho_-}{\sqrt{\pi(\rho_+ - \rho_-)}}\frac{r^2 - r_a^2}{\sqrt{r^2 - r_a^2 + 2r_a^2 \ln\frac{r_a}{r}}}.$$

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where ρ_- is the electron density, ρ_+ is the ion density, s is the specific ionization, P is the gas pressure, m_+ is the ion mass. The motion equations obtained are completely identical with those derived in Ref. 1 (Op.cit.) with the more rigorous method of solving simultaneously the Poisson equation, the continuity equation, the equation of state and the kinetic equation. With the assumptions adopted these differential equations reduce to the linear form

$$\frac{d^2\delta}{dz^2} + \omega^2\delta = 0, \qquad (4)$$

where $\delta \ll 1$ is a quantity characterizing the ripple at the boundary of the beam, and $\omega(P, U, T, s, I)$ determines the wavelength of the pulsations, λ, which is shown for two specific cases in tabulated form. The solution of Eq. (4) will be

$$\delta = \delta(0) \cos \omega z + \left(\frac{d\delta}{dz}\right)_0 \sin \omega z, \qquad (5)$$

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D204/D303

Geometric parameters of ...

where $\delta(0)$ and $(d\delta/dz)_0$ correspond to the initial conditions when $z = 0$. Investigation of Eq. (5) enables the geometric parameters of ion-focused beams to be determined as functions of the operating conditions (gas pressure, electron velocity, beam current, etc.). The results are given graphically for the following cases: Equilibrium width of ion-focused flat beam as a function of the pressure; Equilibrium radius of ion-focused hollow cylindrical beam as a function of the pressure; Equilibrium width of flat beam as a function of the accelerating voltage; Equilibrium radius of hollow cylindrical beam as a function of the accelerating voltage; Wavelength of the pulsations as a function of the pressure for cylindrical beam; Wavelength of the pulsations at the outer boundary of a hollow beam as a function of the voltage; Amplitude of the pulsations against the accelerating voltage in a flat beam; Amplitude of the pulsations against the pressure for a flat beam. There are 1 table, 8 figures and 2 Soviet-bloc references.

SUBMITTED: June 18, 1960

L 32979-66 EWT(1)
ACC NR: AR6016260 SOURCE CODE: UR/0058/65/000/011/H043/H043

43
13

AUTHOR: Bakhrakh, L. E.; Dmitriyev, B. S.; Zharkov, Yu. D.

TITLE: Electronic probe for measuring the phase velocity and coupling impedance of slow wave-systems

SOURCE: Ref. zh. Fizika, Abs. 11Zh296

REF SOURCE: Sb. Vopr. elektron. sverkhvysok. chastot. Vyp. 1. Saratov, Saratovsk. un-t, 1964, 132-139

TOPIC TAGS: traveling wave interaction, phase velocity, electric impedance, electron beam interaction

ABSTRACT: The article describes an improved construction of an electronic probe for the measurement of the phase velocity and coupling impedance of slow-wave systems. The probe consists of an electron gun, a hydrogen generator, a collector, and a long glass tube. The hydrogen generator is a small nickel cylinder filled with titanium hydride, in which a heater is placed. By varying the heater power, it is possible to establish a hydrogen pressure $\sim 10^{-2} - 10^{-4}$ mm Hg in the glass tube. The hydrogen ions then overcompensate the space charge of the beam, settle on the walls of the tube, and neutralize the electrons that fall on it. This prevents accumulation of electrostatic charge on the surface of the glass and blocking of the probe channel. In earlier probes, this was accomplished by means of a helix, which raised difficulties when slow-wave systems with large deceleration coefficient were investigated.

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ACC NR: AR6016260

According to the experimental results, a probe of this construction yields an error not larger than 4% in the measurement of the phase velocity and ~20% in the coupling impedance. A. Roshal'. [Translation of abstract]

SUB CODE: 09/

Card 2/2 BK

ACC NR: AT6022258 SOURCE CODE: UR/0000/66/000/000/0073/0076

AUTHOR: Dmitriyev, B. S.; Zharkov, Yu. D.

ORG: none

TITLE: Passage of electron beams through extended dielectric channels

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio, 22d, 1966. Sektsiya elektroniki. Doklady. Moscow, 1966, 73-76

TOPIC TAGS: electron beam, electron probe, delay system mechanism

ABSTRACT: A 3-mm thick electron beam shaped by a Pierce-type gun was injected into a glass tube 8-mm diameter 300-mm long; hydrogen atmosphere was employed for gas focusing. About 70—90% current passed through the tube; accelerating voltage, 1700 v; gas pressures, 0.01—0.1 torr. The passage of electrons improved with higher accelerating voltage and worsened with heavier

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ACC NR: AT6022258

beam currents. Only 40—50% of 5-ma beam current passed through a 2.5-mm, 200-mm long quartz tube, and only 30% when the beam current 9 ma was selected. It was felt that such a tube might serve as an electronic probe different from other well-known designs (H. R. Johnson et al., PIEE, 1958, B105, Suppl. 12, 893-896; M. Chodorow et al., "Mikrowellenrohren," München, 1960). Tests had shown that an efficient SHF interaction is possible between an electron beam inside a dielectric coating and a traveling wave in a non-vacuum delay system, with no longitudinal magnetic field applied. The electronic probe was placed inside a ribbon-helix delay structure, and intense oscillations (λ = 18—40 cm) were observed at 100—1000-v voltages. The electronic probe is recommended for studying dispersion characteristics of delay structures. Orig. art. has: 2 figures.

SUB CODE: 09 / SUBM DATE: 09Apr66 / ORIG REF: 002 / OTH REF: 002

Card 2/2

BAKHRAKH, L.E.; ZHARKOV, Yu.D.; MAYOFIS, E.Ya.; DMITRIYEV, B.S.; SOKOLOV, I.L.

Preliminary results of the experimental study of the operation of hollow cathodes at pressures in the order of 10^{-2} - 10^{-3} mm. of mercury. Radiotekh. i elektron. 8 no.11:1956-1957 N '63. (MIRA 17:1)

ZHARKOVA, A.M.

Genetic scheme of bog formation according to landform zones in the West Siberian Plain. Izv. Omsk. otd. Geog. ob-va. no.5:61-86 '63.

Yersey chain complex in the zone of hypnum bogs in the West Siberian Plain. Ibid.:87-92 (MIRA 17:5)

ANDRUSHKEVICH, V.S.; BUDNIKOVA, N.P.; GRIGOR'YEV, M.A.; ZHARKOV, Yu.D.; SINITSYN, N.I.; STAL'MAKHOV, V.S.; TRUBETSKOV, D.I.; SHVEDOV, G.N.; SHEVCHIK, V.N.; NOSKOVA, R.F., red.

[Electronic superhigh-frequency devices] Elektronnye pribory sverkhvysokikh chastot. Saratov, Izd-vo Saratovskogo univ., 1964. 187 p. (MIRA 18:4)

CA ZHARKOVA, A.V. 4/

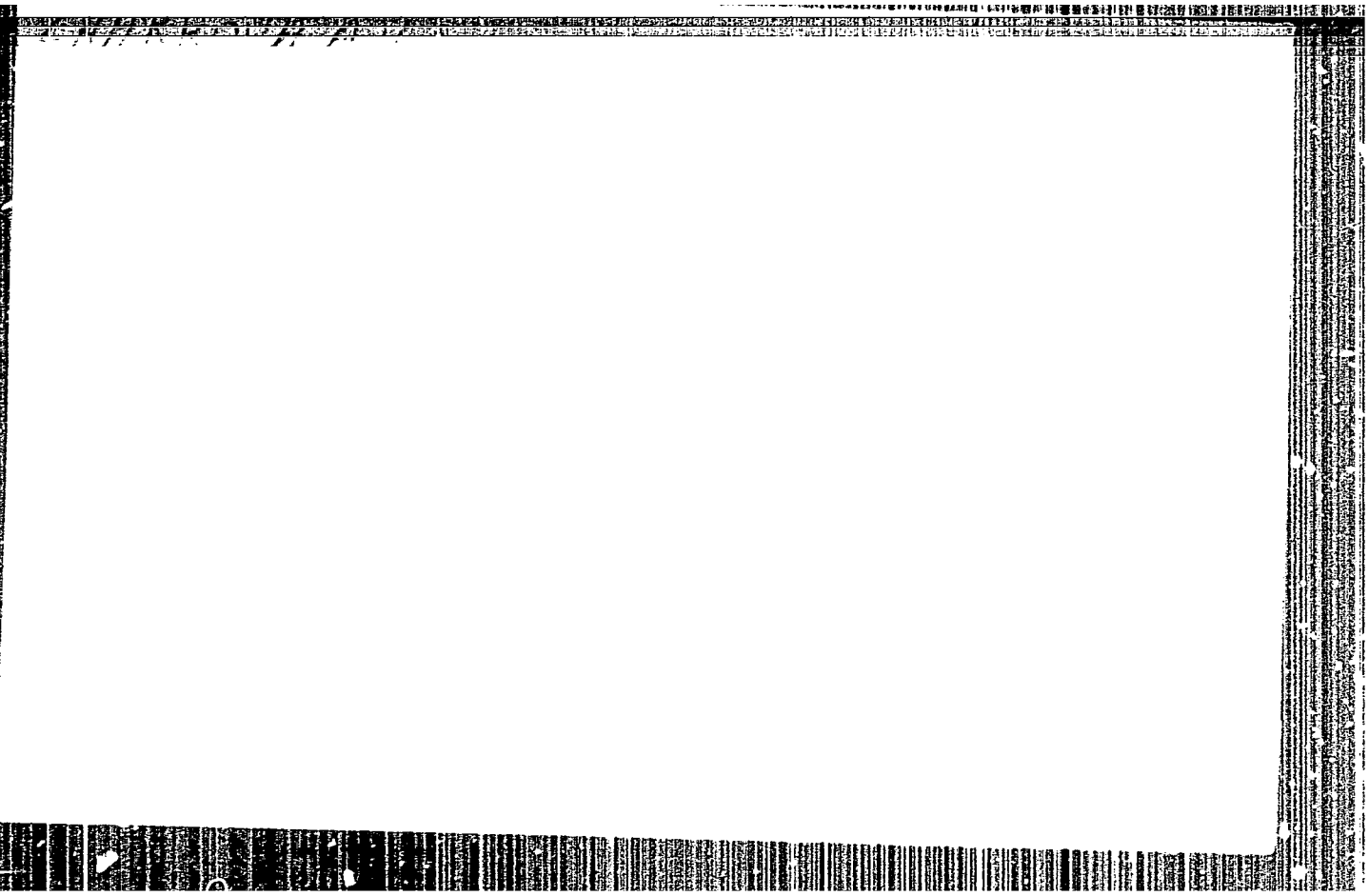
Genetic classification parameters of brown coals and lignites. N. G. Titov, A. V. Zharkova, and L. A. Borozdina (Akad. Nauk S.S.S.R.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1948, 359–66.—Brown coals from various deposits and a sample of lignite were analyzed to det. their method of formation. The samples of brown coal were centrifuged with a mixt. of CCl_4 and benzene to sep. admixed sand and clay, and the org. (supernatant) portion was ashed. The ash in all cases was characterized by a high content of CaO (12.24–26.33%) and SO_3 (12.82–19.37%). The ash of untreated lignite contained 64.48% CaO and 16.50% SO_3. The Ca was present in the coals and lignite as Ca salts of humic acids, which broke down during ashing at 150° and over to CaO. Combination of this with SO_3 accounted for the high S content of the ash. The brown coals and lignite were also characterized by a low org. N content. It is postulated that brown coals and lignite are formed in bogs whose waters are rich in dissolved gypsum, leading to the formation of Ca humates. Nancy Corbin

CA ZHARKOVA, A V 21

Mineral composition of peat water and its relation to some properties of the peat. N. G. Titov and A. V. Zharkova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk.* 1948, 643–8; cf. *C.A.* 44, 3235e.—The compn. of peat was shown to depend on the mineral content of the water in the peat bogs. With high gypsum concn. of the water, peat had low bitumen and high ash content, while with low gypsum concn. the reverse was true. This was accounted for by the presence of Ca humates in the high-ash peat.
Nancy Corbin

Inst Fuels, AS USSR

1951



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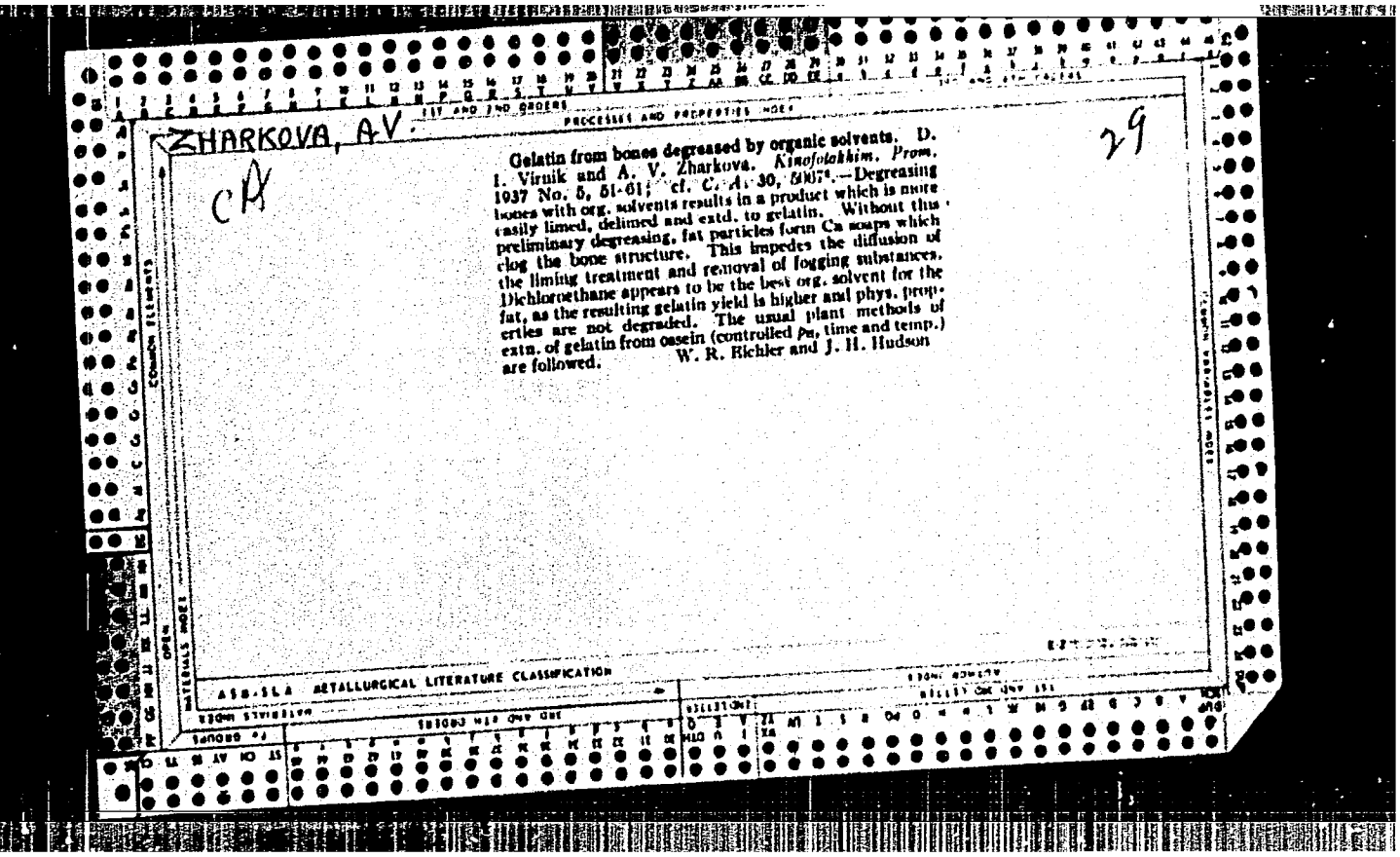


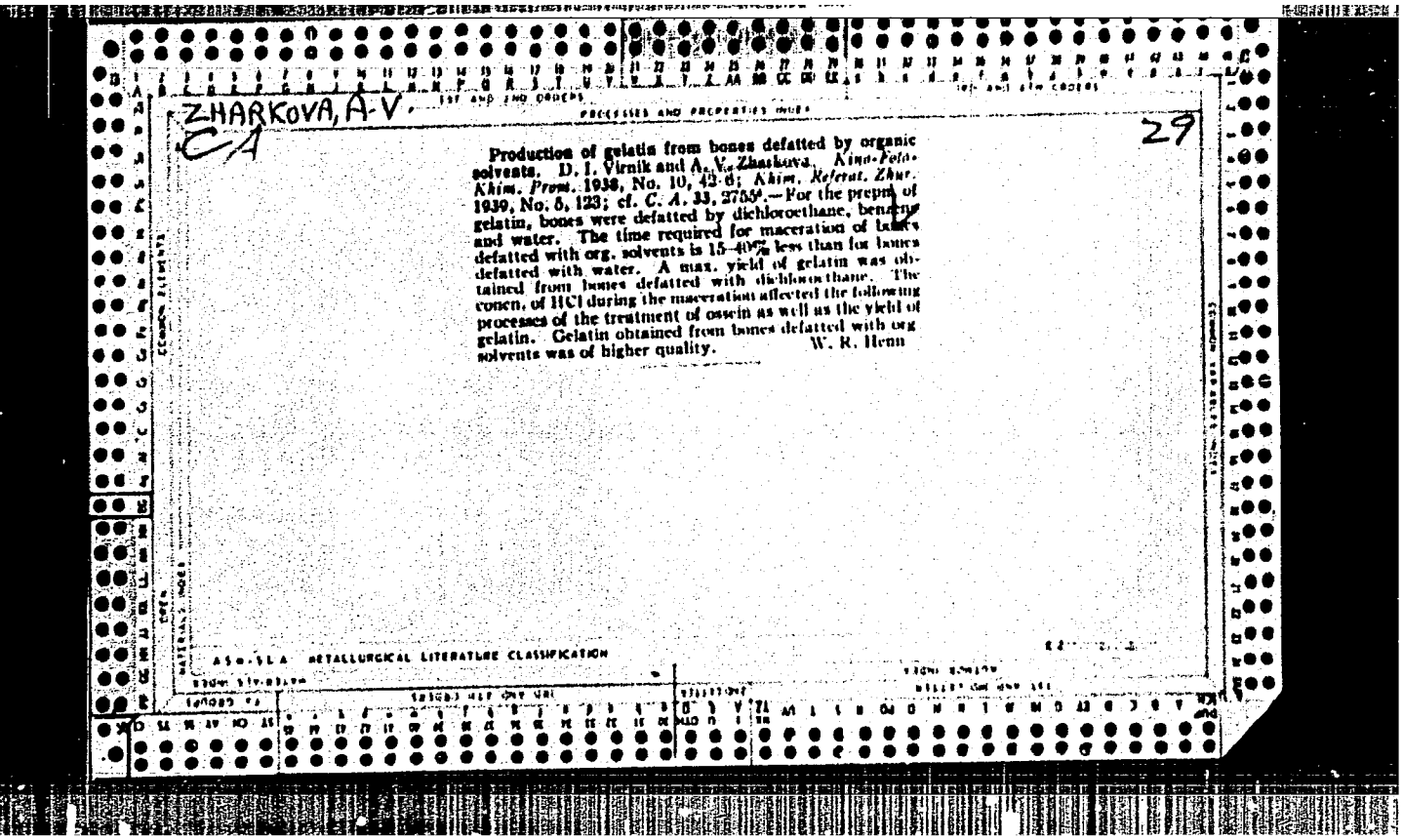
ZHARKOVA, A.V.

CA

29

Gelatin from bones degreased by organic solvents. D. I. Virnik and A. V. Zharkova. *Kinofotokhim. Prom.* 1937 No. 5, 51-61; cf. C. A. 30, 8007⁸.—Degreasing bones with org. solvents results in a product which is more easily limed, delimed and extd. to gelatin. Without this preliminary degreasing, fat particles form Ca soaps which clog the bone structure. This impedes the diffusion of the liming treatment and removal of fogging substances. Dichloroethane appears to be the best org. solvent for the fat, as the resulting gelatin yield is higher and phys. properties are not degraded. The usual plant methods of extn. of gelatin from ossein (controlled *p*H, time and temp.) are followed. W. R. Richler and J. H. Hudson

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



ZHARKOVA, A.V.
CA

29

Production of gelatin from bones defatted by organic solvents. D. I. Virnik and A. V. Zharkova. *Kino-Foto-Khim. Prom.* 1938, No. 10, 42-6; *Khim. Referat. Zhur.* 1939, No. 5, 123; cf. *C. A.* 33, 2755⁹.—For the prepn. of gelatin, bones were defatted by dichloroethane, benzene and water. The time required for maceration of bones defatted with org. solvents is 15–40% less than for bones defatted with water. A max. yield of gelatin was obtained from bones defatted with dichloroethane. The concn. of HCl during the maceration affected the following processes of the treatment of ossein as well as the yield of gelatin. Gelatin obtained from bones defatted with org. solvents was of higher quality. W. R. Henn

A50-51A METALLURGICAL LITERATURE CLASSIFICATION

KRYLOVA, A.R.; MASLENKOV, S.B.; ZHARKOVA, D.N.

Kinetics of oxidation and the structure of oxides of certain commercial heat-resistant steels and alloys. Issl. po zharopr. splav. 9:162-164 '62. (MIRA 16:6)
(Heat-resistant alloys) (Metallic films)

ZIMINA, L.N.; YAKOVLEVA, Ye.F.; ZHARKOVA, D.N.

Carbide analysis of a cast chromium-nickel base alloy. Sbor. trud. TSNIICHM no.32:103-110 '63. (MIRA 16:12)

MASLENKOV, S. B.; ZHARKOVA, D. N.

Phase constitution of the diffusion layer on boron-saturated nickel. Fiz. met. i metalloved. 14 no.4:638-640 O '62. (MIRA 15:10)

1. Institut kachestvennykh staley Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii.

(Protective coatings)
(Phase rule and equilibrium)

KRYLOVA, A.R., ZHARKOVA, D.N., MASLENKOV, S.B.

Kinetics of oxidation, composition and structure of the oxide films of refeactory steels and alloys.

SPECIAL STEELS AND ALLOYS (SPETSIAL'NYYE STALI I SPLAVY), Collection of Studies, Issue 27, 240 pages, published by the State Scientific and Technical Publishing House for Ferrous and Non-Ferrous Metallurgy, Moscow, USSR, 1962.

KRYLOVA, A.R.; ZHARKOVA, D.N.; MASLENKOV, S.B.

Kinetics of oxidation, composition, and structure of oxide films on heat-resistant steels and alloys. Sbor.trud.TSNIICHM no.27: 169-178 '62. (MIRA 15:8)
(Heat-resistant alloys) (Oxidation)

40988

18.1151

S/659/62/009/000/023/030
I003/I203

AUTHORS: Krylova, A. P., Maslenkov, S. B., and Zharkova, D. N.

TITLE: The kinetics of oxidation and the structure of oxides of some industrial heat-resisting alloys

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharoprochnym splavam. v. 9. 1962. Materialy Nauchnoy sessii po zharoprochnym splavam (1961 g.), 162-164

TEXT: The purpose of this work is to investigated the kinetics of oxidation and the phase composition of the oxide layers formed on the surfaces of ЭИ-813, and ЭИ-835 steels and of ЭИ-559A and ЭИ-652 alloys when they are heated in the air from 1 to 100 hours at 900°, 1000°, 1100° and 1200°C. The high corrosion resistance of these alloys is due to the formation of oxide layers of the spinel type on their surface. The EI-813 and EI-835 steels have a high heat-resistance up to 1000-1050°C due to their high chromium content. The authors refrain from explaining all the experimental data obtained as they consider their investigation to be unfinished. In the discussion, Prokoshkin D. A. pointed out the inconsistency of the data on the position of the Cr_2O_3 layer,. There is 1 figure.

Card 1/1

L 40975-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JXT(CZ)

ACC NR: AT6026556 SOURCE CODE: UR/2776/66/000/046/0140/0150

43
42
B+1

AUTHOR: Krylova, A. R.; Kozlova, N. N.; Zharkova, D. N.

ORG: none

TITLE: Oxidation behavior of oxidation-resistant Kh23N18 and Kh25N16G7AR steels and KhN78T alloy at 1050°C

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov, no. 46, 1966. Spetsial'nyye stali i splavy (Special steels and alloys), 140-150

TOPIC TAGS: alloy steel, nickel alloy, chromium containing steel, nickel containing steel, manganese containing steel, metal corrosion, metal property / Kh23N18 steel, Kh25N16G7AR steel, KhN78T nickel alloy

ABSTRACT: The oxidation behavior of oxidation-resistant Kh23N18 (EI417) and Kh25N16G7AR (EI835) steels, and KhN78T (EI435) alloy at 1050C for 7000—8000 hr has been investigated. Cylindrical specimens were 10 mm in diameter and 20 mm high. It was found that KhN78T alloy had the highest oxidation resistance (see Fig. 1). The spinel-type scale formed on this alloy had the best protective properties. The loss of metal after 8000 hr amounted to 0.07 mm. Chromium was the most

Card 1/2

L 40975-66

ACC NR: AT6026556

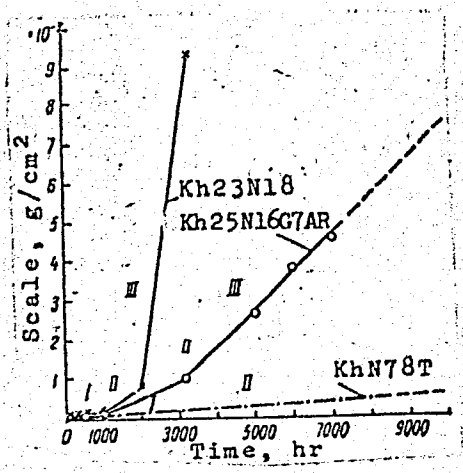


Fig. 1. Oxidation of Kh23N18, Kh25N16G7AR and KhN78T in air at 1050C

oxidized alloy component; after 7080 hr the chromium content in the surface layer dropped to 7.3%. Kh25N16G7AR steel was the second best with a loss of 0.33 mm in 7080 hr. Oxidation of Kh23N18 steel followed a parabolic rate for up to 2000 hr exposure; from then on it followed a linear rate because the scale lost its protective qualities. Loss of metal in 3300 hr was 0.30 mm. KhN78T alloy and Kh25N16G7AR steel can be recommended as oxidation-resistant materials for prolonged service (up to 10,000 hr) at 1000—1050C. Kh23N18 steel is not suitable for service longer than 2000 hr at 1050C unless intermittent cooling periods are used to offset the intensive oxidation. Orig. art. has: 5 figures and 4 tables. [TD]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 003

ATD PRESS: 5058

Card 2/2

ACCESSION NR: AP4026847 S/0065/64/000/004/0003/0006

AUTHOR: Telegin, V. G.; Sidorov, V. A.; Zharkova, D. R.; Biryukova, L. M.; Tokareva, A. A.

TITLE: Preparation of individual vinyltoluenes

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 4, 1964, 3-6

TOPIC TAGS: Vinyltoluene, preparation, synthesis, vinyltoluene isomer, separation, ethyltoluene, toluene ethylation, dehydrogenation, isomer separation, fractionation, dealkylation, cracking, disproportionation

ABSTRACT: The study was made to determined if it is possible to prepare individual vinyltoluenes or at least mixtures of the vinyltoluenes enriched in one of the isomers. Ethyltoluenes were made by continuous vapor phase ethylation of toluene with phosphoric acid catalyst. Since it is difficult to separate the dehydrogenation products of ethyltoluene, the ethyltoluenes were separated prior to dehydrogenation. The ortho isomer was fractionated and the remaining mixture of meta and para isomers was sulfonated and the ethyltoluene sulfo acids were hydrolysed. The separated isomers were then dehydrogenated in the presence of water (water: hydrocarbon ratio of 22:1) at 580C at a flow rate of 0.75 hrs-1 on a catalyst

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ACCESSION NR: AP4026847

comprising 87% Fe_2O_3, 8% Cr_2O_3 and 5% K_2O. Based on ethyltoluene the yield was 94-96%; exhaust gases comprised 76-78% H_2, 19-21% CO_2 and 2-4.6% hydrocarbons. Products were fractionated at 8 mm. Hg. The purest vinyltoluene isomer prepared was the ortho, containing 5-7% para-isomer. The other two isomers were contaminated with larger amounts of mixed isomers. In comparison to dehydrogenation of ethylbenzene, dehydrogenation of ethyltoluene is accompained by undesirable dealkylation, cracking and disproportionation reactions, and the catalyst activity is rapidly lowered so it must be regenerated after each cycle. Further work is needed on the purification of the individual ethyltoluenes and on their dehydrogenation to obtain individual vinyltoluenes containing a minimum of contaminating isomers. Orig. art. has: 3 tables.

ASSOCIATION: VNIINeftekhim (All Union Scientific Research Institute of Petrochemical Processes)

SUBMITTED: 00 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: CH No. REF. SOV: 005 OTHER: 007

Card 2/2

TELEGIN, V.G.; SIDOROV, V.A.; KHARCHENKO, A.A.; ZHARKOVA, D.R.; TREYBSHO, Ye.I.

Obtaining ditolyl ethane. Nefteper. i neftekhim. no.1: 34-39 '64. (MIRA 17:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov, Leningrad.

TELEGIN, V.G.; SIDOROV, V.A.; ZHARKOVA, D.R.; BIRYUKOVA, L.M.; TOKAREVA, A.A.

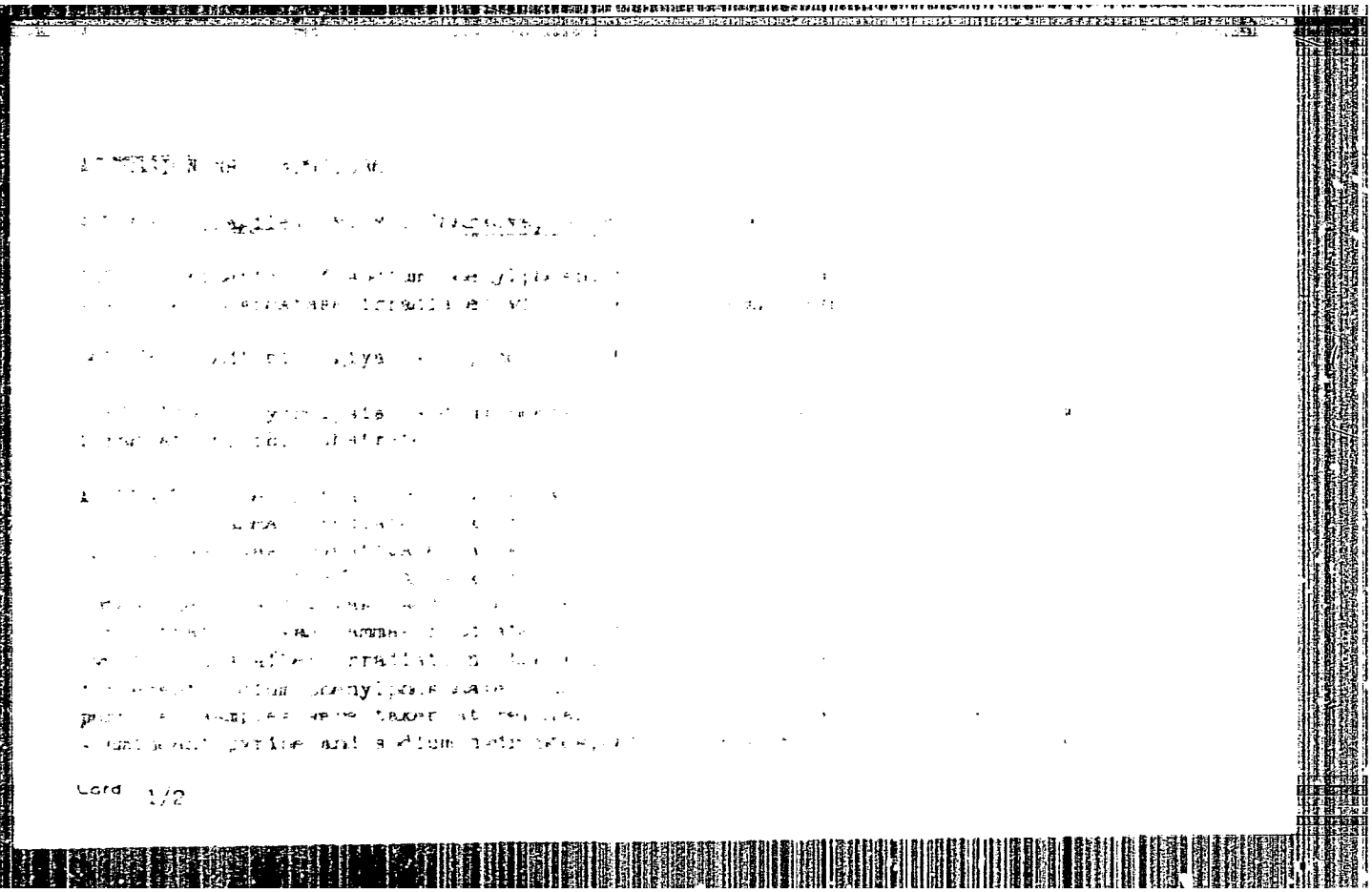
Obtaining individual vinyl toluenes. Khim. i tekh. topl. i masel 9 no.4:3-7 Ap '64. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.

ZHARIKOVA, O.O.; FILIPPOVA, M.S.; MAKAROVA, O.Ya.

Sporulation of Bacillus brevis var. G.B. Antibiotiki 8 no.12:1080-1082 D '63. (MIRA 17:10)

1. Laboratoriya antibiotikov biologo-pochvennogo fakul'teta Moskovskogo gosudarstvennogo universiteta.



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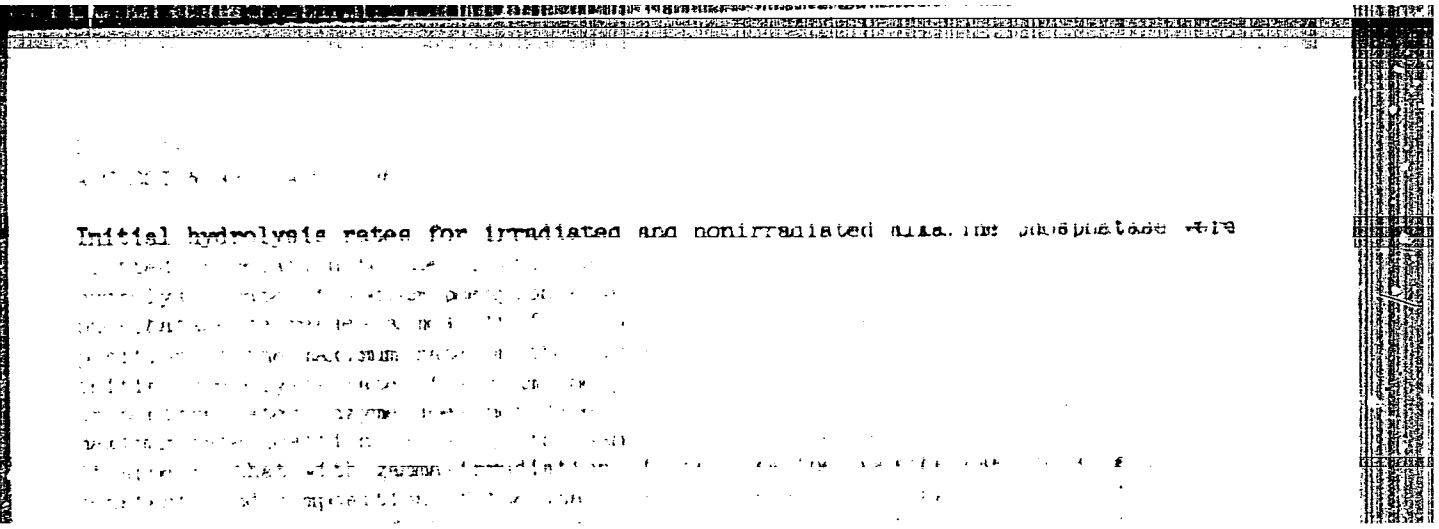

Initial hydrolysis rates for irradiated and nonirradiated

ZHARKOVA, L.A.; BARANCHEYEVA, N.G.

Thermodynamic properties of $MeMoO_3$-type compounds. Part 1.
Zhur. fiz. khim. 38 no.3:752-754 Mr '64. (MIRA 17:7)

1. Moskovskiy gosudarstvennyy pedagogicheskiy institut imeni V.I. Lenina.