BR

ACCESSION NR: AP4032494 S/0080/64/037/004/0742/0745

AUTHOR: Nizhnik, A. T.; Shekhter, Z. V.

TITLE: Extraction of gallium from alkaline solutions with the aid of sulfides.

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 4, 1964, 742-745

TOPIC TAGS: gallium, extraction, sulfide precipitation, gallate ion, pentavalent vanadium, impurity, oxidizing agent removal

ABSTRACT: The possibility was investigated of extracting gallium from alkaline zinc-containing solutions in the sulfide precipitate. Determinations of the amount of gallium in the sulfide precipitate (with ZnS) two hours after precipitation established that 92% of the gallium precipitates from the alkaline solution containing up to 40 gm/l of free NaOH. On increasing the NaOH to 110 gm/l the amount of gallium precipitated drops linearly to 15%, probably due to the formation of gallate ion according to the reverse reaction:

$$2NaGaO_2 + 3Na_2S + 4H_2O \longrightarrow Ga_2S_3 + 6NaOH.$$

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ACCESSION NR: AP4032494

The amount of gallium in the sulfide increases with increasing amount of zinc up to 25 times in proportion to the gallium. With a greater amount of zinc the amount of gallium in the precipitate remains constant at about 90%. The presence of aluminum (up to 500 times the amount of gallium) has no effect on the sulfide precipitation of gallium. Arsenic (up to 15 times) has little effect. The presence of pentavalent vanadium reduces the yield of gallium in the precipitate, hence it and similar oxidizing agents should be removed, e.g., by reduction with amalgam or excess $Na_2S$, prior to the gallium extraction. Orig. art. has: 2 tables and 2 figures.

ASSOCIATION: None

SUBMITTED: 17Apr62 DATE ACQ: 11May64 ENCL: 00

SUB CODE: GC,MM NO REF SOV: 011 OTHER: 003

Card 2/2

NIZHNIK, A.T.; MITYUREVA, T.T.

Behavior of indium in polymetallic amalgams. Zhur.prikl. khim. 37 no. 5:1042-1044 My '64. (MIRA 17:7)

USHAKOV, A.A., elektromekhanik; NIZHNIK, A.T., monter svyazi

Protection unit of the ASU-50 automatic information desk. Avtom., telem. i aviam' 9 no.10:24 O '65. (MIRA 18:11)

1. Odesskaya distantsiya Odessko-Kishinevskoy dorogi.

TSEDRIK, D.F. [TSedryk, D.F.]; NIZHNIK, F.O. [Nyzhnyk, F.O.]

"Khersonets" Corn Combine. Mekh. sil'. hosp. 11 no.6:29-30 Je '60. (MIRA 13:11)

1. Zamestitel' nachal'nika Spetsial'nogo konstruktorskogo byuro Khersonskogo kombaynovogo zavoda (for TSedrik).
2. Nachal'nik gruppy Spetsial'nogo konstruktorskogo byuro Khersonskogo kombaynovogo zavoda (for Nizhnik).
(Combines (Agricultural machinery))

NIZHNIK, G.V.

Changes in the viability of sex cells of male rabbits and mice subjected to the effect of very high frequency fields. Zhur.ob. biol. 17 no.4:311-316 Jl-Ag '56. (MLRA 10:2)

1. Institut biologicheskoy fiziki AN SSSR.
(MICROWAVES--PHYSIOLOGICAL EFFECT) (TESTICLE)

NIKHMIK, G.V.

Effect of X irradiating the maternal organism on the histohematic barriers of the fetus [with summary in English]. Biofizika 3 no.2:226-232 '58. (MIRA 11:4)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(X RAYS--PHYSIOLOGICAL EFFECT) (FETUS)

NIZHNIK, G.V.; LUK'YANOVA, L.D.

Effect of X rays on the permeability of the placenta and histohematic barriers of the fetus in maternal organisms irradiated at different periods of pregnancy. Zhur.ob.biol 20 no.6:477-478 N-D '59. (MIRA 13:4)

1. Institute of Biological Physics, Academy of Sciences of the U.S.S.R., Moscow.
(X RAYS--PHYSIOLOGICAL EFFECT) (FETUS) (CAPILLARIES--PERMEABILITY)

SOV/20-126-1-51/62

17(6,10)
AUTHORS: Nuzhdin, N. I., Corresponding Member AS USSR, Nizhnik, G. V.

TITLE: The Effect of γ-Rays of $Co^{60}$ on Early Stages of Embryogeny in Rabbits (Vliyaniye gamma-luchey $Co^{60}$ na ranniye stadii embriogeneza krolikov)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 187-190 (USSR)

ABSTRACT: Among the poorly examined aspects of the biological effect of ionizing radiation, the effect on the embryogeny of mammals has to be mentioned. Even the latest work dealing with this problem (Refs 10-13) leaves a lot unsaid. In the present article results are given concerning the subject mentioned in the title. One hour before pairing, a female rabbit was treated with rays. The single dose amounted to 850, 500 and 100 r. The dose intensity was 150 r/min. The female animal was then impregnated with sperms of the male animal, not treated with rays. The developing zygote was examined 20, 24, 48, 72, and 96 hours after the female had been paired with a male animal which had undergone a vasectomy. After opening the abdominal cavity, the zygote was

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The Effect of γ-Rays of $Co^{60}$ on Early Stages of Embryogeny in Rabbits

washed out of the oviduct and of the uterus with a 0.9% NaCl solution. The living macrogametes and zygotes were picked out of the liquid and examined in a hanging drop under the microscope. In table 1 it can be seen that 40 female animals were treated with rays and ovulation occurred in 32 of them. The rest showed no opening of the follicle. All of the 20 female animals used for the purpose of control showed ovulation, there was no exception. 70% of the macrogametes of animals treated with rays were fertilized (control 97%). Due to the results achieved, the authors arrive at the conclusion that ray treatment of female animals just before ovulation, does not only reduce the capability of impregnation, but also disturbes the further development of the fertilized macrogamete. This is expressed in the inhibition of the division of the macrogamete and of the development into further stages. Furthermore the macrogamete of the female animal under ray treatment stays 24 hours longer in the oviduct than that of the control animals. The doses of 100 and 300 r also disturbe the normal development of the zygote (Table 1). On account of all this one may say that the macrogametes of female animals which underwent ray

The Effect of γ-Rays of $Co^{60}$ on Early Stages of Embryogeny in Rabbits

treatment as mentioned above, are highly radio-sensitive. There are 1 table and 14 references, 7 of which are Soviet.

ASSOCIATION: Institut genetiki Akademii nauk SSSR (Institute of Genetics of the Academy of Sciences, USSR)

SUBMITTED: February 25, 1959

Card 3/3

NUZHDIN, N.I.; NIZHNIK, G.V.

Effect of gamma rays of $Co^{60}$ on early stages of embryogenesis in rabbits. Trudy Inst. gen. no. 27:348-358 '60. (MIRA 13:12)
(Gamma rays--Physiological effect)
(Embryology--Mammals)

NUZHDIN, N.I., NIZHNIK, G.V.

Effect produced by irradiating rabbit spermatozoa with gamma rays on fertilization and early stages of embryonic development. Dokl. AN SSSR 134 no.6:1457-1460 O '60. (MIRA 13:10)

1. Chlen-korrespondent AN SSSR (for Nuzhdin).
(Gamma rays--Physiological effect) (Spermatozoa)

NUZHDIN, N.I.; NIZHNIK, G.V.

Effect of gamma irradiation of spermatozoa fertilization and early stages of development in rabbits. Trudy Inst. gen. no.28: 402-409 '61. (MIRA 14:11)
(GAMMA RAYS—PHYSIOLOGICAL EFFECT) (SPERMATOZOA)

30351

S/205/61/001/004/010/032
D298/D303

27.1220

AUTHORS: Nizhnik, G. V. and Luk'yanova, L. D.

TITLE: The effects of X-rays on the passage of phosphorus through the placentary and histohematic barriers of the embryo

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 517-521

TEXT: Due to the lack of research on the subject, a study was made of the effects of various doses of X-rays on the state of the placentary and histohematic barriers of the embryo with irradiation of the mother at various stages of pregnancy. Pregnant rabbits were irradiated with an РУП-1(RUP-1) apparatus at an intensity of 8.6 r/min. With single irradiation, the animals received doses of 600 or 1,000 r at definite stages of pregnancy (on the 15th, 20th, 29th and 30th days). With multiple irradiation, the rabbits received a dose of 10 or 25 r daily. Radioactive phosphorus ($Na_2HP^{32}O_4$) in a dose of 15 - 20 $\mu$c/kg of the

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The effects of X-rays...

animal's weight was used as an indicator of penetrability. It was found that single irradiation of the pregnant rabbits in doses of 600 - 1,000 r inhibited the penetration of phosphorus into the embryo's brain at all stages of its development. Similar results were obtained from a study of the embryo's other tissues. The reduction in the phosphorus content varied directly with the radiation dose. With multiple irradiation, no notable changes were observed in the phosphorus content of the brain and muscle tissues in the offspring of the irradiated rabbits. Continuation of pregnancy was noted in only 58% of those rabbits exposed to repeated irradiation in the first half of pregnancy. The litter from these animals did not exceed 40% of the normal litter. In animals irradiated in the second half of pregnancy, a continuation of pregnancy was noted in 70% of the cases and the litter averaged 75% of normal. There are 4 tables and 8 references: 4 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: L. Bakay, Arch. Neurol. and Psychiatry, 70, 1, 1953; S. W. Wilde, D. B. Cowie, L. B. Flexner, Amer. J. Physiol., 147, 360, 1946; P. E. Nielsen, Amer. J. Physiol., 135, 3, 670, 1941/1942; G. Popjak, Cold Spring Harbor Symposium

Card 2/3

30351
S/205/61/001/004/010/032
D298/D303

The effects of X-rays...

Quant. Biol., 19, 200, 1954.

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR (Institute of Biophysics, AS USSR), Moscow

SUBMITTED: June 22, 1959

Card 3/3

NIZHNIK, G. V.

2

# The Effect of Irradiation of Sex Cells on Fertilization and Embryogenesis in Rabbits

G. V. Nizhnik

Irradiation of female rabbits with a dose of 850 r shortly before ovulation and subsequent artificial insemination with non-irradiated spermatozoa resulted in a diminished number of fertilized ova and a delay in the early stages of embryogenesis. Impaired cell cleavage, membrane formation and other changes in morphological characters were observed.

Insemination of females with spermatozoa irradiated *in vitro* with doses from 100 to 15000 r did not lead to a diminished impregnation of the ova. Disturbances were, however, recorded in the development of the foetus at the earliest stages of embryogenesis, to an extent depending on the dose of irradiation.

Intravital microscopic study of the ova and zygotes by fluorescence microscopy made it possible to reveal changes in developing foetuses, not defined microscopically, reflecting their functional state.

Institute of Genetics, U.S.S.R. Academy of Sciences, Moscow

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

NIZHNIK, G. V., and NUZHDIN, N. I.,

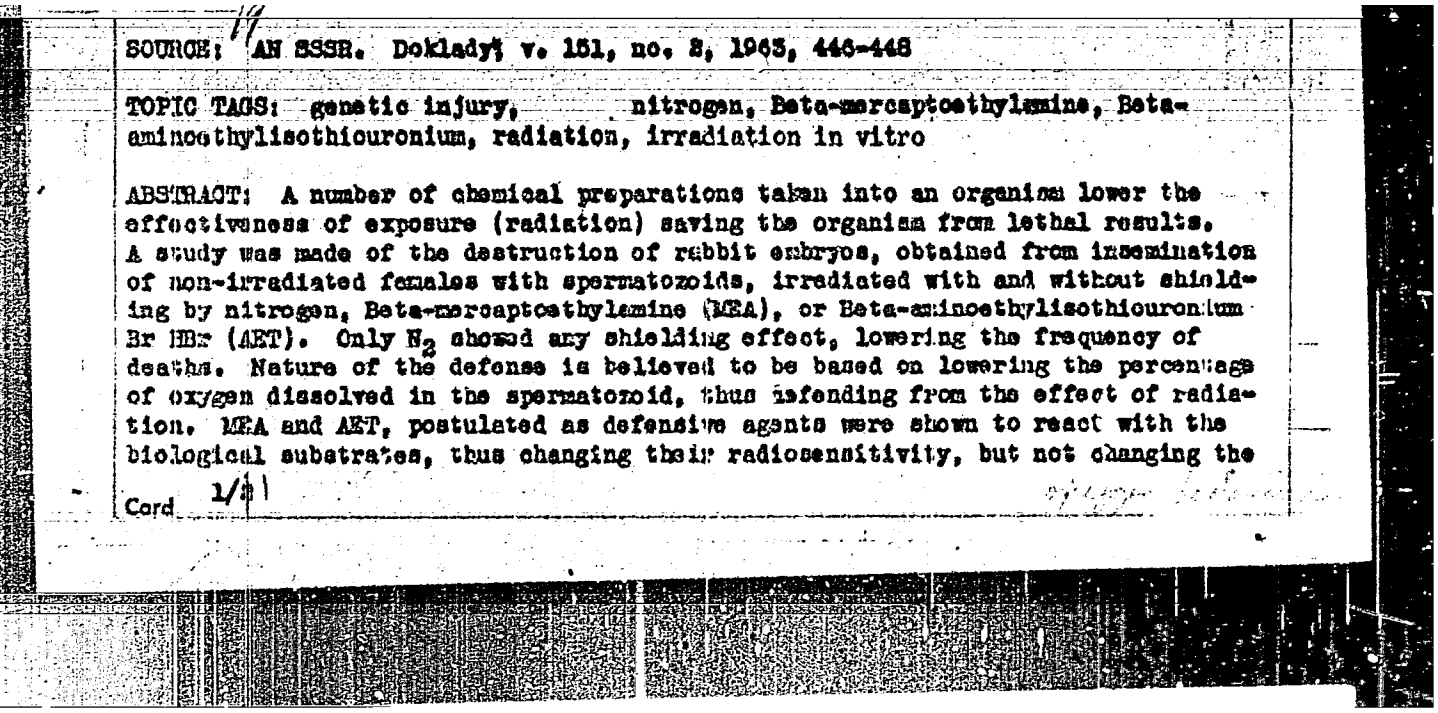
"The Effects of Protection Against Genetic Damage caused by Ionizing Radiation in Mammalian Sex Cells."

report submitted for the 11th Intl. Congress of Genetics, The Hague, Netherlands, 2-10 Sep 63.

NIZHNIK, G.V.

Effect of radiation on the reproductive functions and the fetus of mammals. Biol. v shkole no.1:76-79 Ja-F '63. (MIRA 16:6)

1. Institut genetiki AN SSSR, Moskva.
(RADIATION—PHYSIOLOGICAL EFFECT)
(REPRODUCTION)



SOURCE: AN SSSR. Doklady, v. 151, no. 2, 1963, 446-448

TOPIC TAGS: genetic injury, nitrogen, Beta-mercaptoethylamine, Beta-aminoethylisothiouronium, radiation, irradiation in vitro

ABSTRACT: A number of chemical preparations taken into an organism lower the effectiveness of exposure (radiation) saving the organism from lethal results. A study was made of the destruction of rabbit embryos, obtained from insemination of non-irradiated females with spermatozoids, irradiated with and without shielding by nitrogen, Beta-mercaptoethylamine (MEA), or Beta-aminoethylisothiouronium Br HBr (AET). Only $N_2$ showed any shielding effect, lowering the frequency of deaths. Nature of the defense is believed to be based on lowering the percentage of oxygen dissolved in the spermatozoid, thus defending from the effect of radiation. MEA and AET, postulated as defensive agents were shown to react with the biological substrates, thus changing their radiosensitivity, but not changing the

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ACC NR: AT5024255

developmental stages, prior to implantation. However, quite different results were obtained with nitration of the ejaculate and with irradiation of spermatozoa in a nitrogen atmosphere. Under these conditions, the percentage of normal embryos from females irradiated in the air. The use of MEA tagged with $S^{35}$ showed that this substance, immediately after introduction into the ejaculate, penetrates the spermatozoon where it is accumulated in sufficiently high concentrations. Thus, the fact that MEA does not have a protective effect is not connected with the inability of the substance to penetrate spermatozoa. Perhaps, this chemical (as well as the others tested) can not combine with sperm molecules, especially their DNA, to produce the chemical reaction which results in protection. Orig. art. has: 1 table. [JS]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 021

Card 2/2

NIZHNIK, L.P.

28(2) PHASE I BOOK EXPLOITATION SOV/1345

Akademiya nauk Ukrainskoy SSR. Vychislitel'nyy tsentr

Voprosy vychislitel'noy matematiki i tekhniki (Problems in Computer Mathematics and Technique) Kiyev, Izd-vo AN Ukrainskoy SSR, 1958. 97 p.(Series: Its: Sbornik trudov, vyp. 3) 7,000 copies printed.

Editorial Board: Glushkov, V.M., Doctor of Physical and Mathematical Sciences (Resp. Ed.), Dashevskiy, L.N., Candidate of Technical Sciences, and Shkabara, Ye. A., Candidate of Technical Sciences; Ed. of Publishing House: Kaplan, Ya. L.; Tech. Ed.: Rakhlina, N.P.

PURPOSE: This collection of articles, issued by the Computer Center of the Ukrainian SSR Academy of Sciences, is intended for scientists and engineers in the field of computer mathematics and techniques, and for students of vuzes specializing in this field.

COVERAGE: The collection is devoted to the programming of mathematical problems on electronic computers and to the design of

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units and components of these machines. A number of the articles contain information on scientific research carried out in 1955-1956, a description of installations already developed and some information on the operation of existing machines. An original method of performing multiplication and division in the arithmetic units of computers is described in the first article. Programming of problems connected with the statistical control of production are discussed in the second paper. The third and fourth articles deal with questions concerning the development of individual units of electronic computers. A description of standard components is given in the fifth and their design for maximum reliability is discussed in the sixth article. The seventh, eighth, and ninth articles explain the design of circuits with semiconductor and magnetic elements and the tenth article deals with problems concerning the operation and maintenance of electron tubes. References appear after each article.

TABLE OF CONTENTS:

authors explain the procedure for calculating these tables as applicable for programming on the small electronic tabular calculator MESM of the Ukrainian SSR Academy of Sciences. There are 2 Soviet references.

Rabinovich, Z.L. Arithmetic Unit of the Specialized Electronic Calculator SESM-1 18

The author describes the circuit and operating principle of the series-action arithmetic unit of the SESM-1 machine and explains how operations are performed in it. The SESM-1 is used for solving systems of linear algebraic equations by Zeidel's method.

The author thanks the following persons for their cooperation in developing details of the arithmetic unit: Engineer A.L. Gladysh (control of arithmetic units), V.V. Kraynitskiy (internal storage memory), and I.T. Parkhomenko (summator and control of operations).

There are 3 Soviet references.

gate circuit. There is 1 Soviet reference.

at frequencies up to 400 kc. They also explain a method for approximate calculation of circuit parameters and provide results of experimental investigation. There is 1 Soviet reference.

Problems in Computer Mathematics (Cont.) SOV/1345

author states that: 1. the 6N9S and 6N8S tubes suffer breakdown either during the first 1,000 hours of operation or they last 5,000-7,000 hours. 2. the most frequent defects which develop in tubes under any operating conditions are a decrease in plate current and a change in characteristics. There are 2 Soviet references.

AVAILABLE: Library of Congress

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Card 3/8

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S/044/60/000/008/033/035
C111/C222

AUTHORS: Korolyuk, V.S., Nishnik, L.P., and Yushchenko, Ye.L.

TITLE: Programming of the tables for the optimal methods of the statistical acceptance inspection

PERIODICAL: Referativnyy zhurnal. Matematika, no.8, 1960, 235, abstract no. 9618. Sb. tr. Vychisl. tsentra. AN Ukr SSR, 1958, no.3, 9-17

TEXT: V.S.Mikhalevich has shown: the choice of the optimal method of the acceptance inspection according to A.N.Kolmogorov leads to the solution of the inhomogeneous difference equation $\varphi(k,n) = \mu(k,n)\,\varphi(k+1, n+1) + (1-\mu(k,n))\,\varphi(k,n+1) + c$ with an unknown boundary and to the determination of this boundary under the condition that at the lower boundary it holds $\varphi(k,n) = \mu(k,n)$ and at the upper boundary it holds $\varphi(k,n) = p_0$, where the function $\mu(k,n)$ and the constant $p_0$ can be calculated.
In the present paper, the authors describe a method for the numerical solution of this problem, where the programming is made on the small electronic computer "МЭСМ" (MESM) of the Academy of Sciences of the Ukrainian SSR. The method guarantees an economic utilization of the

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S/044/60/000/008/033/035
C111/C222

Programming of the tables for...

storage cells of the device and a shortened obtaining of the data for which the information which is interesting for the problem remains preserved.

[Abstracter's note: The above text is a full translation of the original Soviet abstract.]

Card 2/2

NIZHNIK, L.P.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

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

Trudy. t. 4: Kratkiye soderzhaniya sektsionnykh dokladov. Doklady instrumental'nykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow, vol. 4; Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959.
247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.E. Shorokhanov; Editorial Board: A.A. Abrasov, V.G. Pilyugin, A.N. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.N. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, E.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.D. Chistyakov, O. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

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

Tamarkin, Ya. D. (Kiyev), and L.P. Nizhnik (Kiyev). The Overcoming of one new boundary value problem for a differential equation of parabolic type 101

Section on the Mathematical Problems of Mechanics

Abramov, A.A. (Yerevan). On the plane problem of the theory of elasticity for a rectangular region 102

Vlasov, V.Z. (Moscow). Method of initial functions in the theory of thick multilayer plates and shells 102

Gel'fgeyzer, A.L. (Moscow). Formal asymptotic representations of the integrals of partial differential equations with small parameter 102

Grigolyuk, E.I. (Moscow). Nonlinear vibrations of cylindrical panels in supersonic flow 104

Il'yushin, A.A. (Moscow). The method of integral equations in problems of the theory of a thin wing in compressible flow 105

Card 20/24

16(1)

AUTHOR: Nizhnik, L.P. SOV/20-124-3-5/67

TITLE: On the Spectrum of General Differential Operators (O spektre obshchikh differentsial'nykh operatorov)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3 pp 517-519 (USSR)

ABSTRACT: Let $E^m$ be the real m-dimensional space $x = (x_1,\ldots,x_m)$ and $\mathfrak{P}(\xi) = \sum a_\alpha(x)\xi^\alpha$ a polynomial of the m variables $\xi_1, \ldots \xi_m^\alpha$ with sufficiently smooth coefficients, $\alpha = (\alpha_1,\ldots,\alpha_m)$, $\xi^\alpha = \xi_1^{\alpha_1}\ldots\xi_m^{\alpha_m}$. If the expression $\frac{1}{i}\frac{\partial}{\partial x_k}$ is substituted instead of $\xi_k$, then $\mathfrak{P}(\xi)$ generates a differential expression $\mathfrak{P}(D)$ which defines an operator P in $L^2$, if in the class of infinitely differentiable finite functions $C_o^\infty$ it is put : $Pu = \mathfrak{P}(D)u$.

Theorem: The closure of an arbitrary symmetric differential operator P with constant coefficients is a selfadjoint

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On the Spectrum of General Differential Operators SOV/20-124-3-5/67

operator, the limit spectrum of which is identical with the spectrum of $\overline{P}$.
The author thanks Yu.M. Berezanskiy for the position of the problem.
There are 9 references, 8 of which are Soviet, and 1 is Swedish.

ASSOCIATION: Institut matematiki AN USSR (Mathematical Institute AS Ukrain.SSR)

PRESENTED: September 18,1958, by S.L. Sobolev, Academician

SUBMITTED: September 17,1958

Card 3/3

NIZHNIK, L.P. [Nyzhnyk, L.P.]

Schrodinger's nonstationary one-dimensional equations. Ukr.fiz. zhur. 5 no.3:413-415 My-Je '60. (MIRA 13:8)

1. Institut matematiki AN USSR.
(Quantum theory)

MIZHNIK, L.P.

Problems on dispersion for one equation of Schrödinger. Ukr. mat. zhur. 12 no.2:209-212 '60. (MIRA 13:10)
(Dispersion) (Mathematical physics)

80042

S/020/60/132/01/09/064

16,3500 16,7300

AUTHOR: Nizhnik, L.P.

TITLE: Scattering Problem for Non-stationary Perturbation

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp.40-43

TEXT: The author considers the equation

(1) $\Box u(x,t) + c(x,t)u(x,t) = 0$ ,

where x is a point of the $E^3$ , $\Box = \Delta - \frac{\partial^2}{\partial t^2}$ . He seeks a solution

$u = u(x,t;\omega,\mu) = e^{i\omega(\mu x - t)} + v(x,t;\omega,\mu)$ , where $\mu$ is the direction vector of the plane wave $e^{i\omega(\mu \cdot x - t)}$, while v for $|x| \to \infty$ satisfies the conditions (compare (Ref. 1)) :

(2) $v = O\left(\frac{1}{|x|}\right)$ , $\frac{\partial v}{\partial t} = O\left(\frac{1}{|x|}\right)$ , $|\text{grad } v| = O\left(\frac{1}{|x|}\right)$ , $\frac{\partial v}{\partial |x|} + \frac{\partial v}{\partial t} = O\left(\frac{1}{|x|}\right)$ .

Let (2) be uniform with respect to $t \in (-\infty, \infty)$.
It is assumed that c(x,t) with all partial derivatives of first and second

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Scattering Problem for Non-stationary Perturbation

order is continuous and majorisable by $\frac{K(t)}{1+|x|^{3+\varepsilon}}$, $\varepsilon > 0$, where $K(t)$ is uniformly bounded for $t \in (-\infty, \infty)$.

Theorem 1 : For small $c(x,t)$ $(K(t) < \frac{\varepsilon}{3})$ the formulated problem has a unique solution.

Let now $K(t) \leq \frac{C}{1+|t|^{1+\delta}}$, $\delta > 0$. Then there holds

theorem 2 : For $\varepsilon > \frac{1}{2}$ the formulated problem has a unique solution.

It is shown that for $|x| \to \infty$ it holds :

$$u(x,t;\omega,\mu) = e^{i\omega(\mu x - t)} + \frac{\varphi(t-|x|, \nu; \omega, \mu)}{|x|} + O\left(\frac{1}{|x|}\right)$$

where $\nu$ -unit vector in the direction of x and $\varphi$ is a uniformly bounded

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Scattering Problem for Non-stationary Perturbation. S/020/60/132/01/09/064

function.
The determination of c(x,t) out of the scattering amplitude is discussed.
The author mentions V.A. Fok. He thanks Professor [illegible]eganskiy for the leading of the work.
There are 9 Soviet references.

ASSOCIATION: Institut matematiki Akademii nauk Ukr. SSR
(Institute of Mathematics AS Ukr SSR)

PRESENTED: December 29, 1959, by S.L. Sokolev, Academician

SUBMITTED: December 25, 1959

Card 3/3

S/020/61/140/003/003/020
C111/C222

AUTHOR: Nizhnik, L. P.

TITLE: The problem of inelastic scattering

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 3, 1961, 533-535

TEXT: The problem of inelastic scattering by a scattering center can be formulated as follows: Determine the solution of the infinite system of equations

$$(\Delta + k_n^2)\psi_n(x) + \sum_{m=0}^{\infty} c_{nm}(x)\psi_m(x) = 0 \quad (n = 0,1,\ldots), \qquad (1)$$

having the form

$$\psi_0(x)e^{ik_0\mu\cdot x} + w_0(x)$$
$$\psi_n(x) = w_n(x) \quad (n > 0), \qquad (2)$$

where

$$|w_n(x)| = O\left(\frac{1}{|x|}\right), \quad \frac{\partial w_n(x)}{\partial |x|} - ik_n w_n(x) = O\left(\frac{1}{|x|}\right); \qquad (3)$$

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S/020/61/140/003/003/020
C111/C222

The problem of inelastic scattering and x--point of the Euclidean $E^3$, $\mu$-- direction of the incident plane wave $e^{ik_0\mu\cdot x}$; $w_0(x)$ -- the elastically scattered wave; $w_n(x)$ -- the inelastically scattered wave with the impulse $k_n$.

Let the following conditions be satisfied:

1) $0 < m \leq k_n \leq M < +\infty$

2) $c_{nm}(x) = v(x)\,\delta_{nm} + v_{nm}(x)$, where $v(x)$ is a real function and the matrix $\{v_{nm}(x)\}_0^\infty$ is a Hermitean matrix;

3) $|v(x)| < \frac{C}{1+|x|^{3+1/2+\varepsilon}}$, $|v_{nm}(x)| \leq \frac{a_{nm}}{1+|x|^{3+1/2+\varepsilon}}$, where $\varepsilon > 0$;

4) The matrix $\{a_{nm}\}_0^\infty$ generates a completely continuous operator in $l_2$. Then the following theorem is valid: The problem of the inelastic scattering has a unique solution. Then the author considers briefly the

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S/020/61/140/003/003/020
C111/C222

The problem of inelastic scattering in stationary problem of scattering for the equation

$$\left[\Delta - \frac{\partial^2}{\partial t^2} + c(x,t)\right] u(x,t) = 0 \qquad (15)$$

where $c(x,t)$ is periodical (cf. (Ref. 6: L. P. Nizhnik, DAN, 132, no.1 (1960))). It is shown that if $c(x,t) = c_1(x) + c_2(x) \sin \omega t$, $c_1$ and $c_2$ are real and are majorized by $\frac{C}{1+|x|^{3+1/2+\varepsilon}}$, $\varepsilon > 0$, the frequency of the incident plane wave is $\omega_0 \neq n\omega$, then the considered instationary problem has a unique solution.

The author thanks Yu. M. Berezanskiy for the formulation of the problem and advices. There are 4 Soviet-bloc and 2 non-Soviet-bloc references. The reference to the English-language publication reads as follows:

Card 3/4

S/020/61/140/003/003/020
C111/C222

The problem of inelastic scattering

T. Kato, Comm. Pure and Appl. Math., 12, 3 (1959).

ASSOCIATION: Institut matematiki Akademii nauk USSR(Institute of Mathematics of the Academy of Sciences Ukrainskaya SSR)

PRESENTED: May 12, 1961, by V. J. Smirnov, Academician

SUBMITTED: May 11, 1961

Card 4/4

NIZHNIK, L.P. (Kiyev)

A priori inequalities for certain differential operators with variable coefficients. Ukr. mat. zhur. 14 no.4:426-531 '62. (MIRA 15:12)
(Operaors (Mathematics)) (Inequalities (Mathematics))

NIZHNIK, L.P. (Kiyev)

Spectral structure and self-adjointness of perturbations of differential operators with constant coefficients. Ukr. mat. zhur. 15 no.4:385-399 '63. (MIRA 17:4)

ACC NR: AR6025703 SOURCE CODE: UR/0196/66/000/004/A007/A007

AUTHOR: Berezovskiy, A. A.; Nizhnik, L. P.

TITLE: Surface loss in a nonlinear ferromagnetic semispace

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 4A54

REF SOURCE: Elektromashinostr. i elektrooborudovaniye. Resp. mezhved. nauchno-tekhn. sb. vyp. 1, 1965, 5-8

TOPIC TAGS: electric machine, electromagnetic field, electric equipment, transformer

ABSTRACT: One of fundamental simulation problems in the calculation of additional losses in electrical machinery and transformers is considered, viz., the determination of electromagnetic field and losses in a nonlinear ferromagnetic semispace. A tangential component of the magnetic field strength vector $H_\tau$ periodically varying with time is specified at the surface of the semispace. An equivalent magnetic permeability $\bar{\mu}$ and a characteristic resistance $\bar{r}$ of the nonlinear semispace are introduced, which permits expressing the surface-loss formula in terms of $\bar{r}$ and $H_\tau(0)$ at the surface. Approximate formulas are offered for $\bar{\mu}$ and $\bar{r}$ that permit determining them from an experimental $\mu(H)$-curve which characterizes the semispace. It is shown how $H_\tau(0)$ can be determined if the a-c density in air over the metal is known. Bibliography of 2 titles. Yu. Chalisov [Translation of abstract]

SUB CODE: 09

Card 1/1 UDC: 538.311

POSTNIKOV, I.M., doktor tekhn.nauk, prof. (Kiyev); NIZHNIK, L.P., kand.fiz.-matem.nauk (Kiyev); BEREZOVSKIY, A.A., kand.fiz.-matem.nauk (Kiyev); KRAVCHENKO, A.N., inzh. (Kiyev)

Calculation of a traveling electromagnetic field in a lamellar conductive medium. Elektrichestvo no.9:1-7 S '65.
(MIRA 18:10)

NIZHNIK, S.B.

KARAL'NIK, S.M. [Karal'nyk, S.M.]; NIZHNIK, S.B. [Nyzhnyk, S.B.].

On the origin of satellites in X-ray spectra [with summary in English]. Ukr. fiz. zhur. 2 no.4:333-337 O-D '57. (MIRA 11:3)

1. Kiyevskiy derzhavniy universitet im. T.G. Shevchenka.
(X-ray spectroscopy)

NIZHNIK, S.B.

33714
S/686/61/000/000/006/012
D207/D303

18.7500 1454

AUTHORS: Grozin, B. D., Semirog-Orlik, V. N., Golovinskaya, T.M., Nizhnik, S. B. and Yankevich, V. F.

TITLE: Phase and structural changes in steel under conditions of temperature and pressure shocks

SOURCE: Soveshchaniye po voprosam teorii sukhogo treniya i obrazovaniya chastits iznosa pri sukhom trenii. Riga, 1959, 97-105

TEXT: The authors investigated the crystal structure and composition of "white" layers formed on steel by high pressures and temperatures. For x-ray diffraction work an instrument УРС-50 И (URS-50I) was used; electron-microscopic and spectroscopic techniques were also employed. The authors studied the effects of (1) grinding roller-bearing parts with an abrasive disc rotating at various speeds and subjected to various loads; (2) normal working conditions on transmission gear teeth from a ГАЗ-63 (GAZ-63) automobile, and (3) hot-gas blasts (1200 kg/cm$^2$ for 0.0025 sec) on steels 45

Card 1/2

GROZIN, B.D. [Grozin, B.D.]; NIZHNIK, S.B. [Nyzhnyk, S.B.]

Effect of grinding patterns on the stress state of the martensite phase. Dop.AN URSR no.1:40-43 '60. (MIRA 13:6)

1. Institut stroitel'noy mekhaniki AN USSR. 2. Chlen-korrespondent AN USSR (for Grozin).
(Grinding and polishing) (Martensite)

GROZIN, B.D. [Hrozin, B.D.]; NIZHNIK, S.B. [Nyzhnyk, S.B.]; YANKEVICH, V.F. [IAnkevych, V.F.]

Structural state of the "white" layer formed under the influence of a pulse stream of high-temperature gases. Dop.AN URSR no.5: 638-641 '60. (MIRA 13:7)

1. Institut stroitel'noy mekhaniki AN USSR. 2. Chlen-korrespondent AN USSR (for Grozin).
(Surface hardening)

S/514/61/000/005/010/014
1007/1207

AUTHORS: Grozin, B.D., Semirot-Orlik, V.N., and Golovinskaya, T.N., Mizhnik, S.B., Yankevich, B.F.

TITLE: Structural transformations during grinding

SOURCE: Akademiya nauk SSSR. Komissiya po tekhnologii mashinostroyeniya. Seminar po kachestvu poverkhnosti. Trudy no.5, 1961. Kachestvo poverkhnosti detaley mashin; metody i pribory, uprochneniye metallov, tekhnologiya mashinostroeniya, 277-282

TEXT: Results are reported on investigations carried out to aid in selecting suitable grinding technology taking into account the structural transformations connected with different machining conditions. Steel specimens were subjected to varying maching conditions rough grinding with a peripheral velocity of the grinding disc, ~ 46 m/sec and a transversal feed — 1.2/1/min; fine grinding on the same disc but with manual feed; hand lapping by means of cast-iron laps. After machining the test specimens were subjected to electron microscope examinations, which revealed the existence of four distinct zones caused by varying machining conditions.
Card 1/2

15919 S/126/61/012/001/011/020
E111/E435

18.7500

AUTHORS: Grozin, B.D. and Nizhnik, S.B.

TITLE: Phase and structural changes in carbon steel during impulse action of high temperatures and pressures

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.12, No.1, pp.84-90

TEXT: Machine parts undergo complex changes in zones of point or line contact in fabrication and use because of the brief action of high temperatures and pressures. These changes produce deleterious stress concentrations. The study of secondary structures is important from the point of view of investigating phase transformations in steel at very high heating rates and with simultaneous external pressure; control of such structures could lead to higher wear resistance. Their direct study on machine parts is difficult because of their non-uniform distribution and the effect of numerous factors. Both authors worked in this field (Ref.4: DAN UkrSSR, 1959, No.12, 1326). In the present work they have used a method simulating the operation of a part exposed to the brief action of heat and temperature. The method

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is based on the use of short-lived streams of hot compressed gas (Ref.6: Yankevich V.F. Candidate dissertation, Kiyev, 1960) produced by combustion of smokeless powder. The combustion products emerge through a small hole. Metal temperatures were determined with the aid of couples formed with tungsten. Oscillographic recording of temperature gave heating times. In all experiments the pressure produced on the metal was 1300 ± 100 kg/cm$^2$ for periods not exceeding 0.0025 seconds, maximum surface temperature being of the order of 1000°C. This gave heating rates of 400000°C/sec, the cooling rate to 300 - 400°C being 80000°C/sec. Constant conditions were used on armco iron and CT-45 (St.45) (hypoeutectoid) and Y10 (U10) (hypereutectoid) steels subjected to three forms of preliminary heat treatment. Micro-hardness measurements, metallographic analysis and X-ray structural investigations were carried out and sometimes electron-microscopic investigations. Electro-polishing was used to remove successive layers for the X-ray work. In armco iron the impulses produced grain refining in a 5 to 10 micron thick layer, the rapid cooling leading to gamma → alpha transformation without grain-size

changes. In St.45 and U10 steels the surface structural changes are more complicated. Zones in the alpha → gamma temperature range are revealed metallographically in the form of weakly etched "white" zones. Strongly etched zones correspond to very rapid high-temperature tempering. Fig.4 and 5 show for St.45 and U10 steels, respectively, the width B (mm) and position 2θ of the maximum of the (110)α line as functions of the distance from the surface (microns); the top, middle and bottom graphs refer, respectively, to the following preliminary heat treatments: hardening; hardening and tempering at 200°C; hardening and tempering at 600°C. The corresponding residual-austenite contents (%) of U10 steel are shown in Fig.6. The alpha-phase lattice corresponding to greatest displacement into the large-angle region of the (110) and (220)α lines is 2.8575 ± 0.0004 Å. The structures formed indicate that even with heating rates of the order of $10^5$°C/sec martensite decomposes and alpha phase with a reduced lattice parameter and a stressed submicrostructure is formed. From the curves of intensity-distribution in reflection angles corresponding to (110) and (111)γ lines obtained in X-ray study of successive layers of hardened and low-temperature tempered

St.45 and U10 steels it follows that: at temperatures corresponding to the start of the alpha → gamma transformation austenite with a lattice parameter of 3.595 Å is present together with the untransformed very-rapid tempering alpha phase. As the transformation temperature rises, there will be a difference in the processes of redistribution of the intensities in the two steels. Analysis of secondary-quenching structures leads the authors to the following conclusions on the peculiarities of the alpha → gamma transformation in hypo- and hyper-eutectoid steels with pulsed action of high temperatures and pressures. The transformation temperature rises with increasing grain size of the initial steel structure, which leads to a reduction in the "white" layer thickness; the transformation begins with the formation at the ferrite-cementite boundary of a high-carbon austenite, which is fixed through rapid cooling; as the transformation temperature rises the extent of concentration heterogeneity falls and the carbon content in the greater part of the austenite microvolumes can equal or exceed the average for the steel. The alpha → gamma transformation occurs in a definite temperature range, the

austenite transformation gradually embraces the whole ferrite-grain volume. The observed (Ref.7: Transactions of the Republican Conference on Problems of Technical Control and Defectoscopy in Construction of Machines and Instruments, Kiyev, 1957) non-needle structure of secondary-quenching martensite in "white" layers can be due to the growth of needles having been hampered by the small austenite-grain size, austenite heterogeneity as regards carbon and the presence of undissolved carbides in the austenitic phase. The gradual decrease in the degree of martensite heterogeneity in carbon leads to small differences in the chemical potentials of adjacent microvolumes and could be the reason for the low etchability of the "white" zone. There are 8 figures and 7 Soviet references.

ASSOCIATION: Institut mekhaniki AN UkrSSR
(Institute of Mechanics AS UkrSSR)

SUBMITTED: October 26, 1960

S/129/62/000/009/003/006
E193/E583

AUTHORS: Grozin, B.D., Corresponding Member of the Academy of Sciences, UkrSSR, Nizhnik, S.B., Engineer, and Yankevich, V.F., Candidate of Technical Sciences

TITLE: Structural changes in steel subjected to the action of a jet of hot compressed gases

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, no.9, 1962, 13-16

TEXT: The object of the present investigation was to study the effect of ultra-rapid heating and cooling on the structure and constitution of thin surface layers of steel 45 specimens, given various preliminary heat treatments (hardening, hardening and tempering at 200 or 600°C). Rapid heating was attained by detonating a charge of a smokeless, explosive powder and passing the compressed combustion products through a narrow (0.7 mm) gap between the end faces of two cylindrical specimens mounted in a specially designed apparatus. The temperature attained at the metal surface was assessed from the temperature of the gases at the exit end of the gap, measured with a Fe/W thermocouple and

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recorded with the aid of an oscillograph. It took 0.0025 sec for the compressed gases to pass through the gap; the surface temperature of the steel specimens rose in this time interval to 900-1000°C which means that heating rates of 300 000 - 400 000°C/sec were attained, the subsequent cooling rate through the 1000-500°C range being 80 000 - 100 000°C/sec. After each experiment the microstructure of the specimens was examined, the chemical composition of the surface layer was determined by spectrographic analysis of consecutive layers removed by anodic dissolution, and the constitution of the surface layer was studied by X-ray diffraction analysis of the specimen surface exposed by each consecutive anodic dissolution operation. The results can be summarized as follows. (1) In spite of the extremely short duration of the heating pulse, both C and N, present in the gases, diffused into steel to a depth of 10 μ, leading to the formation of austenite containing both these elements. (2) Rapid heating under a high pressure and subsequent rapid cooling to 500°C, followed by relatively slow cooling below this temperature, caused secondary hardening and accelerated tempering of the surface layers of the steel specimens. The resultant structural changes

were reflected in the formation of a double surface layer. The outer layer (more difficult to etch than the core of the specimen) consisted of martensite and residual austenite containing C and N; the inner part of this layer, not affected by the diffusion of C and N, consisted of martensite only. The inner layer, etching more readily than the core of the specimen, consisted of the products of high temperature tempering. The total thickness of the heat-affected surface layer was 300 μ. (3) The constitution of the outer surface layer was determined by the temperature gradient during rapid heating through the temperature range above the critical point. The structure of the inner, tempered layer differed from that obtained by normal tempering at similar temperatures: it was characterized by the presence of a sub-structure, a higher degree of dispersion of the carbide phase, higher microhardness, and a different lattice parameter. There are 4 figures and 2 tables.

ASSOCIATION: Institut mekhaniki AN UkrSSR
(Mechanics Institute AS UkrSSR)

NIZHNIK, S.B.

Tempering of secondary carbon steel structures formed at ultra-high-speeds by the effect of high temperatures and pressures. Fiz. met. i metalloved. 13 no.6:879-885 Je '62. (MIRA 15:7)

1. Institut mekhaniki AN USSR.
(Steel--Metallography)
(Tempering)

L 14303-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3000099 S/0126/63/015/004/0565/0570

AUTHOR: Mishnik, S. B.

TITLE: Mechanism of austenitic conversion with the formation of "white" layers

SOURCE: Fizika metallov i metallovedeniye, vol. 15, no. 4, 1963, 565-570

TOPIC TAGS: austenite conversion mechanism, formation of "white" layer, diffusive conversion, nondiffusive conversion

ABSTRACT: The etch-resistant "white" layers are formed on the steel surface during polishing, grinding or abrading. They result from a high-speed heating of steel to the austenitic-state temperatures; their origin and surface distribution on the hardened and tempered carbon and chromium steels have been studied. The specimen was exposed to a flux of highly heated, compressed gases, the heating speed of which was $4.10^5$ degrees/sec. The X-ray analysis showed that the "white" layer has a martensitic structure on the pre-eutectoid steel and an austenite-martensitic structure on the post-eutectoid steel. The amount of austenite retained and the degree of the tetragonal atomic orientation depend on the distance from the surface. The author concludes that the high-speed heating of steels tempered at low

temperatures results in the diffusive and nondiffusive austenitic conversions.

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L 14303-63

ACCESSION NR: AP3000099

2

These occur, respectively, along the former austenite grain boundaries and inside the grains. The same steels tempered at high temperatures show a diffusive formation of austenite concentrations on the planes which separate different phases. The type of the austenitic transformation during heating determines the microstructure of the "white" layer. Orig. art. has: 7 figures.

ASSOCIATION: Institut mekhaniki, AN USSR (Institute of Mechanics, Academy of Sciences, Ukrainian SSR)

SUBMITTED: 03Aug62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: ML NO REF SOV: 005 OTHER: 001



Card 2/2

SOLOMKO, V.P., kand. khimich. nauk, dotsent; USKOV, I.A., kand. khimich. nauk, dotsent; ZHIGOTSKIY, A.G., inzh.; NIZHNIK, V.V., inzh.

Studying the reaction of fibrous materials with polymer binders. Izv. vys. ucheb. zav.; tekh. leg. prom. no.3:23-29 '63. (MIRA 16:7)

1. Kiyevskiy Ordena Lenina gosudarstvennyy universitet imeni Shevchenko. Rekomendovana kafedroy fizicheskoy i kolloidnoy khimii.

(Polymers) (Textile fibers, Synthetic) (Fillers)

S/081/63/000/004/037/051
B194/B180

AUTHORS: Yurchenko, P. F., Nizhnik, V. Ya.

TITLE: Effect of oil working conditions on the formation of gummy deposit in carburetor engines

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1963, 525, abstract 4P196 (Tr. Vses. n.-i. in-t po pererabotke nefti i gaza i polucheniyu iskusstv. zhidk. topliva, no. 8, 1959, 223-240)

TEXT: The single-cylinder carburetor engine MT9-2 (IT9-2) was used to study the effect of various conditions for motor oil operation on the formation, thickness, and composition of gummy deposits on the sides of the piston. Avtol AK-10 (AK-10) made from Baku crude and avtol AC-9,5 (AS-9,5) from eastern sulfurous crude were the oils used in this investigation and gasoline B-70 (B-70) was used as fuel. The following variable conditions were studied: the composition of the fuel mixture, temperature of the cooling fluid (ethylglycol-water, 100-180°C), ignition advance, temperature of the intake air, oil pressure in the lubricating system, oil temperature in the

ring play, flexibility of piston rings and the operating period of the oil.
Card 1/2

S/081/63/000/004/037/051
B194/B160

Effect of oil working...

(3-9.5 hours). Main influence was found to be exercised by : piston temperature; $O_2$ concentration in the gum-forming zone, which depends on the excess air factor; indicator pressure; technical condition of the cylinder-piston system and the operating time of the oil. It was found that the elementary and group chemical composition of gummy deposits in the region of piston rings varies in dependence on the working conditions of the engine. Based on these investigations a method was developed for assessing the tendency of oils to form gum in the IT9-2 engine 5 hrs experiment, 2 kg oil which is consistent with its behaviour in a full-scale carburetor engine GAZ-51 (GAZ-51). Experimental results obtained by the newly developed method are also given for the engine GAZ-51 under test-bed conditions (duration 100 and 600 hours) for different motor oils with and without additives.
[Abstracter's note: Complete translation.]

Card 2/2

NIZHNIK, V. YA.

5

S/081/62/000/005/096/112
B160/B138

11.9700

AUTHORS: Zaslavskiy, Yu. S., Shor, G. I., Shneyerova, R. N., Obedeva, F. B., Morozova, L. K., Ryabova, D. V., Stukin, A. D., Yevstigneyev, Ye. V., Yurchenko, P. F., Nizhnik, V. Ya.

TITLE: Radioactive tracer methods for studying the functional properties of oils with additives

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 5, 1962, 534, abstract 5M262 (Sb. "Prisadki k maslam i toplivam", M., Gostoptekhizdat, 1961, 263 - 269)

TEXT: A short description is given of the radioactive tracer method developed in the VNIINP for studying electrokinetic processes connected with the mechanism of the action of certain dispersive additives for heavy diesel lubricating oils. A diagram of the experimental equipment is given. Its main feature is the combined use of radiation counters as electrodes for producing the electric field and for recording the movement of the labelled dispersed phase. Soot with the radioactive isotope $Tl^{204}$

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Radioactive tracer methods for...

was used to model the dispersed phase (oil oxidation and fuel combustion products). In the radioisotope method of studying the detergent properties of oils with additives the amount of gummy deposit was measured from the absorption of $Co^{60}$ beta radiation in it. The method of studying the detergent properties of oils with additives, based on the oxidation of a thin layer of oil on a heated strip of steel, has been improved by radiometric measurement of the deposits, using $Ca^{45}$ as a source. The chemical activity of antiscoring additives was estimated by determining the kinetics of the transitions from radioactive steel (irradiated with neutrons via $Fe^{59}$) or copper (activated by introducing tracer amounts of $Ag^{110}$ into molten copper) to the oil, under the influence of the test additives. [Abstracter's note: Complete translation]

Card 2/2

KAZANSKIY, Nikolay Vasil'yevich, inzh.; NIZHNIK, Yakov Tarasovich, inzh.; KOLODEY, A.P., red.

[Roofing operations] Krovel'nye raboty. Moskva, Stroiizdat, 1964. 86 p. (MIRA 18:3)

KIZHNIKOV, A. I. and PONOMAREVA, N. K.

"Hygienic Evaluation of the Municipal Planning of the Sovkhozes of Leningrad Oblast and Methods of Improving It," paper presented a t the Scientific Conference of the Leningrad Sanitation Institute, 8-10 May 1956.

U-3,054,017

L 36105-66 EWT(d)/EWT(1)/EWP(1) IJP(c) BR/GG/GW
ACC NR: AT6014303 (N) SOURCE CODE: UR/3118/65/000/010/0098/0102

AUTHORS: Buravtsev, B. G.; Nizhnikov, E. A.

ORG: none

TITLE: A device for rapid input of data from a teletype tape to an electronic computer

SOURCE: Mirovoy meteorologicheskiy tsentr. Trudy, no. 10, 1965. Ob"yektivnyy analiz i obrabotka meteorologicheskikh dannykh (Objective analysis and processing of meteorological data), 98-102

TOPIC TAGS: weather forecasting, teletype equipment, data processing equipment, computer input unit, computer programming, data readout, data storage, photodiode

ABSTRACT: A photo-input device was developed for rapid feeding of weather data from a standard teletype tape into a computer. One photodiode is located behind each of the five code tracks and the synchronizing track of the tape. A light beam shining on the tape produces a current pulse whenever an information punch exposes a photodiode. These pulses (which can occur every 1 msec) are fed through an amplifier and a shaper which produces 0.2 msec pulses for entry in the computer. In addition to the photo-input stop and start commands there is a unit for automatically triggering the

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ACC NR: AT6014303 O

.processing program. This program, limited to 0.45 msec, operates between the information pulses (see Fig. 1). The input algorithm is varied as necessary but

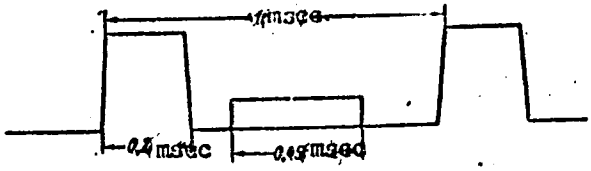


Fig. 1. Time diagram of the entry of lines and processing according to the program.

contains the following basic parts: 1) photo-input start; 2) a computer word shaper (5-digit message column to 45-digit computor code); 3) an input accuracy control (roughly counting message columns, fine control by cyclic summation of shaped code); 4) photo-input stop; 5) transition to main program. A condensation section gives a 10% reduction in stored information by abbreviating service instructions, and a test tape detects faulty tapes and defective circuits. Trials proved satisfactory, and the equipment will be placed in operational service, taking into consideration: 1) several type mechanisms used in parallel save time; 2) dark tape is best; 3) the electrical circuit can be easily expanded for more code tracks; 4) maintenance is easy due to the test tapes; and 5) the circuits can be used for the direct input of data from the communications channels. Orig. art. has: 5 figures.

SUB CODE: 09, 04/ SUBM DATE: none/ ORIG REF: 005

LS
Card 2/2

L 26573-66 EWT(1)/FCC GW

ACC NR: AP6016978 SOURCE CODE: UR/0050/66/000/003/0010/0017

AUTHOR: Nizhnikov, E. A.; Bagrov, A. N.

ORG: Hydrometeorological Scientific Research Center, Moscow (Gidrometeorologicheskiy nauchno-issledovatel'skiy tsentr SSSR)

TITLE: Automatic drawing of isolines on maps of meteorological fields

SOURCE: Meteorologiya i gidrologiya, no. 3, 1966, 10-17

TOPIC TAGS: weather map, algorithm, computer calculation, atmospheric geopotential, computer program

ABSTRACT: The authors describe an algorithm for a universal program for computations on an electronic computer for subsequent drafting of maps of meteorological fields using a two-coordinate recording instrument. The instrument has a special device for converting a numerical code into continuous voltages. The following problem is solved with this program. Assume that the values of geopotential are known at the intersections of some regular network containing m x n points. The isolines of geopotential must be drawn. This requires that the coordinates of points on the map through which the isolines are to be drawn be computed; b) these coordinates must be stored in the memory in such a sequence that after connection of these points by straight-line segments a continuous curve will be drawn. The program, which is fully described, includes the following subprograms: 1) a subprogram for computing the coordinates of the points of the isoline for a particular geopotential and compilation of a table of these coordinates; a subprogram for regularization of the table of coordinates and their reduction to the sequence for continuous drafting of isolines. The authors express their gratitude to S. L. Belousov, under whose guidance this work was completed. Orig. art. has: 4 figures and 10 formulas. [JPRS]

SUB CODE: 04, 12 / SUBM DATE: 09Nov65 / ORIG REF: 002 / UDC: 551.509.25

Card 1/1

NIZHNIKOV, V.

Economic preconditions for the October Revolution. Vop.ekon. no.5:7-18 My '57. (MLRA 10:7)
(Russia--Economic conditions)

NIZHNIKOV, V., inzh.-kapitan 2 ranga.

Atomic ship "Savanna" of the United States Merchant. Mor. flot 18 no.10: 25-27 O '58. (MIRA 11:11)
(United States--Atomic ships)

NIZHNIKOV, V., inzh.-kapitan 2-go ranga

Use of hydrazine to improve steam boiler operating conditions. (MIRA 15:12)
Mor.flot 22 no.12:35-36 D '62.
(Boilers, Marine) (Hydrazine)

NIZHNIY, I.V.

Two weathering epochs of the Late Pre-Cambrian of Eastern Siberia and possibilities of the bauxite formation. Sov. geol. 8 no.6: 155-160 Je '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.

NIZHNIY, Nikolay Ivanovich; GREBTSOV, P.P., red.; DEYEVA, V.M., tekhn.red.

[Advance payment on collective farms] Avansirovanie v kolkhozakh. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 151 p. (MIRA 12:6)

(Collective farms) (Wages)

NIZHNIY, M.I. [Nizhnii, M.I.]; KIREYEV, F.M. [Kirieiev, F.M.], red.; DEREV'YANKO, G.S. [Derev'ianko, H.S.], tekhn. red.

[Income distribution on colective farms] Oplata pratsi v kolhospakh; zbirnyk statei. Kyiv, Derzh. vyd-vo sil's'kohospodars'koi lit-ry URSR, 1960. 173 p. (MIRA 14:10)
(Ukraine—Collective farms—Income distribution)

NIZHNIY, M.I.[Nyzhnii, M.I.], kand ekon. nauk; SEREDENKO, B.M., kand. tekhn. nauk; VASILENKO, P.V., nauchnyy sotr.; CHAYKOVSKIY, A.F.[Chaikovs'kyi, A.F.], otv. za vypusk; PALIYENKO, G.D. [Paliienko, H.D.], otv. za vypusk; ONOPRIYENKO, M.M. [Onopriienko, M.M.], red.; KVITKA, S.P., tekhn. red.

[Basic regulations on establishing work norms on collective farms] Osnovni metodychni polozhennia normuvannia pratsi v kolhospakh. Kyiv, Vyd-vo UASHN, 1961. 82 p. (MIRA 16:6)

1. Kiev. Ukrains'ka Akademiya sil's'kohospodarsťkykh nauk. Ukrains'kyi naukovo-doslidnyi instytut ekonomiky i organizatsii sil's'koho hospodarstva. 2. Ukrainskiy nauchno-issledovatel'skiy institut ekonomiki i organizatsii sel'skogo khozyaystva (for Nizhniy, Seredenko, Vasilenko). 3. Chlen-korrespondent Ukrainskoy akademii sel'skokhozyaystvennykh nauk (for Chaykovskiy). 4. Nachal'nik otdela Ministerstva sel'skogo khozyaystva Ukr.SSR (for Paliyenko).
(Collective farms--Production standards)

NIZHNIY, N.I.

[Monetary wages on collective farms] Denezhnaia oplata truda v kolkhozakh. [By] N.I.Nizhnii i dr. Moskva, Sel'khozgiz, 1961. 230 p. (MIRA 15:4)
(Collective farms--Income distribution)

VDOVICHENKO, N.Kh.; DMITRASHKO, I.I., kand. tekhn. nauk; ZHELUDKOV, A.P.; ZLOMANOV, L.P.; KALPIN, G.Z.; NIZHNYY, N.I.; NIKITINA, M.V.; ROMANENKO, I.N.; BUDARINA, V., red.; USTINOV, M., red.; KIRSANOVA, I., mladshiy red.; NOGINA, N., tekhn. red.

[Agricultural wages in the U.S.S.R.] Oplata truda v sel'skom khoziaistve SSSR. [By] Vdovichenko, N.Kh. i dr. Moskva, Sotsekgiz, 1962. 147 p. (MIRA 15:6)
(Agricultural wages)

ROMANENKO, I.N., prof.; CHAYKOVSKIY, A.F.[Chaikovs'kyi, A.F.], kand. ekon. nauk; MEL'NIK, O.K.[Mel'nyk, O.K.], st. nauchnyy sotr.; USTINOVSKAYA, L.T.[Ustynovs'ka, L.T.], kand. sel'khoz. nauk; SERIDKO, A.M., kand. biol. nauk; ZHADAN, I.I., kand. sel'khoz. nauk; SEREDENKO, B.M., kand. tekhn.nauk; NIZHNIY, M.I., kand. ekon. nauk; OBZHELYANSKIY, S.Ya.[Obzhelians'kyi, S.IA.], kand. ekon. nauk; PUDENKO, G.I.[Pudenko, H.I.]; LYSYY, Yu.B. [Lysyi, IU.B.], red.; POTOTSKAYA, L.A.[Pototska, L.A.], tekhn. red.

[Intensified specialization of farm production within a district as exemplified by Khorol District, Poltava Province] Ukrains'kyi naukovo-doslidnyi instytut ekonomiky i organizatsii sil's'koho hospodarstva. Vnutriraionna pohlyblena spetsializatsiia sil's'-kohospodars'koho vyrobnytstva; na prykladi Khorol's'koho raionu, Poltavs'koi oblasti. Kyiv, Vyd-vo UASHN, 1962. 222 p. (MIRA 16:5)

1. Kiev. Ukrains'ka Akademiya sil'skohospodars'kykh nauk. 2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Romanenko). 3. Nachal'nik Khorol'skogo teritorial'nogo proizvodstvennogo kolkhozno-sovkhoznogo upravleniya, Poltavskaya oblast' (for Pudenko). (Khorol District--Agriculture)

L 01829-67EWP(e)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/DJ

ACC NR: AP6035622 SOURCE CODE: BU/0011/65/018/011/0991/0994

AUTHOR: CHERKASOV, I. D., Nizhniy Tagil - USSR

TITLE: Transformation of the Heat Transfer Equation Through Porous Media for the Case of an Infinite Oil Stratum

SOURCE: Sofia, Doklady Bolgarskoy Akademii Nauk, Vol 18, No 11, 1965, pp 991-994

ABSTRACT: (Russian article) The author studies the process of heat exchange between a porous medium and the heat carrier. The pertinent equations are specialized for the case of an infinite oil stratum, and the conditions needed for the solvability of these equations are formulated in the form of two theorems. The calculations are carried out for the case of heat exchange during an irrotational flow with the thermal conductivity as function of time only. This paper was presented by Academician Khr. Khristov on 22 July 1965. Orig. art. has: 16 formulas. (JPRS: 36,645)

TOPIC TAGS: thermal conductivity, conductive heat transfer

SUB CODE: 20 / SUBM DATE: 22Jul65 / SOV REF: 004

Card 1/1 fv

0922 0022

AUTHOR: Nizhniy, S.M., Engineer ("Tochelektropribor" Works).433

TITLE: Standard capacitors. (Obraztsovye mery emkosti.)

PERIODICAL: "Vestnik Elektropromyshlennosti" (Journal of the Electrical Industry) 1957, Vol. 28, No. 5, pp. 70 - 74 (U.S.S.R.)

ABSTRACT: This article is virtually a catalogue of the standard capacitors and capacitance decade boxes that have been developed by the "Tochelektropribor" factory. Four capacitance decade boxes are first described, they are based on mica or air capacitors and are of 0.5 class accuracy. The first box gives a total capacitance of 1.11 microfarads in steps of 0.001 microfarads. The second box is used to extend the range of the first and has two stages of 1 microfarad. Both boxes are screened. The third box has a maximum capacitance 1,110 pf in stages of 1 pf. These are air dielectric capacitors. The fourth box is similar to the first but contains an additional decade in the form of a screened air capacitor. The total range is 1.111 microfarads in steps of 20 pf. Accurate standard capacitors of from 50 to 4 000 pfs each are described. They can be plugged into one another in the form of a stack. A standard variable air capacitor of 100 pf is described; two high voltage standard air capacitors, one of 100 and the other of 50 pfs for voltages of 10 and 35 kV respectively are described.
6 figures, no literature references.

S/194/61/000/007/002/079
D201/D305

AUTHORS: Nizhniy, S.M. and Budnitskaya, Ye.A.

TITLE: Equipment for testing soft magnetic materials at higher frequencies

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 6, abstract 7 A40 (Vopr. obshch. elektropriborostr. Kiyev, AN USSR, 1960, 112-123)

TEXT: A description is given of the equipment type Y520 (U520) designed by the factory "Tochelektropribor" for determining the properties of magnetic materials under the action of sinusoidal voltage or of the sinusoidal induction of the magnetic field of the specimen tested. The equipment operates at 500, 1000, 2400 and 4800 c/s. The equipment is used for determining the relationship between the actual magnetic permeability and induction or the field strength and for determining specific losses as a function either of induction or magnetic field strength. The magnitude of the magnetic

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Equipment for testing...

field strength as applied to the specimen varies between 0.01 and 1 oersted with a non-distorted shape of the magnetizing current in the sample. The maximum measurable value of the magnetic induction in the sample is determined up to the instant when distortion of the voltage across the winding begins to appear. The magnetic permeability of the sample may be 100 and over, the tan $\delta$ 0.04 - 0.6. Toroidal shaped samples are used with a minimum weight of about 20 g. For special materials their characteristics may be taken for field intensities $< 0.01$ and $> 1$ oersted. The U520 equipment is based on the 4-arm bridge circuit. The null detector consists of a frequency selective amplifier with output meter. The amplifier sensitivity is 10 microvolt per division of the output meter. Input resistance of the amplifier is greater than 10 k ohm. The amplifier has an input transformer and 4 amplifying tube stages with LC resonant circuits in the second and third stage. The sensitivity may be regulated within a wide range. The frequency selectivity attenuates the third harmonic by up to 60 db. The operation of the sample analyzed is controlled by a voltmeter which measures the poten-

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Equipment for testing...

tial drop across a resistance connected in series with the magnetizing winding of the sample. The shape of the current or voltage waveform is controlled by means of a CRO. The supply of the equipment consists of an AF generator, power amplifier and a distribution system. The maximum supply voltage is about 250 V. The principles of the given method of measurement are discussed and comparisons with other methods made. The analysis of the bridge circuit is given and the circuit is compared with its other variants. The complete circuit of the equipment and its general view are given.
[Abstracter's note: Complete translation]

Card 3/3

BUDNITSKAYA, Ye.A.; NIZHNIY, S.M.

Equipment for the determination of magnetic characteristics at frequencies up to 10 kilocycles. Trudy inst. Kom.stand.mer i izm. prib no.64:160-167 '62. (MIRA 16:5)
(Magnetic measurements)

L 29245-66 EWP(j)/EWT(m)/T IJP(c) GG/RM

ACC NR: AP6019308 SOURCE CODE: UR/0074/65/034/010/1733/1752

AUTHOR: Bakh, N. A.; Vannikov, A. V.; Grishina, A. D.; Nizhniy, S. V.

ORG: Institute of Electrochemistry, AN SSSR (Institut elektrokhimii AN SSSR)

TITLE: Polyethylene-based organic semiconductors

SOURCE: Uspekhi khimii, v. 34, no. 10, 1965, 1733-1752

TOPIC TAGS: organic semiconductor, polyethylene plastic, linear accelerator, paramagnetism, photoconductivity

ABSTRACT: The electrophysical and paramagnetic properties of the products of the radiation-thermal modified polyethylene were studied in relation to the absorbed dose and to the conditions of thermal treatment. Conductivity in a constant and variable field, its temperature relationship, differential thermal-e.m.f., structure of the products by EPR and IF-spectroscopic methods, as well as the effect of the contaminating additives and photoconductivity were investigated in a wide range.

The products of the radiation-thermal modified polyethylene were studied as powders and as films. The films were applied to glass or quartz substrates with preliminarily applied gold electrodes. Irradiation of the specimens was conducted in vacuum ampoules (~10-5 mm Hg) with fast electrons (5 mev) from the U-12 linear accelerator. Thermal treatment of the irradiated specimens was

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conducted by the standard method according to which the irradiated specimen was subjected to short-term oxidation at 260°C and subsequent pyrolysis in a vacuum. Study of the electrical characteristics of the specimens in a constant field was conducted in a vacuum ($\sim 10^{-5}$ mm Hg). The film specimens were studied as surface or laminated elements which were placed in a special container. Electrophysical properties of powder products were measured in the element with disc plate electrodes at +20- +150° in vacuum and air and at +20--50° in the case of iodine adsorption on the specimens.

Measurements in a constant field were made with the Ye6-3 teraohmmeter or MO-47 bridge in the case of low ohmic specimens. Conductivity in the variable field was measured with the Ye10-2 full conductance bridge.

Most of the results presented in this article were obtained on films of radiation-thermal modified polyethylene. Electrophysical properties were studied on polyethylene specimens irradiated up to the absorption of three different doses: $1.2 \times 10^3$, $6.9 \times 10^3$, and $2.4 \times 10^4$ megarads. Measurements of specimen conducitivity in the range -25- + 150°C indicated excellent satisfaction with the exponential relationship:

$$\sigma = \sigma_0 \exp(-\Delta E/kT)$$

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ACC NR: AP6019308

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Measurements of the differential thermal-e.m.f. indicated that the prepared materials are p-type semiconductors. In the -50- + 150°C region the differential thermal-e.m.f. does not depend on the average temperature of the specimens in the limits of experimental error. The values of $\sigma_{20}$, $\Delta E$, and $\sigma$ in relation to the dose absorbed by polyethylene and the thermal treatment temperature for powder and film specimens are presented. Orig. art. has: 14 figures, 15 formulas and 5 tables. [JPRS]

SUB CODE: 20, 11 / SUBM DATE: none / ORIG REF: 020 / OTH REF: 010

Card 3/3 CC

S/137/62/000/003/187/191
A154/A101

AUTHORS: Nizhnyak, A. T.; Chaus, I. S.

TITLE: A method of polarographic determination of indium

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 7, abstract 3 K 36 (Sb. "Khim., fiz.-khim. i spektr. metody issled. rud redk. i rasseyan. elementov". Moscow, Gosgeoltekhizdat, 1961, 92 - 95)

TEXT: A simplified amalgam method is proposed for determining hundredths of a percent of In in industrial products and waste. The initial sulfuric acid solution is treated with Zn amalgam, whereby all elements hindering polarographic determination of In are eliminated, the In is remaining in the solution. Cd, Sn, Tl and Cu are dissolved in Hg. As, Sb, Bi, Se and Te are separated in their elementary state in the form of an insoluble black loose precipitate. Elements of higher degrees of oxidation ($Fe^{3+}$, $Ti^{4+}$ etc.) are reduced by amalgam. The amalgam is prepared by direct solution of metallic Zn in Hg during slight heating in the presence of an $H_2SO_4$ solution. 1 - 3 g of the material to be analyzed is treated by an $HNO_3$ + $H_2SO_4$ mixture during heating in a porcelain cup until complete decomposition and liberation of copious $SO_3$ vapors. After cooling, the

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BAKH, N.F.; VANNIKOV, A.V.; GRIBOVA, L.S.; NIKITIN, S.V.

Organic semiconductors based on polyethylene. Zhur.fiz.khim. 34
no.10:2133-2134 O '60. (MIRA 18:11)

1. Institut elektrokhimii AN SSSR.

KOZINKA, Vladimir; KLASOVA, Albina; NIZHNYANSKI, Augustin [Nizmansky, Augustin]

Changes in the physiological regulation of transpiration caused by the action of industrial wastes. Biologia 18 no.8:565-578 '63.

1. Otdeleniye fiziologii rasteniy Botanicheskogo instituta Slovatskoy akademii nauk, Bratislava.

KISELEV, Igor' Yakovlevich; MOSHENSKIY, Mark Grigor'yevich;
NIZHNYAYA, S.I., red.

[Bourgeois labor theories in the service of monopolies]
Burzhuaznye teorii truda na sluzhbe monopolii. Moskva,
Mysl', 1965. 139 p. (MIRA 18:5)

MATUVSKAYA, A.A.; NIZHUTINA, V.M.; IBRAGIMOVA, F.Sh.

Simultaneous determination of carbon, hydrogen, and sulfur in organic compounds. Khim.sera-i azotorg.soed.sod.v neft.i nefteprod. 3:149-150 '60. (MIRA 14:6)

1. Bashkirskiy filial AN SSSR, Otdel khimii.
(Carbon—Analysis) (Sulfur—Analysis) (Hydrogen—Analysis)
(Sulfur organic compounds)

NIZAMBETOVA, A.N., Cand Med Sci--(diss) "Embryogenesis of the skin on various parts of the human body." [Alma-Ata, 1959]. 19 pp (Kazakh State Med Inst), 300 copies (KL,27-59,123)

NIZINA, G.

USSR / Cultivated Plants. Potatoes. Vegetables. Melons. II

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 34686

Author : Nizina, G.
Inst : Not Given
Title : Potatoes in the District of Issyk-Kul'skiy

Orig Pub : S. kh. Kirgizii, 1957, No 6, 12-19

Abstract : By applying the method which provides for the spreading of varying amounts of mineral and organic fertilizers in the experimental fields of Prshchoval'skiy, best results were obtained by combined spreading of mineral and organic fertilizers (437.6 kwt/h). Surface spreading of fertilizers (over plowed fields and in pre-sowing cultures, as well as in hole-planting) made it possible to reduce the amount of fertilizers, yet keeping the yield on a high level

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