DEM'YANCHUK, A. S

KUDELYA, Ye.S.; DEM'YANCHUK, A.S.; RYABUSHKO, O.P.

Local spectrum analysis of weld joints and metal alloys. Avtom. svar. 10 no.5:49-55 S-O '57. (MIRA 10:12)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.

(Spectrum analysis)

DEM'YANCHUK, A.S.; KUDELIYA, Ye.S.

Peculiarities of the spectral determination of carbon, phosphorus, and sulfur in metal alloys. Fiz.sbor. no.4:535-538 '58. (MIRA 12:5)

1. Ordena Trudovogo Krasnogo Znamni Instituta elektrosvarki imeni akademika Ye.O.Patona AN USSR.
(Carbon--Spectra) (Sulfur--Spectra) (Phosphorus--Spectra)

AUTHOR: Dem'yanchuk, A.S. SOV-125-58-8-7/16

TITLE: Simultaneous Determination of Carbon and Other Impurities in Steel and Cast Iron by the Spectral Method (Odnovremennoye opredeleniya ugleroda i drugikh primesey v stalyakh i chugunakh spektral'nym metodom)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 8, pp 41-45 (USSR)

ABSTRACT: Information is presented on a method of simultaneous spectral analysis of the content of carbon and other impurities in steel or cast iron, developed by the author. An analysis of cast iron standard "DG-1" arc-generator (high frequency) or "IG-2" condensed spark generator can be used as a source for excitation of the spectrum. The chosen technology permits the determination of the silicon, magnesium, manganese and carbon content in cast iron by a single spectrum photograph. The method can also be used to check the distribution of these elements in weld joints of gray and high-resistance iron. There are 5 graphs, 3 tables and 3 Soviet references.

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SOV-125-58-8-7/16

Simultaneous Determination of Carbon and Other Impurities in Steel and Cast Iron by the Spectral Method

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona, AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: May 8, 1958

1. Steel--Properties 2. Cast iron--Properties 3. Spectrum analyzers--Applications

Card 2/2

DEM'YANCHUK, A.S.

Using mean-dispersion spectrographs in determining the carbon content in high-alloyed steels [with summary in English]. Inzh.-fiz. zhur. no. 9:116-118 S '58. (MIRA 11:10)

1. Institut elektrosvarki AN USSR, g. Kiyev.
(Steel alloys--Testing)
(Spectrometry)

SOV-125-58-10-11/12

AUTHORS: Demyanchuk, A.S. and Ryabushko, O.P.

TITLE: Spectral Analysis of High-Silicon Aluminum Alloys and Weld Joints (Spektral'nyy analiz vysokokremnistykh alyuminiyevykh splavov i svarnykh shvov)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 10, pp 86 - 89 (USSR)

ABSTRACT: Information is presented on a method of spectral analysis to determine the amount of basic alloying admixtures in high-silicon aluminum alloys and weld joints with excitation of the spectrum by high frequency discharge. It was stated that a high silicon content (6 - 15 %) did not affect the results of determining other admixtures. The spectral analysis of aluminum alloys of different chemical composition is possible with the use of a unique standard system. The error factor in the suggested method did not exceed ± 4% for all elements contained in the analyzed specimen.

Card 1/2

Spectral Analysis of High-Silicon Aluminum Alloys and Weld Joints

There are 3 graphs, 1 table and 5 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton)

SUBMITTED: June 16, 1958

1. Aluminum alloys--Welding 2. Aluminum alloys--Spectrographic analysis 3. Welds--Spectrographic analysis 4. High frequency discharges

DEM'YANCHUK, A.S.

Using spectrum analysis for quantitative determination of minor content of boron, arsenic, tellurium, and phosphorus in steels. Inzh.-fiz.zhur. no.10:88-93 O '58. (MIRA 11:11)

1. Institut elektrosvarki imeni Ye.O. Patona AN USSR, g.Kiyev.
(Steel alloys--Testing) (Spectrum analysis)

AUTEOR: Dem'yanchuk, A.S. SOV/125-58-11-5/16

TITLE: Determination of Carbon in Steel with the Use of a Styloscope (Opredeleniye ugleroda v stalyakh s pomoshch'yu stiloskopa)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 11, pp 37-39 (USSR)

ABSTRACT: The author developed a new method to determine carbon content in steel and weld joints by spectral analysis with the use of the "SL-3" styloscope. The method is described in detail and technological recommendations for the excitation and observation of the carbon spectrum are given. Data obtained by comparison of chemical and styloscopical analyses of the carbon content in steels and weld joints, shows that the suggested method and the chosen way of generator operation (with the autotransformer connection) ensure the necessary accuracy, and can be used for express analyses of steel.
There are 2 tables, 2 diagrams and 3 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: August 27, 1958

Card 1/1

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000310110015-9"

DEM'YANCHUK, A.S.

Simultaneous determination of carbon and other impurities in steel and cast iron by the spectrum method. Avtom. svar. 11 no.8:41-45 Ag '58. (MIRA 11:10)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR.
(Steel--Spectra) (Cast iron--Spectra)

[redacted]'YANCHUK, A.S., kand. tekhn. nauk; RYABUSHKO, O.P., inzh.

Spectrum analysis of high-silicon aluminum alloys and welded joints. Avtom. svar. 11 no.11:86-89 O '58. (MIRA 11:12)

1.Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Aluminum alloys--Spectra)
(Electric welding--Testing)

AUTHORS: Dem'yanchuk, A.S., Shifman, M.Ye., Rekitar, M.I. 32-24-6-25/44

TITLE: The Photographic Method of Analyzing Iron- and Nonferrous Alloys on the Spectrograph ISP-51 (Fotograficheskiy metod analiza chernykh i tsvetnykh splavov na spektrografe ISP-51)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 751-752 (USSR)

ABSTRACT: As the most sensitive spectral lines of alkali metals and alkaline earth metals are within the visible spectral range, it is obvious that the determination of Al, Cr, Ti and other elements in iron alloys be carried out within this range, for which purpose the spectrograph mentioned in the heading can be used. The optimum conditions for analyses carried out by means of the spectrograph mentioned are given as well as a table showing the pairs used in the analysis of iron alloys, the entire analysis of the alloys being carried out according to one spectrogram. The spectral analysis of aluminum alloys is carried out under the same conditions with the only difference that the current of the light arc is somewhat weakened and that the time for previous irradiation is reduced. The pairs of lines for determinations of this kind are also given, and it is said in this connection that concentrations

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The Photographic Method of Analyzing Iron- and Nonferrous Alloys on the Spectrograph ISP-51

32-24-6-25/44

of 0.001-0.01% of admixtures can be determined, which is sufficient to satisfy the demands made by the industry and, in many cases, by scientific work. The method of three etalons was employed, for which purpose the etalons VA MI No 2,4,5 and the brands AL 9 and A L10 were used. The relative error is mentioned as amounting to 4% and the two methods mentioned are being employed by the plant mentioned below for serial analyses. There are 2 tables, and 1 reference, 1 of which is Soviet.

ASSOCIATION: Kiyevskiy mekhanicheskiy zavod (Kiyev Machine Plant)

1. Aluminum alloys--Spectrographic analysis 2. Iron alloys --Spectrographic analysis 3. Metals--Determination

Card 2/2

18 (2, 3, 5), 24 (7) SOV/125-59-11-15/22

AUTHORS: Dem'yanchuk, A.S., Candidate of Technical Sciences, and Ryabushko, O.P., Engineer

TITLE: Spectrum Analysis of Welded Joints of Duralumin Type Alloys

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 11, pp 90-92 (USSR)

ABSTRACT: As a source of energy for obtaining spectrum, a high-frequency spark generator was used. The effect of treatment by sparking on the main duralumin alloying components - copper, magnesium and silicon - is shown in Fig 1. The influence of magnesium and copper on the results of spectral determination of manganese and silicon is illustrated in Fig 2. Duralumin, Type D-16, was researched; its chemical composition after being heat-treated in three different ways is shown in Table 1. Analytic pairs of lines for welded joints are given in Table 2. References are made to the previous works in this field: [1] Ye. S. Kudelya and A.S. Dem'yanchuk "Spectrum Analysis of Welded Joints of Some Copper

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Spectrum Analysis of Welded Joints of Duralumin Type Alloys

and Aluminum Alloys"; [2] Authors of this article "Spectrum Analysis of High-Silicon Aluminum Alloys and Welded Joints"; [3] K.A. Sukhenko "Spectrum Analysis of Steels and Alloys". There are 2 graphs, 3 tables and 3 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O. Paton AS UkrSSR)

SOV/125-59-3-9/13

13(7),25(5)
AUTHOR: Dem'yanchuk, A.S., Ryabushko, O.P.

TITLE: Spectral Analysis of Welding Seams on Magnesium-Aluminum Alloys (Spektral'nyy analiz svarnykh shvov na alyuminiyevo-magniyevykh splavakh)

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 3, pp 69-73 (USSR)

ABSTRACT: The influence of the material of the electrodes on the results of analysis as well as the influence of thermic treatment (e.g. welding) and of the alloyed components with the aluminum-magnesium alloy AMg 6 were tested. Fig. 1 shows the comparison of graphite (1), copper (2), and aluminum (3) electrodes. It is evident that a graphite-electrode, because of the highest intensity of the spectral lines, is the best one. The experimental results (Tab. 1) show that the influence of magnesium on aluminum and the influence of iron on aluminum as well as different temperatures (max. 500°C) do not cause chemical changes in the composition of the alloy AMg 6. The

SOV/125-59-3-9/13

Spectral Analysis of Welding Seams on Magnesium-Aluminum Alloys

spectroscopic results are, compared with the chemical analysis, within the limit of error. There are 5 graphs, 3 tables and 1 Soviet reference.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki im. Ye. O. Patona AN USSR (Order of the Red Banner of Labor Institute for Electro-Welding im. Ye. O. Paton, AS UkrSSR)

SUBMITTED: November 11, 1958

Card 2/2

18(7) SOV/125-12-4-12/18

AUTHOR: Demyanchuk, A.S., Candidate of Technical Sciencee, Plotnitskiy, V.M. and Ryabushko, O.P., Engineers

TITLE: New Possibilities to Use the Generator IG-2 for Spectrum Analysis of High Steels and Weldings

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 4, pp 89-91 (USSR)

ABSTRACT: The authors show a new set up for the generator IG-2 (Figure 1). An additional resistance if placed in series to the analytic interspace. The bypass-condenser is parallel to the analytic interspace. This increases the energy of the spark discharge. Within the generator there is no changing necessary. Ya.P. Bel'kevich /Ref 2/ warned against the use of generator IG-2 for an analysis of lead and brass, because the lead-lines appeared very poor. Even with long expositions (8-10 minutes) the spectrum line of a sample with 2% lead was too poor to be measured.

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SOV/125-12-4-12/18

New Possibilities to Use the Generator IG-2 for Spectrum Analysis of High Alloyed Steels and Weldings

There are 3 graphs, 1 cricuit diagram and 2 Soviet references.

ASSOCIATION: Ordena trudovogo krasnogo znamine institute elektro-svarki im. [illegible].O. Patona AN USSR (Institute of the Order of the Red Banner of Labor for Electric Welding imeni [illegible].O. Paton, AS UkrSSR)

[illegible]: January [illegible], 1959

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SOV/125-12-6-12/14

AUTHORS: Dem'yanchuk, A.S, Candidate of Technical Sciences and Ryabushko, O.P., Engineer

TITLE: Quantitative Identification of Boron by Spectrum in Welded Joints and High Resistance Welding

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 6 (75) pp 89-90 (USSR)

ABSTRACT: The author presents a method to analyze boron by spectrum in welded joints, which has been described by him in an other article (Ref 1). He states, that for this method the spark generator IG-2 can be used. The corresponding switching is described by the author in (Ref. 2). This method is used extensively in the laboratories of Institut elektrosvarki imeni Ye.O.Patona (Institute of Electric Welding imeni Ye.O. Paton). There are 2 Soviet references

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elekro-

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SOV/125-12-6-12/14

Quantitative Identification of Boron by Spectrum in Welded Joints and High Resistance Welding

svarki imeni Ye.O.Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton AS UkrSSR of the Order of the Red Banner of Labor).

SUBMITTED: February 20, 1959

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5(2)
AUTHORS: Dem'yanchuk, A. S., Kukharenko, Ye. D. SOV/75-14-1-8/32

TITLE: Spectro-Chemical Determination of Magnesium and Influence of the Magnesium Content on the Results of Silicon and Manganese Analysis in Cast Iron (Spektrokhimicheskoye opredeleniye magniya i vliyaniye yego soderzhaniya na rezul'taty analiza kremniya i margantsa v chugunakh)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 1, pp 45-49 (USSR)

ABSTRACT: Cast iron usually contains 0.03 - 0.12% magnesium, to be found chiefly in compounds. (Ref 1). The authors of the present paper worked out a spectral-analytical determination method for magnesium in cast iron, by using a high-frequency spark as the energy source to excite the spectrum, (Ref 4). The determinations were carried out on an average dispersion spectrograph of the firm "Khil'ger" under earlier described conditions (Ref 5). An erect copper electrode was employed. The lines Mg 2802.69 Å - Fe 2806.98 Å served as analytical line pair. The method elaborated permits the determination of 0.005% and more of magnesium. The calibration straight line of the determination is characterized by a steep ascent. It is

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Spectro-Chemical Determination of Magnesium and Influence of the Magnesium Content Upon the Results of Silicon and Manganese Analysis in Cast Iron SOV/75-14-1-6/22

illustrated in the paper. Reproducibility of results is good. It was found that the intensity of the spectral lines of silicon and manganese in cast iron strongly depends on the cast iron magnesium content in the alternating current - arc discharge. The line intensity of these elements increases markedly with growing magnesium content. With a magnesium content >0.06% 1 1/2 - 2 times as much silicon and manganese is found on the basis of the lines, as is actually contained in the metal. This effect bases on the fact that magnesium influences the evaporation process of silicon and manganese in the arc and consequently, also the determination results. When working with a generator IG-2 (condensed spark) and with a high-frequency spark, the magnesium content has no influence upon the spectral determination of Si and Mn. The working conditions under which the authors carried out their investigations are described. The results of a number of

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Spectro-Chemical Determination of Magnesium and Influence of the Magnesium Content Upon the Results of Silicon and Manganese Analysis in Cast Iron

SOV/75-14-1-8/32

determinations of silicon and manganese in the presence and in the absence of magnesium according to both methods (with and without generator IG-2) are tabulated. There are 5 figures, 3 tables, and 10 Soviet references.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona i Institut mashinovedeniya AN USSR, Kiyev (Institute of Electric Welding imeni Ye. O. Paton and Institute of Machine Building, AS UkrSSR, Kiyev)

SUBMITTED: November 25, 1957

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SOV/48-23-9-41/57

24(7)
AUTHORS: Kudelya, Ye. S., Dem'yanchuk, A. S.

TITLE: On Some Methods of Standardization in the Analysis of Alloys

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 9, pp 1143 - 1144 (USSR)

ABSTRACT: In the analysis of various industrial alloys the authors used only one standard sample in contrast to the normal method in which three standard samples were used. The exactness of the analysis is practically not diminished as shown in practice. First, the authors employed the so-called method of "interrupted exposure" (interrupted exposure), in which the spectrum of the standard is recorded by exposures of t, 2t/3, 1t/2 and 1t/3, in which case in the last three spectrograms the photograph of the spectrum of the base material is additionally superimposed with the times of exposure 1t/3, 1t/2 and 2t/3. Evaluation of the spectrum is carried out in a similar manner as in the case of the use of three standards. Figure 1 shows a calibration curve for the deter-

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mination of Si in steels, which was constructed by this method. Further, the method of "dosed exposure" is described, in which a series of spectra of one standard is produced with times of exposure which are partly greater and partly smaller than t. From these photographs concentration is then determined by calculation. As an example figure 2 shows the calibration curve for the determination of nickel in steels, which was developed according to this method. The calibration curve was developed by means of two different standards and is therefore forked in its upper part. For the calculation of the nickel content formula (1) is then given. This formula, however, applies only to the range in which both calibration curves coincide. Formula (2) makes the empirical calculation of concentration in the upper part of the calibration curve possible. There are 2 figures.

ASSOCIATION: Institut elektrosvarki imeni Ye. O. Patona Akademii nauk USSR (Institute for Electrical Welding imeni Ye. O. Paton of the Academy of Sciences, UkrSSR)

5(2) SOV/32-25-5-21/56

AUTHOR: Dem'yanchuk, A. S.

TITLE: Simultaneous Determination of Carbon and Alloying Elements in Steel (Odnovremennoye opredeleniye ugleroda i legiruyushchikh elementov v stali)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 5, pp 581-583 (USSR)

ABSTRACT: In the case of a spectral analysis of carbon and alloying elements in steel it is recommended (Refs 1, 2) to apply a high-frequency discharge and to decrease the diameter of the invariable electrode. A diagram is given of the spraying effect for carbon, obtained at high frequency and a magnesium electrode diameter of 1.6 and 2.5 mm (Fig 1), wherefrom it may be observed that the intensity of the spectral line for carbon C III 2296.86 with a smaller electrode diameter already stabilizes after 70 seconds. An increase in the electrode diameter augments but to a small extent the intensity of the spectral line; it impairs, however, the discharge stability (Fig 2). In another work (Ref 3) an investigation was directed onto the influence exerted by the diameter of the invariable copper electrode upon the spraying effect, and in the case under review it was found that practically the same course may be observed with a magnesium electrode, and that analysis may

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Simultaneous Determination of Carbon and Alloying Elements in Steel

be carried out without prior spraying. The conditions required for a spectrograph for the simultaneous determination of carbon and other impurities were laid down. The spectral lines used are mentioned (Table 1), and analysis was carried out according to the method of the three standard samples with the utilization of the series UIM Nr 4 and 5. A comparison is established between analytical results obtained with the spectral and chemical method on a welding seam (C, Si and Mg). There are 3 figures, 2 tables, and 4 Soviet references.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona Akademii nauk USSR (Institute of Electrical Welding imeni Ye. O. Paton of the Academy of Sciences UkrSSR)

Dem'yanchuk, A.S.

28 (5) SOV/32-25-8-28/44

AUTHORS: Gegechkori, N. M., Perminova, V. M., Veselovskaya, I. N., Gusarskiy, V. V., Kozovlev, I. A., Dem'yanchuk, A. S., Galishnikova, Z. P., Padan, G. A., Mamot, Zh. A., Stukovenkova, K. N., Sukhenko, K. A., Baramsheva, V. V., Pishin, I. G., Amirkhanov, Sh. Kh.

TITLE: News in Brief

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 8, pp 981-985 (USSR)

ABSTRACT: 1) The authors determined the impurities of Si, Fe, Al, Mn, Mg, Cu, Ca, Bi, Pb, Sb, and Na in thorium dioxide with a sensitivity of 10^{-2}-10^{-4}% by burning a briquette from the sample mixed with carbon powder (3:1) in the crater of a carbon electrode type "ryumka". The spectograph ISP-22 was used. The analytical doublets are listed. 2) The author reports on the application of a photoelectric device FES-1 for the rapid analysis of open-hearth furnace slag for silicon dioxide (15-30%), calcium oxide (25-55%) and complete iron (5-15%). There is a description of the operational method. 3) The laboratoriya zavoda (Plant laboratory) applies a spectrum method for the determination of titanium impurities (of an approximately 0.01% concentration) in aluminum

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alloys according to a series of standard samples. A spectrograph ISP-22 and an ac arc generator PS-39 were used. 4) The author reports on a method for localised spectrum analysis of steels and welded seams for the determination of phosphorus. The distribution of P was investigated in thin layers (up to 0.02 mm) of metals and welding seams by the use of a DG-1 generator and a quartz spectrograph and the phosphorus contents of microscopic inclusions and thin coatings were investigated. 5) The author determines calcium oxide and ferrous oxide in slags of electric furnaces in which the slag sample (0.2 g) was wetted with a saturated aqueous copper sulfate solution (2 ml) subsequently dried and put in the craters of two arc carbon electrodes. Spectrograph ISP-22 and generator DG-1 were used. 6) The author analysed magnesite and magnesitic refractory substances by mixing the sample with carbon and barium nitrate (1:2:1) and evaporating it in the crater of a carbon electrode in an ac arc. A spectrograph ISP-22 was used. The use of this method was introduced at the Plant "Magnezit", Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Kombinat) and Zaporozhskiy zavod ogneuporov (Zaporozh'ye Plant of Refractory Materials). 7) The authors apply a spectrum method for the determination of phosphorus

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pentoxide in zirconium dioxide. The determination takes only 2 hours. 20 mg of the sample mixed with carbon (1:1) is put into the carbon electrode and the spectrum lines are measured with a spectrograph ISP-28. 8) The authors, working in the laboratoriya instituta (Institute Laboratory) report the preparation of standard samples from technical Ti for the determination of hydrogen by the spectrum method. The article contains a description of the preparation method and the determination results according to different methods of the hydrogen in standard samples (Table). The difference is maximum relative ± 13.5%. 9) The author reports on a simple spectrum method for the determination of small quantities of Ba and Mn in calcium chloride water of high mineral contents. He used a spectrograph ISP-22, microphotometer MF-2 and standard samples. There are 1 figure and 1 table.

ASSOCIATION: 1) Laboratoriya nauchno-issledovatel'skogo instituta (Laboratory of the Scientific Research Institute), 2) Zavod "Serp i molot" (Plant "Serp i molot"), 4) Institut elektrosvarki im. Ye. O. Patona Akademii nauk USSR (Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences of the UkrSSR), 5) Stalingradskiy metallurgicheskiy zavod "Krasnyy Oktyabr'" (Stalingrad Metallurgical Plant "Krasnyy Oktyabr'"), 6) Vsesoyuznyy nauchno-issledovatel'skiy institut ogneuporov, Khar'kov (All-Union Scientific Research Institute of Refractory Materials, Khar'kov), 7) Zhdanovskoye rudoupravleniye, g. Volnovakha (Zhdanov Mining Administration, City Volnovakha), 9) Ufimskiy neftyanoy nauchno-issledovatel'skiy institut (Ufa Petroleum Scientific Research Institute)

DEM'YANCHUK, A.S., RYABUSHKO, O.P.

Spectral analysis of aluminum and nickel alloys. Inzh.-fiz. zhur. no.4:111-114 Ap '60. (MIRA 13:8)

1. Institut elektrosvarki im. Ye.O.Patona, Kiyev.
(Aluminum alloys--Spectra) (Nickel alloys--Spectra)

S/185/61/006/006/026/030
D299/D304

18.8111

AUTHOR: Dem'yanchuk, A.S.

TITLE: On a general-purpose light source and a standard method for the spectral analysis of metals and alloys

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 6, no. 6, 1961, 869 - 872

TEXT: All the basic requirements which spectral analysis (in the service of industry) has to meet, could be satisfied by developing an a.c.-arc light source with a high-voltage condensed spark. The construction of such a general-purpose device, incorporating the standard-type generators ИГ-2 (IG-2) and ИГ-3 (IG03), would open many new possibilities in spectral analysis. Hence a modification is proposed to S.M. Rays'kiy's well-known scheme for the IG-2 generator. This modification involves the insertion of additional capacitors, a resistor and a voltage stabilizer. The author tested the modified version of the generator and ascertained the optimum operating conditions which would ensure greatest possible accuracy of analysis. The supplementary units to the IG-2 generator, can be

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On a general-pupose light source ...

fitted in any spectral laboratory. Using the modified device, it is possible to analyze very thin surface layers of metals with least damage to the surface, to analyze very small specimens, thin filaments and alloys of complex chemical composition. Hence the modified generator IG-2 (IG-3) can be used as a general purpose source, and it becomes possible to envisage the standardization of all methods of spectral analysis of metals and alloys. The error in determining the concentration of impurities in metals and alloys, is 1 - 1.5 %, if the modified device is used. This compares favorably with other devices. Further, the characteristics are given of the modified version of the IG-2 generator, used for the analysis of metals and alloys. The spectra were taken by means of the spectrograph ИСП-28 (ISP-28). The 3-specimen method was used as the method of analysis. A table shows the analytic pair of lines chosen for the spectral analysis. The above-described stable light source makes it possible to use a simple and accurate standard method of analysis in each laboratory. There are 2 figures, 1 table and 5 Soviet-bloc references.

ASSOCIATION: Instytut elektrozvaryuvannya im. Ye.O. Patona AS UkrRSR (Electric Welding Institute im. Ye.O. Paton of the AS UkrRSR, Kyiv)

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DEM'YANCHUK, A.S.

Methods of determining carbon in iron alloys by means of spectrum analysis. Avtom.svar. 14 no.7:90-91 Jl '61. (MIRA 14:7)
(Iron alloys--Spectra) (Carbon--Spectra)

DEM'YANCHUK, A.S.; YAKOVENKO, A.A.

Spectral analysis of magnetic alloys. Zav.lab. 23 no.5:565-566 '62. (MIRA 15:6)

1. Institut elektrosvarki imeni Ye.O.Patona AN USSR.
(Alloys--Magnetic properties) (Spectrum analysis)

S/032/62/028/011/014/015
B104/B102

5.5310

AUTHOR: Dem'yanchuk, A. S.

TITLE: Universal light source for the spectrum analysis of metals

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 11, 1962, 1389

TEXT: A modified circuit diagram of the IG-2 (IG-2) spark generator (Fig.) is given. This serves for the spectroanalytical examination of very thin surface layers of metals, of finished parts without notably damaging their surfaces, and of small-dimensioned specimens. The following modifications were made: (1) An additional resistor R' (4 kiloohms, 400 - 500 w) and an additional capacitor C' (0.01 μf, 15 kv) were connected in series with the analytic gap (I). A shunting capacitor C" (200 pf, 15 kv) was connected in parallel with (I). A ferroresonance voltage stabilizer was connected in parallel with the primary coil of the transformer. Further, a current stabilizer was installed. The following working conditions are recommended: inductance 0.15 mh, capacitance 0.005 μf, electrode spacing in the working gap 3 mm, amperage in the primary circuit 1.6 - 1.8 a, electrode spacing in the spectroanalytic

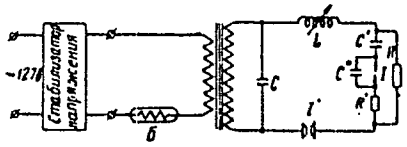
Card 1/2

Universal light source for the...

gap 1.6 mm. The spectrum should be taken by an ИСП-28 (ISP-28) spectrograph with three-lens illumination system, and with a gap of 10μ. Spectroscopic plates of the type II (16 - 20 ГОСТ (GOST) units) and three standards should be used. There is 1 figure.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona Akademii nauk USSR (Institute of Electric Welding imeni Ye. O. Paton of the Academy of Sciences UkrSSR)

Fig. 1. Modified circuit diagram of IG-2.



KOSOLAPOV, V.I.; SKVORTSOV, Yu.M.; DEM'YANCHUK, A.S.; KISELEVA, K.V.; MIKHALENKO, V.N.

Exchange of experience. Zav.lab. 28 no.11:1388-1389 '62. (MIRA 15:11)

1. Institut khimii Sibirskogo otdeleniya AN SSSR (for Kosolapov, Skvortsov). 2. Institut elektrosvarki imeni Ye.O.Patona AN UkrSSR (for Dem'yanchuk). 3. Fizicheskiy institut imeni P.N.Lebedeva (for Kiseleva, Mikhalenko).
(Scientific apparatus and instruments)

DEM'YANCHUK, A.S. [Dem'ianchuk, A.S.]

On a universal light source and a standard method for the spectrum analysis of metals and alloys. Ukr.fiz.zhur., 6 no.6: 869-873 N-D '61. (MIRA 16:5)

1. Institut elektrosvarki im. Patona AN UkrSSR, Kiyev.
(Electric lamps) (Spectrum analysis)

DEM'YANCHUK, A.S.

High-frequency condensed spark as a source of light for spectrum analysis. Avtom. svar. 17 no.5:93-94 My '64. (MIRA 17:11)

L 27199-66 EWT(m)/EWA(d)/EWP(t)/ETI IJP(c) JH/JD

ACC NR: AP6015253 (A) SOURCE CODE: UR/0125/66/000/005/0074/0075

AUTHOR: Rabkin, D. M.; Bukalo, L. A.; Korzhova, V. Ya.; Dem'yanchuk, A. S. 30 B

ORG: none

TITLE: Heterogeneity of aluminum-magnesium alloy welds

SOURCE: Avtomaticheskaya svarka, no. 5, 1966, 74-75

TOPIC TAGS: aluminum alloy, magnesium containing alloy, alloy weld, weld property/ AMg3 alloy, AMg6 alloy

ABSTRACT: The nature of the dark areas frequently appearing in x-ray pictures alongside welds, and their effect on the properties of AMg3 and AMg6 aluminum-magnesium alloy welds, have been investigated. Alloy plates 3 or 6 mm thick were TiG-welded with steel backing. In these welds the dark areas were about 0.5 mm wide. The specimens with and without dark areas had roughly the same tensile strength, 32.2 kg/mm^2 and 31.6 kg/mm^2. The fracture in both specimens was also similar. Spectral analysis revealed a sharp increase in magnesium content in the location of dark areas: 7.2% instead of 2.8—3.8% for AMg3 alloy and 11% instead of 6% for AMg6 alloy. The microhardness of α-solid solution in the dark area was 77—87 kg/mm^2 as compared to 60—66 kg/mm^2 in the weld or in the annealed base metal. Thus, the dark areas are formed as a result of the enrichment of alloy with magnesium. They do not reduce the strength of the weld. Orig. art. has: 4 figures. [AZ]

SUB CODE: 11, 13/ SUBM DATE: none/ ATD PRESS: 4258

Card 1/1 UDC: 621.791.019

DEM'YANCHUK, I.; NIMCHUNOVA, O., redaktor; GOLOVCHENKO, G., tekhnicheskiy redaktor.

[Innovators of the confectionery trade] Novatory kondyters'koho vyrobnytstva. Kyiv, Derzhavne vyd-vo tekhnichnoi lit-ry URSR, 1953. 37 p. (MLRA 8:2)
(Confectionery)

16 5500

S/103/62/023/007/007/009
D201/D308

AUTHOR: Dem'yanchuk, I. V. (Kiev)

TITLE: Reproduction of homogeneous functions of two variables

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 7, 1962, 943-955

TEXT: The method is based on the approximation of the function of the auxiliary argument which is the ratio of the variables. As a result of this approximation, the homogeneous function is represented in the form of a power binomial with coefficients which are constant within the region of approximation and with arguments varying from one region to another. The coefficients are introduced by evaluating them from the graph of the auxiliary function. Formulas are given for the evaluation of the permissible approximation error. The reproduction of a homogeneous function, which may be given either analytically or

Card 1/2

Reproduction of homogeneous...

tabulated, is thus reduced to simple mathematical operations of addition, choosing the extremal sum and taking a certain power of the result. To this approximation formula corresponds a simple structural circuit, which can be realized by means of standard functional circuits of modern electronic analogs and known switching and logic elements; the method may lead to simplification, decrease in the volume and increase in the accuracy of function generators. The general circuit diagram and the principle of operation of a function converter based on the method is given. There are 8 figures.

SUBMITTED: March 10, 1962

Card 2/2

DEM'YANCHUK, I.V. (Kiyev)

Reproduction of homogeneous functions of two variables. Avtom. i telem. 23 no.7:943-955 Jl '62. (MIRA 15:9)
(Electronic calculating machines) (Automatic control)

DEM'YANCHUK, I.V., inzh.

Automatic compensation of the readings of hydrostatic level indicators during the start of a boiler. Teploenergetika 10 no.1:70-75 Ja '63. (MIRA 16:1)

1. Institut avtomatiki Gosplana UkrSSR.
(Level indicators)
(Boilers--Equipment and supplies)

L 16806-66 EWT(m)/EWP(t) LJP(c) JD/JG
ACC NR: AP6003368 SOURCE CODE: UR/0363/66/002/001/0100/0104

AUTHOR: Obolonchik, V.A.; Lashkarev, G.V.; Dem'yanchuk, V.G.

ORG: Institute of Materials Science Problems, Academy of Sciences SSSR (Institut problem materialovedeniya Akademii nauk SSSR)

TITLE: Preparation and some physicochemical properties of rare earth oxytellurides

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 1, 1966, 100-104

TOPIC TAGS: rare earth, telluride, lanthanum compound, cerium compound, praseodymium compound, neodymium compound, samarium compound, gadolinium compound, dysprosium compound

ABSTRACT: Oxytellurides of stoichiometric composition corresponding to the formula M_2O_2Te (where M = La, Ce, Pr, Nd, Sm, Gd, Dy) were synthesized by reacting rare earth oxides with tellurium vapor in a hydrogen atmosphere in graphite boats at temperatures of 1000 – 1100C. The oxytellurides are unstable. Lanthanum, praseodymium, neodymium, and samarium oxytellurides are stable at elevated temperatures in air because of formation of a thin metal oxide film on the surface. The electrical conductivity at room temperature and the temperature dependence of the thermal expansion

Card 1/2 UDC: 546.442'24'45:543.5

L 16806-66
ACC NR: AP6003368

of praseodymium, neodymium, and samarium oxytellurides were measured for the first time, as was the temperature dependence of the magnetic susceptibility of the oxytellurides from lanthanum to samarium. The nature of chemical bonding, which causes the conductivity of these compounds to be nonmetallic in character, is discussed. Orig. art. has: 1 figure, 4 tables, and 2 formulas.

SUB CODE: 11 / SUBM DATE: 03Jun65 / ORIG REF: 005 / OTH REF: 003

Card 2/2 mc

DEM'YANCHUK, V. P.

"Effect of the Milk Fat Level of Their Food on the Metabolism of Calves." Cand Agr Sci, Khar'kov Zootechnical Inst, Khar,kov, 1953. (RZhBiol, No 7, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

DEM'YANCHUK, V.P.[Dem"ianchuk, V.P.], kand.sel'skokhoz.nauk

Calcium and phosphorus metabolism in high-productive cows with D-hypovitaminosis. Visnyk sil'hosp.nauky 4 no.8:86-90 Ag '61.

1. Otdeleniye skotovodstva Ukrainskoy akademii sel'skokhozyaystvennykh nauk.

(Calcium metabolism) (Phosphorus metabolism)
(Deficiency diseases in domestic animals)

L 30394-66 EWT(1) TG
ACC NR: AP6005847 SOURCE CODE: UR/0102/65/000/004/0003/0009

AUTHOR: Barvins'kyy, L. L. -- Barvinskiy, L. L. (Kiev); Dem'yanchuk, V. S. (Kiev)

ORG: none

TITLE: The reliability of doubled systems taking into account the nature of failure of switches and control circuits

SOURCE: Avtomatyka, no. 4, 1965, 3-9

TOPIC TAGS: reliability engineering, circuit reliability, redundant system, control circuit, switching circuit

ABSTRACT: The authors present a method for the determination of the failure probability of a doubled system with functional replacement of channels which failed, taking into account the dynamic and static failures of switches and control circuits. An analysis of the obtained expressions for the determination of the failure probability of the system investigated shows that the presence of such failures as the arbitrary switching in of reserve channel switches considerably increases the probability of system failure. In view of this, it is necessary to have the intensity of arbitrary switching in of switches 3 to 4 orders

Card 1/2

lower than the intensity of their arbitrary switching off. An evaluation is made of the dependence of the relative error in the calculation of failure probability of the doubled system without taking into account the failures of the switches compared to the failure probability of the real system from the relationship of the intensities of failure of the switches and the reserve units. The error is increased with an increase in the intensity ratio. In order to reduce the error indicated, it is necessary to reduce the probability of the dynamic and the static failures of the switches. Orig. art. has: 3 figures.

SUB CODE: 14, 09 / SUBM DATE: 20Dec63 / ORIG REF: 003

L 3802-66 EWT(1)/EPA(s)-2/T IJP(c) GG

ACCESSION NR: AP5025583 UR/0115/65/000/009/0026/0027
621.319.1:658.562

44,55 44,55 47 23

AUTHOR: Barvinskiy, L. L.; Dem'yanchuk, V. S. 21,44,65

TITLE: Use of ferroelectric crystals for built-in monitoring circuits

SOURCE: Izmeritel'naya tekhnika, no. 9, 1965, 26-27

TOPIC TAGS: electronically variable capacitor, ferroelectric crystal, test monitoring, electronic measurement

ABSTRACT: Previous studies have shown that voltage-variable capacitors may be used as converters in circuits for monitoring hf voltage (or power), frequency, and combinations of these and other parameters. The operating principle of this type of converter is illustrated by fig. 1 of the Enclosure. The sensing element is a three-electrode voltage-controlled capacitor made up of ferroelectric crystals. Control voltage from the output of the device to be monitored is fed to plates 2 and 3 of capacitor C_{23} via the coupling coil. The capacitance between plates 1 and 3 (C_{13}) serves as a decoupling unit for the indicator circuit $L_1C_2C_{13}C_1$. When the device being monitored is operating normally, this indicator circuit is tuned to re-

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sonance. When there is a change in the frequency or voltage fed to capacitor C_{23}, the capacitance of this element also changes. This changes the capacitance of C_{13} and the natural frequency of the indicator circuit. The voltage reduction in the indicator circuit in a set control-voltage range is proportional to the frequency drift and to the variation in the voltage being monitored. If the indicator circuit is somewhat detuned initially, voltmeter V_1 will show not only the drift in the frequency or the change in the voltage being monitored, but will also indicate to which side of the normal operating conditions these changes take place. Experimental curves are given showing the capacitance of C_{13} as a function of the controlling voltage applied to C_{23} at various frequencies at 20°C. These curves show that the circuit is more sensitive to changes in voltage than to changes in frequency. A great disadvantage of these ferroelectric converters is that they are considerably dependent on the ambient temperature. This temperature effect may be compensated by using special circuits based on ferroelectric capacitors with the proper characteristics. Advantages of these converters are their high reliability and simplicity of construction. Orig. art. has: 4 figures.

ASSOCIATION: none
SUBMITTED: 00 ENCL: 01 SUB CODE: EC
NO REF SOV: 000 OTHER: 000

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000310110015-9"

L 3802-66

ACCESSION NR: AP5025583

ENCLOSURE: 01

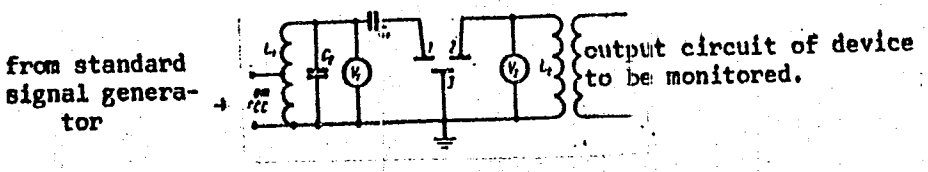

Fig. 1.

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L 6394-66 EWT(1)/EWA(h) TG

ACC NR: AP5020925 SOURCE CODE: UR/0142/65/008/003/0330/0336

AUTHOR: Barvinskiy, L. L.; Dem'yanchuk, V. S.

ORG: none

TITLE: Determination of the reliability of redundant systems considering failures of switches and of control circuits

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 3, 1965, 330-336

TOPIC TAGS: circuit failure, circuit reliability, control circuit, switching circuit

ABSTRACT: The problem of the reliability of redundant systems with automatic switching to the reserve is examined. The case shown in fig. 1 is considered, where B_1 and B_2 are regular operating units, B_R is the reserve unit, and AC is the automatic control circuit. Switches S_1, S_2, S_3, and S_4 connect the regular units and S_{R1} and S_{R2} the reserve unit. It is assumed that: (1) all units and switches are identical; (2) the reserve unit is in a loaded state; (3) the automatic control circuit does not assure reconnection of a channel which has failed and been repaired; (4) the system will fail if two units are switched simultaneously to one input or

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L 6394-66
ACC NR: AP5020925

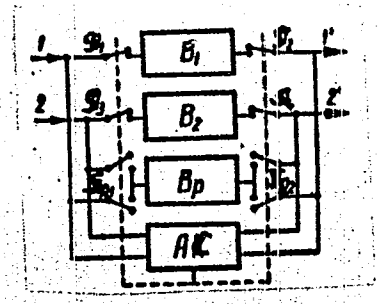

Fig. 1. Schematic diagram of a redundant system.

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L 6394-66
ACC NR: AP5020925

output; and (5) each system element has an exponential probability of reliable operation and the reliability of each is independent of the reliability of others. Considering dynamic and static switch failures, the authors analyze 9 failure cases and derive the probability of failure within a given time for each. Failures of main and reserve units, switches, and automatic control circuit are considered. A graph shows the dependence of the probability of system failure on the probability of failure of each of the elements. The relative error of the probability of system failure when switching failure probabilities are neglected is graphed. Failures such as spontaneous closing of switches can substantially increase the probability of system failure. The importance of using switches with low probability of static and dynamic failure is thereby shown. Orig. art. has: 3 figures.

SUB CODE: EE,DP/ SUBM DATE: 20Dec63/ ORIG REF: 002/ OTH REF: 000

Card 3/3

EWT(d)/EWP(1)

ACC NR: AP6034639 SOURCE CODE: UR/0102/66/000/004/0019/0025

AUTHOR: Dem'yanchuk, V. S. (Kiev); Barvinskyy, L. L. --Barvinskiy, L. L. (Kiev)

ORG: none

TITLE: Idle-time coefficient of long-used reserve systems, taking into account their restorability and preventive maintenance Part I

SOURCE: Avtomatyka, no. 4, 1966, 18-25

TOPIC TAGS: idle time, idle time coefficient, preventive maintenance, system maintenance

ABSTRACT: The authors analyzed the problems of estimating the idle time coefficient for reserve systems with a sliding loaded, unloaded, and "mixed" restorable reserve. Expressions are derived permitting the determination of the necessary minimum of reserve units, their operating conditions, and the number of maintenance personnel with the given idle-time coefficient. A procedure is given for determining the idle-time coefficient of reserve systems for carrying out preventive maintenance on the reserve units, and final expressions are derived for

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Card 1/2

L 09915-67
ACC NR: AP6034639

calculating the idle-time coefficient. It is assumed that there is always enough servicing personnel to carry out the preventive maintenance. Orig. art. has: 14 formulas. [Based on authors' abstract]

SUB CODE: 06/SUBM DATE: 06Jun64/ORIG REF: 004/

DEM'YANENKO, A., inzh.; VOYEVODIN, V., inzh.

Mechanization of plastering in the Main Krasnoyarsk Construction Administration. Mekh. stroi. 20 no.10:14-15 O '63. (MIRA 16:10)

VOL'PIN, P.I.; DEM'YANENKO, A.I.; LYAPUNOV, A.I.

Battery of continuously operating digesters with air blast agitation. TSvet. met. 35 no.9:86-89 S '62. (MIRA 16:1)
(Aluminum--Metallurgy) (Hydrometallurgy)

DEM'YANENKO, A.I.

Additional signalization for the vacuum system mercury-arc rectifiers. Elek. i tepl.tiaga 7 no.11:27-28 N '63. (MIRA 17:2)

1. Nachal'nik remontno-revizionnogo tsekha Chishminskogo energouchastka Kuybyshevskoy dorogi.

DEM'YANENKO, A.I.; YAKOVENKO, N.G.; CHALOV, I.V.

Increasing alumina output at the Dnieper aluminum plant during work with a high concentration aluminate solution. TSvet. met. 38 no.8:86-87 Ag '65. (MIRA 18:9)

DEM'YANENKO, A.P.; LEONT'YEVA, K.P. [Leont'ieva, K.I.]; LYSENKO, L.A. [Lysenko, L.M.]; FEDOROVSKAYA, Ye.A. [Fedorova'ka, O.O.]

Actinomycetes-antagonists from the soils of the Kiev region. Mikrobiol. zhur. 27 no.5:7-10 '65. (MIRA 18:10)

1. Institut mikrobiologii i virusologii AN UkrSSR.

DEM'YANENKO, D.M.; KOROZA, V.I.; RODA, A.A.; SOLOV'YEV, L.S.

Applicability of analog computers for calculating electron trajectories in linear accelerators. Uskoriteli no.5:91-95 '63. (MIRA 17:4)

DEM'YANENKO, D. V.

Dem'yanenko, D. V.

"Material on the Etiology, Pathogenesis, and Diagnosis of Surface Yeast Mycoses of the Ectoderm," Khar'kov Medical Inst. Khar'kov, 1955 (Dissertation for the degree of Candidate in Medical Science)

SO: Knizhnaya letopis' No. 27, 2 July 1955

DEM'YANENKO, D. V., kand. med. nauk; ZATOLOKIN, F. D., assistent

Treatment of syphilis with bicillin. Vest. derm. i ven. 36 no.6:55-56 Je '62. (MIRA 15:6)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zav. - prof. N. A. Torsuyev) Donetskogo meditsinskogo instituta (rektor - dotsent A. M. Ganichkin)

(SYPHILIS) (BICILLIN)

L 13045-63 EWT(1)/BDS/EEC(b)-2 AFFTC/ASD/ESD-3 IJP(C)
ACCESSION NR: AP3001335 S/0057/63/033/006/0735/0738

AUTHOR: Ostrovskiy, Ye. K.; Zy*kov, A. I.; Kononenko, S. G.; Makhenko, L. A.; Den'yanenko, G. K.; Manovets, Yu. A.; Rubtsov, K. S.

TITLE: Investigation of a shaping section with constant phase velocity for wave propagation

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 33, no. 6, 1963, 735-738

TOPIC TAGS: electronics, linear accelerators

ABSTRACT: The axial motion of electrons in a loaded waveguide in which the phase velocity for wave propagation is constant along its length was calculated by the method of J. Swiharta and E. Akeley (J. Appl. Phys., 24, 5, 1953). The waveguide is intended to be the initial section of an electron linear accelerator. The calculations were performed for a section 83 cm long excited to an electric field strength of 67.5 kV/cm and with the electrons injected at an energy of 80 keV. The results are displayed as a family of curves giving the exit electron energy as a function of the entrance phase for different values of the phase velocity from 0.91c to 0.99c. From these results, and taking into account the resolving power of a specific magnetic analyzer, the average energy of the electrons at maximum current in the bunch and the current at maximum density

Card 1/2

were calculated as functions of the phase velocity. These calculated results do not agree with the experimental data. The experimental data indicate that capture and acceleration occur in a much narrower range of phase velocities. The divergence between experiment and the calculations is ascribed to end effects in the input junction, which is an H sub 10 to E sub 01 transformer similar to the Stanford variant. The effect of putting inserts in the final waveguide cavity at the junction wall was investigated, and an insert that greatly improves the operation was found. The authors do not consider such inserts to be a satisfactory solution, however, owing to their deleterious effect on the electric strength and because of the analytical complications they involve. Orig. art. has: 7 formulas and 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR, Khar'kov (Physical-Technical Institute, AN USSR)

SUBMITTED: 21May62 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 001 OTHER: 005

ACCESSION NR: AP3001336 S/0057/63/033/006/0739/0742

AUTHOR: Zykov, A. I.; Makhnenko, L. A.; Ostrovskiy, Ye. K.; Dem'yanenko, G. K.; Kononenko, S. G.; Rubtsov, K. S.; Kramskoy, G. D.; Mufel', V. B.

TITLE: Determination of the optimum frequency of a linear traveling-wave accelerator and investigation of the dependence of accelerated-particle energy on frequency

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 33, no. 6, 1963, 739-742

TOPIC TAGS: traveling-wave linear accelerator, phase velocity, group velocity accelerator, traveling-wave accelerator, linear accelerator

ABSTRACT: Simplified calculations of phase and group velocities of a traveling-wave linear accelerator using a septate waveguide section are suggested. These are based on the fact that in the case of small waveguide mismatch, i.e., when the VSWR is less than or equal to 1.1, it is possible to derive formulas for these respective parameters by applying the method of shifting the locations of VSWR minima by moving a shorting stub. This eliminates the need to plot complex circular diagrams. Since actual waveguides contain some inhomogeneities, it is necessary to average the standing-wave minimum displacements resulting from translation of the stub in the septate waveguide. The phase-velocity formula is

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ACCESSION NR: AP3001336

obtained by measuring the total linear displacement of the standing-wave minimum during the travel of the stub for the total number of resonators. This formula defines the dependence of phase velocity on frequency. Measurements made by this method for a septate waveguide with type $\pi/2$ oscillations, a source frequency stability of 10^{-7}, and a septate waveguide period equal to 2.677 ± 0.001 cm showed that for a phase velocity equal to light velocity a frequency of 2796.58 Mc represents the optimum frequency for this waveguide. A straightforward calculation from the phase-velocity formula yields the corresponding group velocity. As regards the dependence of accelerator output on frequency, it is assumed that random deviations of phase velocity are insignificant and that the whole of the waveguide is homogeneous. From this a formula for kinetic energy as a function of frequency is derived. For the waveguide described the relative kinetic energy decreases by a factor of approximately 10 for a frequency change from 2796.6 to 2799 Mc. It is concluded that for septate waveguides with small inhomogeneities the method described determines optimum frequency, and phase and group velocities with adequate accuracy for practical purposes, since the maximum relative error does not exceed ± 0.01%. Orig. art. has: 3 figures and 8 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut, AN SSSR, Khar'kov (Physicotechnical Institute, AN SSSR)

Card 2/3

ACCESSION NR: AP3001336

SUBMITTED: 21May62 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: NS NO REF SOV: 001 OTHER: 004

Card 3/3

L 45257-65 EPA w)-2/EWT(m)/EWA(m)-2 Pt-7/Pab-10 IJP(c) GS
ACCESSION NR: AT5007932 S/0000/64/000/000/0435/0439

AUTHOR: Val'ter, A. K.; Grishayev, I. A.; Dem'yanenko, G. K.; Zykov, A. I.; Zeytlenok, G. A.; Malyshev, I. F.; Turkin, F. P.; Khokhlov, V. K.; Makhnenko, L. A.

TITLE: Linear traveling-wave electron accelerator with 360-Mev output energy

SOURCE: International Conferance on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 435-439

TOPIC TAGS: high energy accelerator, traveling wave electron accelerator, injector, waveguide

ABSTRACT: One of the stages in the development, at Khar'kov, of the linear electron accelerators was the construction of a 360-Mev accelerator, with accelerating track divided into 11 sections consisting of a short injector and 10 sections 4.5 meters each. During colliding beam experiments the sixth section is absent, in its place being the magnets of the injecting devices of the storage rings. The electron injector and the accelerating sections are located in a concrete bunker. Klystrons with nominal power of 20 Mw in the pulse are used for the high-frequency power supply. Capacitive energy storers are used in the klystron modulators with hydro-

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L 45257-65
ACCESSION NR: AT5007932

gen pulse thyratron switching. A generator-amplifier having metal-ceramic triodes with quartz frequency stabilization of the master circuit is used for excitation of the klystrons. The generator signal is amplified by a separate klystron and is propagated along waveguide transmission lines by the accelerator, entering into the klystrons of the above-mentioned injector and ten accelerating sections. The power at the output of the accelerating sections is absorbed in carborundum chargers. The vacuum in the accelerator and in the high power waveguide lines is attained by means of ion-absorption pumps, which are set up at the inputs of the sections and near the vacuum-separator cones. Ridding the electron beam of secondary products and focusing at the target are carried out with two reversible magnets and five quadrupole lenses. A transformer complex and direct-current sources are used for the system's regulated power supply. The high-frequency power supply system, which consists of klystron amplifiers, waveguide and co-axial transmission lines, and automatic phasing system, and also the control, locking, and signal panels are placed in a special room. The rated accelerator parameters are: 360-Mev electron energy at spectrum maximum; 5% half-width of energy spectrum $\Delta W/W$; 1 μamp full acceleration current at output of parallel-transfer system (mean) for 5% half-width and $N = 50$/sec; 0.2 cm beam diameter at output of parallel-transfer system; 1.5 μsec current pulse; frequency (number per second N) of bunches of current pulses - 50,

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L 45257-65
ACCESSION NR: AT5007932

2

25, 12.5, 6.25, 3.125, 1, and a single absence. (Note: The half-width is the width of the energy spectrum at a level half the current maximum.) The design and construction of the electron injector and the remaining parameters of the accelerated beam were discussed by V. A. Vishnyakov et al. (same conference p. 440). The present report discusses matters relating to the adjustment of the accelerator: the system's electrodynamic and loaded characteristics, the accuracy of construction of the sections, their resonance frequencies, group velocity and damping, shunt resistance and partial power of the principal accelerating harmonic. Orig. art. has: 6 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physico-technical Institute, AN UkrSSR); Nauchno-issledovatel'skiy institut elektro-fizicheskoy apparatury imeni D. V. Yefremova GKAE SSSR (Scientific-Research Institute of Electrophysical Equipment GKAE SSSR)

SUBMITTED: 26May64 ENCL: 00 SUB CODE: EE, NP

NO REF SOV: 000 OTHER: 000

Card 3/3

24749
S/191/61/000/007/007/010
B101/B215

15-8440

AUTHORS: Shturman, A. A., Dem'yanenko, I. D.

TITLE: Magnesite molds for products of cold-setting plastics

PERIODICAL: Plasticheskiye massy, no. 7, 1961, 26-27

TEXT: Based upon the fact that cold-setting plastics (epoxy and polyester resins, АСТ-Т (AST-T) acrylic plastic, etc.) have found increasing application in the manufacture of large-size objects, such as boats, car bodies, and machine parts, the suitability of the various materials for molds is discussed. Gypsum withstands only 1-3 processes; easily meltable alloys are too expensive, and wood and metal molds require much time and expensive devices. The authors availed themselves of the experience of the Leningradskiy zavod stankov-avtomatov (Leningrad Plant of Automatic Machines) regarding magnesite molds for precision casting, and suggest such molds for casting plastics. A model made of wood, glass, plastic, metal, etc. is polished, coated with АЦ-1 (ATs-1) and ФГ-9 (FG-9) varnishes, and then put into a mold frame. 2.4 parts by weight of an aqueous solution of magnesium chloride (specific gravity of 1.3-1.32) is

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Magnesite molds for products of...

stirred into a mixture consisting of 1 part by weight of marshallite and 2 parts by weight of caustic magnesity of type ГОСТ 1216-41 (GOST 1216-41). The mass is then poured into the mold frame. At room temperature, the mass hardens within 4-8 hr. The mold is then polished with a felt disk soaked with paraffin or stearin. Such molds were used for pressing products of the acrylic plastic AST-T under pressures of 70-90 kg/cm^2. The advantages of these molds are: 1) smooth surface of the pressed plastic; 2) durability of the mold; 3) broken molds can be used again after gluing with БФ-2 (BF-2) БФ-4 (BF-4) etc; 4) low cost of the material. Magnesite molds are also recommended for use in vacuum and pneumatic molding of plastic sheets. At present, the authors are attempting to produce pressure castings of caprone, polystyrene, and polyethylene by such magnesite molds. There are 2 figures.

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SOURCE: Ref. zh. Khimicheskoye i kholodil'noye mashinostroyeniye. Otd. vyp., Abs. 1.47.536

AUTHOR: Dem'yanenko, I. D.; Ar'yev, A. M.

TITLE: Bonding polyvinylchloride tubing to a caprone storage battery cap

CITED SOURCE: Sb. tr. fiz. Luganskiy mashinostroit. in-t, v. 4, 1964, 51-57 Kafedry

TOPIC TAGS: resin bonding, bonding film property, polyvinylchloride, plastic tubing / adhesive PKhVS-22

TRANSLATION: The authors describe the results of tests on bonding of polyvinylchloride tubing to a caprone storage battery cap using adhesive PKhVS-22. The adhesive represents a 22% solution of perchlorovinyl resin in styrene with benzoyl peroxide added (1.5% by weight of the styrene). The bonded seam should be dried for 225 min. under 16000 lux of ultraviolet irradiation. The obtained film is elastic, bonds strongly with both basic materials and insures a hermetic seal. Four tables, two illustrations. N. Milenina.

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ZHDANOV, Ye.A., inzh. (Luganak); SKLYAROV, V.M., inzh. (Luganak); BROVTSEV, V.A., inzh. (Luganak); DEM'YANENKO, I.D., inzh. (Luganak).

Locomotive cab made from glass plastics. Zhel. dor. transp. 47 no. 11:83-84 N '65 (MIRA 19:1)

TARAN, A.V., kand.sel'skokhozyaystvennykh nauk; DEM'YANENKO, K.V.

Best predecessors for basic field crops in the steppe of the Ukrainian S.S.R. A.V. Taran, K.V. Dem'ianenko. Zemledelie 24 no.8:23-25 Ag '62. (MIRA 15:9)

1. Zaporozhskaya oblastnaya gosudarstvennaya sel'skokhozyaystvennaya opytnaya stantsiya.
(Ukraine—Rotation of crops)

YEMYSHENKO, M.P.

Determination of chloropicrin in fumigated grain products and air. M. P. Yemyshenko. U.S.S.R. 107,183, Sept. 25, 1957. CCl_3NO_2 is displaced from the sample with heated air and absorbed in alc. A standard dithionite soln. is then added and its excess is back titrated with an I soln. The calcn. is made by means of the equation $x = [(a - b)0.822]/C$ mg./kg. (for air, mg./l.), where a is ml. of I soln. used for a blank, b is ml. of I soln. used for titrating the sample, k is a correction coeff., 0.822 is the equiv. wt. of CCl_3NO_2 per ml. of 0.01 N soln., and C is the wt. of the sample in kg. (l. for air). M. Hirsch

BOBIN, K.P.; GERASIMOV, N.S.; GOLUBEV, S.G.; DEMIDOV, P.G.; DEM'YANENKO, M.P.; YEVTYUSHKIN, N.M.; ZEMSKIY, M.I.; KALASHNIKOV, K.A.; KONCHAYEV, B.I.; KOROLEV, A.I.; KRZHIZHANOVSKIY, P.I.; KULAKOV, G.M.; POLOSUKHIN, M.N.; ROYTMAN, M.Ya.; RUMYANTSEV, V.I.; SEMUSHKIN, B.V.; SMUROV, A.N.; TARASOV-AGAKOV, N.A.; TOMASHEV, A.I.

Semen Vasil'evich Kaliaev; obituary. Pozh. delo 4 no.5:29 My '58. (MIRA 11:5)
(Kaliaev, Semen Vasil'evich, 1904-1958)

DEM'YANENKO, M.P.

Complete utilization of sugar beets is an interesting yet complicated problem. Sakh.prom. 36 no.9:16-19 S '62.
(MIRA 16:11)

1. Sovet po izucheniyu proizvodstvennykh sil pri Gosudarstvennom nauchno-ekonomicheskom sovete Soveta Ministrov SSSR.

DEM'YANENKO N.

85-9-27/33

AUTHOR: Dem'yanenko N., Master of Sports

TITLE: How to Mount an Incandescent Spark Plug on the Compression Engine MK-12S (Ustanovka kalil'noy svechi na kompressionnyy dvigatel' MK-12S)

PERIODICAL: Kryl'ya Rodiny 1957, Nr 9, pp. 29-30 (USSR)

ABSTRACT: The author, whose airplane model driven by a compression engine achieved in May 1957 the All-Union record speed of 197.8 km./h., explains how he had fitted the winning model's engine MK-12S with an incandescent spark plug. The filament of the spark plug is said to have been made of an alloy of 80% Pt and 20% Ir (Ø - 0.2 mm.), the inlayers of mica or 'paranit'. As to the fuel, the author recommends mixing 75% of methyl alcohol and 25% ricinus oil (an addition of 30% of nitromethane does, assertedly, increase the number of revolutions by 1000 per minute). During the competitions the author used a mixture of 55% methyl alcohol, 15% ricinus oil, and 30% of nitromethane, with 5% of nitrobenzene added. 7 designs showing various phases of

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Dem'yanenko, A.

PHASE I BOOK EXPLOITATION SOV/4020

Aviamodelizm; sbornik statey. Posobiye dlya rukovoditeley aviamodel'nykh kruzhkov i uchiteley (Aircraft Modeling; Collection of Articles. Textbook for Instructors of Model Aircraft Clubs and Teachers) Moscow, Uchpedgiz, 1960. 141 p. 12,000 copies printed.

Compilers: E.B. Mikirtumov, Candidate of Technical Sciences, and M.S. Lebedinskiy, Candidate of Technical Sciences; Ed.: A.Ye. Stakhurskiy; Tech. Ed.: V.I. Korneyeva.

PURPOSE: This book is intended for instructors and directors of model airplane clubs sponsored by DOSAAF (All-Union Voluntary Society for Promotion of the Army, Navy, and Air Force).

COVERAGE: The book consists of 47 articles covering various aspects of model aircraft design, construction and operation. The text contains many illustrations and diagrams. No personalities are mentioned. There are 185 references, all Soviet.

TABLE OF CONTENTS:

1. DEM'YANENKO, N.M.

2. USSR (600)

4. Marmots

7. Acid salt preservation of marmot skins. Trudy VNIO no. 10, 1951

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

TIMOKHINA, A.D.; DEM'YANENKO, P.P.

Streamlining and invention at the Semiluki factory. Ogneupory 26 no.3:149-151 '61. (MIRA 14:4)

1. Semilukskiy ogneuporpyy zavod.
(Semiluki--Technological innovations)

DEM'YANENKO, P.P.

From industrial practices. Ogneupory 27 no.8:380-381 '62.
(MIRA 15:9)

1. Semilukskiy ogneupornyy zavod.
(Metal cleaning) (Glass cutting)

DEM'YANENKO, P.P.

Machine for the manufacture of swivel arms for bucket conveyors.
Ogneupory 28 no.5:235 '63. (MIRA 16:6)

1. Semilukskiy ogneupornyy zavod.
(Refractories industry—Equipment and supplies)
(Metalworking machining)

[illegible], P.P.

Suggestions of efficiency promoters [illegible] at the [illegible] Refractories Plant. Ogneupory [illegible] no. [illegible] [illegible]. [illegible]

1. Semiluzskiy ogneupornyy zavod.

STETSENKO, V.I., otv. red.; MARKOVSKIY, Ye.A., red.; IOGANSEN, V.S., red. DEM'YANENKO, T.P., red.; LABINOVA, N.M., red.

[Use of radiation in automation, isotopes and nuclear radiation in science and technology] Radiatsionnaia avtomatika, izotopy i iadernye izlucheniia v nauke i tekhnike. Kiev, 1964. 193 p. (MIRA 17:8)

1. Akademiya nauk URSR, Kiev.

DEM'YANENKO, T.P.; STETSENKO, V.I., kand. tekhn. nauk

Third Ukrainian Conference on "Nuclear physics and applications of atomic energy." Avtom. i prib. no.1:81-82 Ja-Mr '65. (MIRA 18:8)

SOV/146-58-4-4/22

AUTHORS: Ornatskiy, P.P., Candidate of Technical Sciences, Docent Khodeyev, I.K., and Dem'yanenko, V.A., Engineers

TITLE: A Sensitive, Multirange Electromagnetic Milliampere-Voltmeter for a Broadened Frequency Band

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Priborostroyeniye, 1958, Nr 4, pp 19-25 (USSR)

ABSTRACT: Presently a rapid improvement and further development of electrical measuring instruments of almost all systems is observed. However, the improvement of moving-iron instruments in regard to sensitivity, extended measuring and frequency ranges is advancing slowly at the present time. Recently the Kiyev plant "Tochelektropribor" developed a new series of class 0.5, E-59 moving-iron instruments, having increased sensitivity. The ammeters of this series, built for current of 2.5-10 amperes, have an increased frequency range. The multirange milliammeter for 10-20-40 milliamperes and the voltmeters of this series do not have an extended frequency range. In these devices a difference of the

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readings on direct current and on 50-cycle alternating current is observed with uncharged values of the magnitudes to be measured. The magnitude of this difference limits the sensitivity of the multirange milliampere-meters and voltmeters of type E-59. The frequency error of these instruments is positive and caused by a considerable interturn capacitance in the tapped measuring coil. At the Kafedra izmeritel'nykh ustroystv Kiyevskogo politekhnicheskogo instituta (Chair of Measuring Devices of the Kiyev Polytechnic Institute) in cooperation with the laboratory of indicating instruments of the plant "Tochelektropribor", special studies were performed for the purpose of improving the parameters of class 0.5 moving-iron instruments. The results of this work may be used for the development of high-sensitive alternating current instruments of electromagnetic and other systems for higher frequencies. A new multirange instrument with a tapped coil was created on the basis of the E-59

instrument. For increasing the sensitivity of these instruments and for reducing their current consumption, above all the number of turns of the measuring coil was increased. With a larger number of turns, the internturn capacitances increased considerably, especially the capacitance between the taps of the measuring coil. The capacitances between the taps of the measuring coil attained magnitudes of approximately 0.015 microfarads. The increase of internal capacitances led to a noticeable rise of frequency errors of the device which were 1-1.5% even at a frequency of 50 cycles. For eliminating the errors caused by the internal coil capacitance, a new compensating system was suggested, which provides a high sensitivity of the instrument while maintaining its ranges and its universality. This circuit provides measurements not only at direct current and alternating current of 50 cycles but also on alternating current up to 400 cycles in the 0.5 accuracy class. The authors consider the

frequency error of the moving-iron milliammeter in the presence of internal capacitance and especially in the suggested frequency compensation circuit. The compensation of the frequency error may be performed by means of an auxiliary coil which has a negative frequency error. As shown in Figure 4, the auxiliary coil will compensate in a certain frequency range the positive frequency error caused by parasite capacitance in the basic instrument coil. On this basis, a measuring instrument was built with the following ranges: 7.5, 15, 30 milliamperes; 30, 75, 150 v, and with additional resistors up to 600 v inclusively. The power required by the measuring coil in all measuring ranges is 0.09 w. The voltage drop in the working coil within the different ranges: 30 milliamperes = 3 v; 15 milliamperes = 6 v; 7.5 milliamperes = 12 v. The impedance of the voltmeter is in the following ranges: 30 v - 1,000 ohm, 75 v - 5,000 ohm; 150 v - 20,000 ohm. The instrument is designed for measuring direct

A Sensitive, Multirange Electromagnetic Milliampere-Voltmeter for a Broadened Frequency Band

and alternating currents and voltages at frequencies up to 400 cycles. The accuracy class of the instrument is 0.5. The calculation and testing of the instrument model were performed by the student of the Kiyev Polytechnic Institute, V.A. Dem'yanenko. The model of this device was shown at the Brussels World Fair. Figure 7 shows a photograph of this instrument. There are 6 diagrams and 1 photograph.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute) Kiyevskiy zavod "Tochelektropribor" (Kiyev Plant "Tochelektropribor")

SUBMITTED: June 18, 1958

DEN'YANENKO, V.A. (Tula)

Jesmanowicz's problem for Pythagorean numbers. Izv.vys.ucheb.zav.; mat. no.5:52-56 '65. (MIRA 18:10)

USSR / Soil Science. Organic Fertilizers. J

Abs Jour: Ref Zhur-Biol., No 21, 1958, 95758.

Author : Kuz'ko, F. S., Yarchuk, I. I., Dem'yanenko, V. D.
Inst : Kharkov University.
Title : Experiment in the Use of Humic Fertilizers in Khersonskaya Oblast.

Orig Pub: V. sb.: Guminovye udobreniya, Khar'kov, Khar'kovsk. un-t, 1957, 277-284.

Abstract: In 1954 and 1955 in Khersonskaya Oblast, under production conditions, broad tests (carried out on chestnut, sandy and oalyey soils) of the effect of humophos during local application under potatoes, cabbage seedlings and other vegetables from a calculation of 40-50 g per patch (8-10 c/ha) showed its high effectiveness under conditions of good agricultural engineering. -- O. P. Mikhaylova.

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Abs Jour : Ref Zhur - Biol., No 20, 1958, No 91483

Author : Dem'yanenko V.D.
Inst : Kharkov Univ.
Title : On the Use of Marshy Peat as Fertilizer in the Southern USSR.

Orig Pub : V sb.: Gumusovyye udobreniya. Khar'kov, Khar'kovsk. un-t, 1957, 371-374

Abstract : No abstract

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