Aut. Pol. Ch.

USSR/ Laboratory Equipment. Apparatuses, Their Theory I
Construction and Application.

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27366.

Author : L.N. Antipin, Yu.B. Kholmanskikh, S.F. Vazhenin.

Title : Application of Polarograph to Automatic Recording of Polarization Curves in Fused Salts.

Orig Pub: Zh. fiz. khimii, 1956, 30, No. 7, 1672 - 1675.

Abstract: The installation for automatic recording of polarization curves with a polarograph by two different methods is described. 1. By the direct compensation method with following deduction of the voltage drop (current method). In this case, the change of the length of the slide wire of the polarograph corresponds to the change of voltage and the current is recorded with a galvanometer. 2. Commutator method (voltage method). In this

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USSR/ Laboratory Equipment. Apparatuses, Their Theory, Construction and Application. I

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27366.

case, the strength of the current is determined by the working length of the slide wire and the galvanometer serves as a voltmeter. It was established at the recording of anode polarization curves for fused cryolite with alumina (Na_3AlF_6 + 3% of Al_2O_3) by the current method that this method requires a cumbersome treatment of received results. The commutator method is sufficiently accurate for melted salts and allows the curves without any preliminary treatment.

Ural'skiy politekhnicheskiy institut imeni S.M. Kirova, Sverdlovsk, (Salts) (Polarography)

Card 2/2

USSR/Electrochemistry B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26318

Author : L.N. Antipin
Title : Dependence of Discharge Potentials of Aluminum and Sodium Cations on Composition of Cryolite Melt.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 8, 1767-1770

Abstract : The consecutive reduction of Al^{3+} and Na^{+} through Al^{+} and Na_2^{+} to the metallic state at various compositions of melted cryolite was studied by the method of polarization curves in the continuation of the started work (RZhKhim, 1956, 54071). The potential of formation of $Al(E_{Al})$ of Al^{+} attains the maximum at 40% of AlF_3 with the rise of the concentration of AlF_3 and is passes through a minimum at 54% of AlF_3 after that. The curve of the dependence of E_{Na} on the AlF_3 concentration has a minimum at 15% of AlF_3 and a breaking point at 40% of AlF_3. In general the dependence of the magnitudes of E_{Al^+} and E_{Na^+} on the AlF_3 concentration repeat the course of the E_{Al} and E_{Na} curves respectively. The author explains the complicated character of the curves by the presence of complex cations in the melt. The curves of the potentials E_{Al^+} and $E_{Na_2^+}$ referred

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Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26318

to E_{Al} show that the displacement of Na by aluminum is possible only in melts containing 20% of AlF_3. In case of greater AlF_3 contents, the dissolution of Al takes place with the formation of sub-compounds of Na_2F and AlF.

АНТИПИН, Л.М.

USSR/Physical Chemistry - Solutions, Theory of Acids and Bases. B-11

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7290.

Author : S.I. Kuznetsov, L.N. Antipin, S.F. Vazhenin.
Inst :
Title : Character of Change in Some Properties of Aluminate Solutions in Decomposition Process.

Orig Pub: Zh. prikl. khimii, 1957, 30, No 3, 357-361.

Abstract: The character of changes in density, viscosity, specific electrical conductivity, surface tension and oversaturation degree of aluminate solutions at the decomposition process in various industrial regimes is shown. It is found that these properties change very little in the decomposition process. They may be assumed without any great error to be constant in the complete duration of the process with the exception of the initial period.

Card : 1/1 -5-

USSR/Physical Chemistry - Electrochemistry. B-12

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3972.

Author : L.N. Antipin, N.G. Tyurin.
Inst :
Title : Causes of Anode Effect Appearance at Electrolytic Aluminum Production.

Orig Pub: Zh. fiz. khimii, 1957, 31, No 5, 1103-1110.

Abstract: The author connects the appearance of the anode effect (AE) with the formation of fluorine compounds in gases of the Al bath basing on the results of polarization voltage measurements on carbon, platinum and iron electrodes. AE appears on previously fluorinated anodes at little current densities and its duration is proportional to that of fluorination. Analyzing the character of polarization curves of fuses with various Al_2O_3 contents, the author arrives at the conclusion that if the Al_2O_3 content was above 0.5%, a non-conducting

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USSR/Physical Chemistry - Electrochemistry. B-12

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3972.

Author : L.N. Antipin, N.G. Tyurin.
Inst :
Title : Causes of Anode Effect Appearance at Electrolytic Aluminum Production

film containing COF_2 is forming on the anode surface, and if the Al_2O_3 content was under 0.5%, CF_4 is forming. The appearance of this film explains the non-wettability of electrodes by the fuse in the case of AE.

Card : 2/2 -15-

ANTIPIN, L.N.; DUDYREV, V.K.

The behavior of a carbon anode in the electrolysis of cryolite-alumina melts [with summary in English]. Zhur.fiz.khim. 31 no.9: 2032-2035 S '57. (MIRA 11:1)

1.Ural'skiy politekhnicheskiy institut im. S.M. Kirova, Sverdlovsk.
(Carbon) (Electrolysis) (Cryolite)

SOV/137-57-10-18787

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 10, p 49 (USSR)

AUTHORS: Kuznetsov, S.I., Antipin, L.N., Sryvalin, I.T., Serebrennikova, O.V., Derevyankin, V.A.

TITLE: Properties of Aluminate Solutions (Svoystva alyuminatnykh rastvorov)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1957, Nr 58, pp 36-50

ABSTRACT: A study is made of the properties of aluminate solutions for density, viscosity, electrical conductivity (C) and surface tension. Subjected to the investigation were solutions containing ~30-320 g N_2O_{total}/liter and 15-320 g Al_2O_3/liter, with a basicity of 1.48-3.53. The solutions are made by dissolution of grade A_{oo} Al in chemically-pure caustic. These properties of the aluminate solutions are measured at 30, 40, 50, 60, and 80°C. Density is determined by pycnometer, viscosity by the Ostwald viscosimeter, and electrical conductivity by the Kohlrausch bridge. Surface tension is determined by the method of maximum pressure of air bubbles (the "Rebinder" instrument). An investigation of aluminate solutions of various molar Na_2O_{total} Al_2O_3 ratios in accordance with strength show that

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Properties of Aluminate Solutions

at first specific C rises with Na_2O concentration, attaining a maximum at 90-140 g Na_2O_{total}/liter, and then declines. The molar C of aluminate solutions drops smoothly as concentration rises. Molar C decreases with increasing Al_2O_3 concentration in the solution. As temperature rises, the C maximum shifts toward higher concentrations. The viscosity of aluminate solutions containing up to 100 g Na_2O_{total}/liter at various Al_2O_3 concentrations is virtually the same as the viscosity of NaOH solutions of the same strengths. The high values of the molar C of aluminate solutions and the low values of the energies of activation bear witness to the fact that the predominant Na^+ solutions in dilute solutions are also accompanied by a smaller amount of OH^-. Viscosity is determined primarily by the large and sluggish aluminate anions. As temperature rises, the density of the aluminate solutions shows a linear decrease. In dilute solutions, the energies of activation, ϵ_ρ and ϵ_η are 400-700 cal/mole, while in strong solutions they differ and depend upon the $Na_2O:Al_2O_3$ ratio. Surface tension rises with concentration and drops as temperature rises.

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O.B.

ANTIPIN, L.N.

KUZNETSOV, S.I.; SRYVALIN, I.T.; ANTIPIN, L.N.; MIKHALEVA, A.M.

Influence of admixtures on the properties of aluminate solutions. Trudy Ural. politekh.inst. no.58:51-56 '57. (MIRA 11:4)
(Alkali metal aluminates)

ANTIPIN, L.N.

Primary formation of sodium during electrolysis of fused cryolite-alumina. Trudy Ural.politekh.inst. no.58:71-75 '57.
(Sodium) (Aluminum--Electrometallurgy) (MIRA 11:4)

ANTIPIN, L.N.; VAZHENIN, S.F.; TYURIN, N.G.

Critical current density in electrolyte aluminum bath as dependent on alumina content. Trudy Ural.politekh.inst. no.58:177-179 '57.
(Alumina) (Aluminum--Electrometallurgy) (MIRA 11:4)

SOV/163-58-1-3/53

AUTHORS: Antipin, L. N., Vazhenin, S. F., Shcherbakov, V. K.

TITLE: The Electric Conductivity of the System Graphite Electrode - Cryolite Melt - Dissolved Aluminum (Elektroprovodnost' sistemy grafitovyy elektrod - kriolitovyy rasplav - rastvorennyy alyuminiy)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 1, pp 11-15 (USSR)

ABSTRACT: The graphite electrode and cryolite melt were investigated in regard to their electric conductivity by the addition of aluminum metal. The electric conductivity of this system was determined in relation to the cryolite ratio $\frac{NaF}{AlF}$

The electric conductivity of the cryolite melt is influenced by the compounds forming in the interaction between aluminum and graphite electrodes. On addition of the metal to the cryolite melt the electric conductivity is changed according to the modification of the cryolite ratio. At the cryolite ratios 1.9 and 2.7 a maximum of the electric conductivity

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The Electric Conductivity of the System Graphite Electrode - Cryolite Melt - Dissolved Aluminum

occurs, and at the cryolite ratio $\frac{NaF}{AlF_3}$ = 2.3 a minimum occurs.

The results show that in the electrolysis of the cryolite melts complex compounds are formed which modify their structure and composition at the cryolite ratios 1.9, 2.3 and 2.7.

The presence of minima and maxima in the electric conductivity in the curves proves that the interaction between the cations Na^+ and Al^{3+} and the fluorine anions is very complicated. In the cryolite melt complicated cryolite complexes of the type $Al_nF_m^z$ probably exist. The composition of those complexes changes according to the modification of the cryolite ratio. On the addition of the metal to the metal melt a considerable change in the electric conductivity occurs. This change is probably based on the interaction between aluminum and carbon, and is also dependent on the change of the structure especially in the vicinity of the electrode zone. There are 3 figures and 9 references, 9 of which are Soviet.

SOV/163-58-1-3/53

The Electric Conductivity of the System Graphite Electrode - Cryolite Melt - Dissolved Aluminum

ASSOCIATION: Ural'skiy politekhnicheskiy institut
(Ural Polytechnical Institute)

SUBMITTED: October 1, 1957

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SOV/137-58-10-20703

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 52 (USSR)

AUTHORS: Antipin, L.N., Tregubov, A.T., Vazhenin, S.F.

TITLE: Relation of the Quantity of "Carbon Foam" in a Cryolite-alumina Melt to Current Density at the Anode (Zavisimost' kolichestva "ugol'noy peny" v kriolit-glinozemnom rasplave ot anodnoy plotnosti toka)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Tsvetn. metallurgiya, 1958, Nr 1, pp 107-115

ABSTRACT: When the anode cd in the baths is increased, the change in the nature of the process at the anode results in a change in the amount of carbon fines coming down at the anode to form "carbon foam". Investigations conducted with laboratory equipment (in a cylindrical graphite crucible) show that foam formation starts at cd=0.3 amps/cm^2 and increases sharply at cd =0.9 amps/cm^2. The presence of dissolved metal in the electrolyte reduces anode losses and changes the nature of the relationship. Anode losses for anode pastes of various compositions are investigated. They depend upon the composition of the paste and the conditions used in baking the carboniferous

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Relation of the Quantity of "Carbon Foam" (cont.)

material. There are cd (0.6-1.0 amps/cm^2) at which a sharp rise in the amount of foam is observed. This requires that experiments be performed in an industrial cell to determine the cd at which foam formation will be smallest.

B.L.

1. Carbon--Foaming 2. Cryolite--Properties 3. Aluminum oxide--Properties
4. Slags--Electrical effects

AUTHORS: Antipin, L. N., Tregubov, A. T. SOV/163-58-3-10/49

TITLE: The Behaviour of Graphite Samples When Loaded With Constant Current (Povedeniye grafitovogo obraztsa pri nalozhenii postoyannogo toka)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 3, pp 58 - 59 (USSR)

ABSTRACT: The behaviour of the graphite electrode in alumina cryolite melts in the electrolysis with d.c. was investigated. The voltage-current curve was taken in the investigation of the graphite anode in air and oxygen atmosphere. The results showed that a change of the course of the volta e curve occurs with an increase of the voltage difference. The graphite anode changes its shape and color in the electrolysis. The difference of the graphite sample in the anode and cathode area was investigated. The dependence of the residual polarization upon the voltage was investigated and then given in figure 4. From the course taken by the curves may be

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concluded that all curves take a step-wise course, beginning at 0,2, 0,5 and 0,9 V. The occurrence of this step-wise course is not clarified as yet. The assumption was uttered that the presence of dissolved oxygen in graphite was mainly responsible for this phenomenon. There are 4 figures and 1 reference, which is Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

SUBMITTED: October 21, 1957

SOV/149-58-5-7/18

AUTHORS: Antipin, L.N., Vazhenin, S.F. and Sinyagov, A.A.

TITLE: The Nature of Electrolytic Oxidation of the Carbon Anode in Cryolite/Alumina Melts and Its Effect on the Electrical Conductivity of the System (Vliyaniye kharaktera elektroliticheskogo okisleniya uglerodistogo anoda v kriolito-glinozemnykh rasplavakh na yego elektroprovodnost')

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, 1958, Nr 5, pp 62 - 68 (USSR)

ABSTRACT: The object of the present investigations was to study the variation of the electrical conductivity of the systems carbon anode/cryolite + alumina, and carbon anode/cryolite + alumina/metallic aluminium, which were polarised by a DC current so as to obtain data on the optimum current density in electrolytic extraction of aluminium. The conductivity measurements were carried out with the aid of a modified version of a resistance bridge described by Abramov and Vetyukov (Ref 10) which made it possible to reduce to minimum the effects of the inductive and self-capacitance coupling on the experimental results. A sketch of the apparatus used and the circuit diagram

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The Nature of Electrolytic Oxidation of the Carbon Anode in Cryolite-Alumina Melts and Its Effect on the Electrical Conductivity of the System

are reproduced in Figure 1. The experimental conditions were similar to those employed by the authors in their earlier investigations (Refs 8, 9). A graphite crucible constituted the cathode (Detail 7, Figure 1) and in addition to the current-carrying, graphite anode (Detail 6, Figure 1) there was an inner, concentric with it, unloaded, graphite electrode (Detail 5, Figure 1). The experiments consisted of measuring the conductivity between (a) the anode and the inner electrode and, (b) the anode and the cathode under various conditions of the current density, electrolyte composition (the molecular NaF/AlF_3 ratio), with and without the presence of metallic aluminium. Two measurements were made at each value of the current density: one with the DC current on and one immediately after the current was switched off. (Before switching off the current, the anode was polarised for 3 minutes.) Since the shape of the curve showing the relationship between the conductivity of the system and the current density was not affected by the NaF/AlF_3 ratio

The Nature of Electrolytic Oxidation of the Carbon Anode in Cryolite-Alumina Melts and Its Effect on the Electrical Conductivity of the System

of the electrolyte, the results reproduced in the present report are based on the mean values of the data obtained for various experimental compositions of the electrolyte. The variation of the electrical conductivity of the system graphite electrode/cryolite with the current density is illustrated in Figure 2 (graph 1 - current on, graph 2 - current off). In Figure 4, the experimental results for the systems graphite anode/cryolite/metallic aluminium and graphite anode/cryolite (graphs 1 and 2 respectively) are compared with those calculated from the data obtained by Antipin in the course of another investigation (graph 3). It is shown that in the presence of metallic aluminium the variation of conductivity of the system with the current density is markedly altered. The results of the measurements in the system anode/electrolyte/metallic aluminium are reproduced in Figure 4 (graph 1 - current on, graph 2 - current off). Within the current density range

 0 - 0.3 A/cm^2 the conductivity of the system decreased

The Nature of Electrolytic Oxidation of the Carbon Anode in Cryolite-Alumina Melts and Its Effect on the Electrical Conductivity of the System

slowly. At 0.3 A/cm^2 there was a sudden drop in conductivity which then continued to decrease (at a slower rate) with increasing current density. Although the variation of the conductivity of the system graphite electrode/electrolyte/dissolved aluminium was different from that observed in the system graphite electrode/electrolyte, in both cases the relationship conductivity/current density deviated from monotonic at 0.1, 0.3 and 0.9 A/cm^2. For any current density the conductivity was higher when no current was passing through the system. The total decrease of conductivity within the 0 - 1.1 A/cm^2 current-density range amounted to 80%. Conductivity measured between the anode and the cathode varied in the same manner, except that with the current on, it decreased more rapidly with the increasing current density.
To check whether the studied relationship was affected by the anode material, the variation of conductivity of the systems heat-resistant steel/electrolyte and steel/electrolyte/metallic aluminium was also determined, the

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results being reproduced in Figure 5. In both cases, linear variation of conductivity was observed. In the steel/electrolyte system it increased with the increasing current density, while in the presence of metallic aluminium it decreased. This proved that the variation of conductivity observed in the systems incorporating graphite anodes was confined to the anodes and that - as had been postulated before (Refs 1, 7, 11) - the changes of conductivity occurring at the characteristic values of the current density (0.1, 0.3 and 0.9 A/cm^2) are caused by the action of anodic oxygen (the interesting fact is that presence of oxygen in the lattice of the graphite anode results in an increase in conductivity in the 0 - 0.3 A/cm^2 current density range). The minimum on the conductivity curve at 0.9 A/cm^2 is attributed to a high concentration of the carbon particles in the

The Nature of Electrolytic Oxidation of the Carbon Anode in Cryolite-Alumina Melts and Its Effect on the Electrical Conductivity of the System

immediate neighbourhood of the anode; at higher current densities these particles become distributed uniformly throughout the electrolyte and the conductivity of the system increases. It is postulated that the change in the conductivity/current density relationship in the presence of metallic aluminium is associated with the interaction between lower valency cations (Al^+ and Na_2^+) with the oxygen chemisorbed on the carbon surface. There are 5 figures and 12 Soviet references.

ASSOCIATION: Ural'skiy politekhnicheskiy institut. Kafedra metallurgii legkikh metallov (Ural Polytechnical Institute. Chair of Metallurgy of Light Metals)

SUBMITTED: April 28, 1958

AUTHORS: Antipin, L.N. and Vazhenin, S.F. SOV/136-58-12-12/22

TITLE: Influence of CaF_2 and MgF_2 on the Electrical Conductivity of the System "Carbon Electrode - Cryolite Melt - Dissolved Aluminium" (Vliyaniye CaF_2 i MgF_2 na elektroprovodnost' sistemy "uglerodistyy elektrod - kriolitovyy rasplav - rastvorennyy alyuminiy")

PERIODICAL: Tsvetnyye Metally, 1958, Nr 12, pp 56 - 60 (USSR)

ABSTRACT: The authors draw attention to the discrepancies in the literature on the effects of fluorides on the electrical conductivity of aluminium electrolytes, some authors (Refs 1, 2) stating that the effect is positive, others (Refs 4, 5) that it is negative. They outline the results of their study in which B.M. Khamzin and Ya.A. Sal'nikov participated, of the influence of CaF_2 amd MgF_2 on the conductivity of the system: carbon electrode - cryolite melt - dissolved aluminium, or without the last component. As they had previously indicated (Refs 6, 7), results with such systems are more applicable to practice than those obtained with the "pure" electrolyte. A Kohlrausch bridge with a type ZG-10 sonic-frequency was used, the null point

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101720003-7"

Influence of CaF_2 and MgF_2 on the Electrical Conductivity of the System "Carbon Electrode - Cryolite Melt - Dissolved Aluminium"

being found with the aid of a piezo-electric telephone. The measuring device was made of graphite. The experiments were carried out in a Silit furnace with automatic temperature regulation with an MRSHchPR-54 millivoltmeter and a chromel-alumel thermocouple. It was found that for the system "graphite electrode - cryolite melt" the addition of 7-9% CaF_2 increases the conductivity but further additions reduce it (line 1 in Figure 1); with the system including dissolved aluminium it does not change up to a certain concentration of CaF_2 (line 2 in Figure 1), which depends on the cryolite ratio and above which the conductivity decreases. Addition of MgF_2 to the aluminium-less system for cryolite ratios below 2.5 reduce the conductivity linearly; for higher ratios the conductivity passes through a minimum at 5-6% MgF_2. With aluminium

Influence of CaF_2 and MgF_2 on the Electrical Conductivity of the System "Carbon Electrode - Cryolite Melt - Dissolved Aluminium"

there is a linear decrease in conductivity with increasing MgF_2 contents for all cryolite ratios.

There are 3 figures and 9 references, 7 of which are Soviet, 1 English and 1 Scandinavian.

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ANTIPIN, L.N.; VAZHENIN, S.F.; SAL'NIKOV, Ya.A.

Effect of aluminum on wetting of graphite by molten aluminum-cryolite mixtures. Zhur. prikl. khim. 31 no.7:1103-1105 Jl '58. (MIRA 11:9)
(Graphite) (Aluminum) (Cryolite)

AUTHORS: Antipin, L. N., Tyurin, N. G. 76-32-3-22/43

TITLE: The Dependence of the Potential of a Carbon Reference Electrode on the Content of Oxygen in Molten Cryolite (Zavisimost' potentsiala ugol'nogo elektroda sravneniya ot soderzhaniya kisloroda v rasplavlennom kriolite)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 3, pp. 640-643 (USSR)

ABSTRACT: It was found by O. A. Yesin, L. K. Gavrilov and B. M. Lepinskikh (reference 1) that the potential of the electrodes mentioned in the title is determined by the content of oxygen absorbed in the coal. Later, a formula for the determination of this dependence in cryolite-alumina-electrolytes was set up. In the present work, it was attempted to determine the dependence of the potential of the carbon-electrode from the content of Al_2O_3. From the given experimental method, it follows that in the potential determinations, two methods were employed. According to the first method, a crucible with a diaphragm of molten magnesium was used, where the cell had the arrangement

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C/Na_3AlF_6 + 16% Al_2O_3:Na_3AlF_6 + n%Al_2O_3/C .

The second variety used an arrangement which was used in investigations of the anodic effect. In the performed experiments, a very strong influence of the aluminum dissolved in the electrolyte upon the electrode potential of the carbon-electrode was observed, whereas the character of the curve indicates a complicated interaction of alumina with the molten cryolite. It is found that the above-mentioned formula of calculation, to judge from the experimental results, is not applicable. The resistance measurements in the system C/Na_3AlF + n%Al_2O_3/C showed that at a content of 1% Al_2O_3 a maximum exists, whereas in the interval 2-10% Al_2O_3 no great differences were observed.

There are 3 figures and 8 references, 8 of which are Soviet.

The Dependence of the Potential of a Carbon Reference Electrode on the Content of Oxygen in Molten Cryolite 76-32-3-22/43

ASSOCIATION: Politekhnicheskiy institut im. S. M. Kirova, Sverdlovsk
(Polytechnic Institute imeni S. M. Kirov, Sverdlovsk)

SUBMITTED: September 28, 1956

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[redacted]

5(4)

PHASE I BOOK EXPLOITATION SOV/2216

Soveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor; S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor, Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, P.D. Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodepositon and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

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18(4),5(1),8(0)

AUTHORS: Antipin, L. N., Vazhenin, S. F., Sinyagov, A. A.

SOV/163-59-1-11/50

TITLE: Influence of Current Density Upon the Electric Conductivity of the System Carbon Electrode-Kryolithe Melt-Dissolved Aluminum (Vliyaniye plotnosti toka na elektroprovodnost' sistemy uglerodistyy elektrod-kriolitovyy rasplav-rastvorennyy alyuminiy)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 1, pp 48-52 (USSR)

ABSTRACT: The bridge circuit described by Abramov and Vetyukov (Ref 8) served as the basis of the measurements carried out in this investigation. Into this circuit additional capacities were introduced. They prevent the direct current from entering the input of the amplifier and the high-frequency generator. A reactive coil was inserted to avoid a short-circuiting of the alternating current caused by the control resistance. A VSA-8 selenium rectifier was used as a direct current source. The measuring instrument was identical with that used in the work by Antipin, Vazhenin, and Sucherbakov, cited by reference 1. The conductivity was measured between the outside electrode

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serving as an anode and the inside electrode (carrying no current load), and between the anode and the graphite crucible serving as a cathode. The experiments showed that the variation of the electric conductivity of the system anode-electrolyte-dissolved metal differs from that of the system without metal if the current density at the anode is increased. In both cases, however, deviations from the monotonous course of the curves were found at current densities of 0.1, 0.3, and 0.9 amps/cm^2. In the range of 0 to 1.1 amps/cm^2 the electric conductivity drops by 80 %. When the conductivity was measured between the anode and the cathode, a similar relationship was found, with only the difference that the conductivity decreases much more rapidly if the current is switched on. The graphite electrodes were replaced by metal electrodes (of heat resisting steel) as to solve the problem whether the material of the electrodes influences the nature of the conductivity versus current density function, and whether the rules found to govern the behaviour of graphite electrodes are specific only to them. The results of the investigation show that in this case the conductivity varies as the current

density. If a metal is introduced into a system with a metal electrode, this relationship becomes reciprocal. The experiments showed that the complicated nature of the course taken by the conductivity versus current density function in the system electrode-electrolyte and electrode- electrolyte- dissolved metal is determined by the processes occurring in the carbon anode. A comparison of the results of the present paper with those from earlier papers (Refs 3-7) lead to the conclusion that the pronounced variations of conductivity at current densities of 0.1, 0.3, and 0.9 amps/cm^2 are connected with the interaction of carbon and oxygen. There are 3 figures and 8 Soviet references.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

SUBMITTED: April 14, 1958

ANTIPIN, L.N.; VAZHENIN, S.F.

Effect of metal dissolved in an electrolyte on the magnitude of the critical current density. Trudy Ural. politekh. inst. no.98: 116-120 '60. (MIRA 14:3)
(Aluminum—Electrometallurgy)

ANTIPIN, L.N.; VAZSENYIN, Sz.F. [Vazhenin, S.F.]; PACZOLAY, Gyula, vegyeszmernok [translator]

Optimum molar ratio of the electrolyte of aluminum electrolyzers. Koh lap 93 no.8:352-355 Ag '60.

1. Urali Muegyetem Kohaszati Tanszek, Szverdlovszk. (for Antipin and Vazhenin).

ANTIPIN, Lev Nikolayevich; VAZHENIN, Sergey Filippovich; KAL'CHENKO, V.S., retsenzent; SYRCHINA, M.M., red. izd-va; TURKINA, Ye.D., tekhn. red.

[Saving of electric power in stepped-up production of aluminum] Ekonomiia elektroenergii pri intensifikatsii proizvodstva aliuminiia. Sverdlovsk, Metallurgizdat, 1961. 34 p. (MIRA 16:1)
(Electric power) (Aluminum)

REMPEL', Samuil Izrayl'evich; ANTIPIN, L.N., retsenzent; SYRCHINA, M.M., red. izd-va; MATLYUK, R.M., tekhn. red.

[Anodic process in the electrolytic production of aluminum] Anodnyi protsess pri elektroliticheskom proizvodstve aliuminiia. Sverdlovsk, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii. Sverdlovskoe otd-nie, 1961. 143 p. (MIRA 14:6)
(Aluminum—Electrometallurgy)

ANTIPIN, Lev Nikolayevich; VAZHENIN, Sergey Filippovich; KAL'CHENKO, V.S., retsenzent; SYRCHINA, M.M.,; TURKINA, Ye.D., tekhn. red.

[Economy of electric power consumption with an increase in aluminum production] Ekonomiia elektroenergii pri intensifikatsii proizvodstva aliuminiia. Sverdlovsk, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii. Sverdlovskoe otd-nie, 1961. 34 p. (MIRA 14:10)
(Aluminum—Electrometallurgy) (Electric power)

L 18807-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/WH/K

ACCESSION NR: AP3000285 S/0021/63/000/005/0618/0623

AUTHOR: Chernobayeb, I. P.; Antropin, L. N.; and Loshkar'ov, M. O. 61 59

TITLE: Producing dispersed metallic powders by electrical reduction of difficultly soluble compounds in fused media (Presented by Yu. K. Delimars'ky*y, member, AN URSR)

SOURCE: AN UkSSR Dopovidi, no. 5, 1963, 618-623

TOPIC TAGS: metal powder, electrical reduction, metal oxide dioxide, trioxide compound, current density, electrolyte, fused electrolyte, alkaline metal chloride

ABSTRACT: The authors state that there is wide use of metallic powders in industry and that they are of especial significance in a relatively new branch of industry - powder metallurgy. They produced dispersed metal powders by electrolysis of difficultly soluble and fusible oxides of metals (Mo, V, Cr, Co, Ni, Ti and others) in electrolytes of fused alkaline and alkaline-earth metal chlorides contained in a 300 cc graphite crucible. Experiments show that, in the reduction of Fe sub 2 O sub 3, the maximum current output is

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ACCESSION NR: AP3000285

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obtained at 800 degrees Centigrade and with a current density of 1 ampere per square centimeter. The dendritic powders obtained were of 10 to 30 micron size which indicates the feasibility of their use in the manufacture of metalloceramic parts. Orig. art. has: 3 tables, 2 graphs and 1 microphoto graph.

ASSOCIATION: Ukr. dershavny*y proektny*y insty*tut kol'orovoyi metalurgiyi, Zaporiz'ky*y farmatsevty*chny*y insty*tut (Ukranian. State Planning Institute of Non-Ferrous Metallurgy; Zaporizkie Pharmaceutical Institute)

SUBMITTED: 8May62	DATE ACQ: 17Jun63	ENCL: 00
SUB CODE: ML	NO REF SOV: 010	OTHER: 000

Card 2/2

ANTIPIN, Lev Nikolayevich; VAZHENIN, Sergey Filippovich; REMPEL', S.I., red.; EL'KIND, L.M., red.izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Electrochemistry of fused salts] Elektrokhimiia rasplavlennykh solei. Moskva, Metallurgizdat, 1964. 355 p. (MIRA 17:3)

[illegible], I.I., ANTIPIN, I.N.; VACHEN[illegible], [illegible]; [illegible]; [illegible], V.T.

Adjusting the electrolyte of an aluminum bath with a liquid melt. Tsvet. met. 38 no.8:58-60 Ag '65. (MIRA 18:9)

STOROZHENKO, V.N.; VAZHENIN, S.F.; ANTIFIN, I.M.

Use of a high-temperature microscope for plotting the diagrams of state of salt systems. Zhur. fiz. khim. 39 no.2:524-527 F '65.

1. Ukrainskiy gosudarstvennyy proyektnyy i nauchno-issledovatel'skiy institut tsvetnoy metallurgii.

VARFOLOMEYEV, D.F.; BUGAY, Ye.A.; DUDIN, V.N.; ZAGRYATSKAYA, L.M.; ANTIPIN, M.K.; MARKINA, A.I.; POLINSKAYA, M.R.;

Recovering spent caustic using flue gases. Trudy Bash NIINP no.5: 319-322 '62. (MIRA 17:10)

1. Ordena Lenina Ufimskiy neftepererabatyvayushchiy zavod.

MASAGUTOV, R.M.; BERG, G.A.; VARFOLOMEYEV, D.F.; SELIVANOV, T.I.; KULINICH, G.M.; MIRONOV, A.A.; KIRILLOV, T.S.; PAU, G.M.; ANTIPIN, M.K.; DEREVYANKO, P.I.; SMIRNOVA, S.G.

Hydrofining of diesel fuel with decreased expenditure of hydrogen on an industrial plant. Khim. i tekh. topl. i masel 10 no.2:3-6 F '65. (MIRA 18:8)

1. Bashkirskiy nauchno-issledovatel'skiy institut po pererabotke nefti i ordena Lenina Ufimskiy neftepererabatyvayushchiy zavod.

OSIPOV, L.N.; ANTIPIN, M.K.; KHAVKIN, V.A.

Plant practice in regenerating alumocobalt molybdenum catalysts. Neftepер. i neftekhim. no.7:7-9 '65. (MIRA 18:12)

1. Ordena Lenina Ufimskiy neftepererabatyvayushchiy zavod i Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

ANTIPIN, M.N., insh.

Changes introduced in the design of the "Mavag" steam engine.
Energetik 8 no. 12:14-15 D '60. (MIRA 13:12)
(Steam engines)

ANTIPIN, M.S.

Some data on late fall sowing of spring wheat in Yakutia. Uch.zap. IAOU No.6:105-114 '59. (MIRA 13:12)
(Yakutia--Wheat)

[illegible], M. V.

Antipin, M. V.

"The determination of the number of 'normal' scanning lines in television transmission tubes in terms of outside patterns." Min Higher Education USSR. Leningrad Electrical Engineering Inst imeni V. I. Ul'yanov (Lenin). Chair of Television. Leningrad, 1956. (Dissertation For the Degree of Candidate In Technical Sciences.)

Knizhnaya letopis'
No 21, 1956. Moscow.

SOV/106-58-9-2/17

AUTHOR: Antipin, M.V.

TITLE: The Frequency Spectrum of the Video Signal of Vertical and Horizontal Wedges in the Test Chart (O chastotnom spektre videosignala vertikal'nogo i gorizontal'nogo klin'yev ispytatel'noy tablitsy)

PERIODICAL: Elektrosvyaz', 1958, Nr 9, pp 7 - 17 (USSR)

ABSTRACT: It is concluded the horizontal wedge is unsuitable for measuring the transverse resolving power of a television system. The present form of test chart, 0249, uses vertical and horizontal wedges for estimating system resolution. Their use is justified if the video signal contains no spurious components. Until the present time the only published account of the video spectrum of a simple shape is that due to Mertz and Gray (Ref 1). This paper is of little interest since it gives no information on the effect of spurious responses on small details in the image. Fig 1 shows the geometry of a horizontal wedge: 2d is the least transverse dimension of the wedge, k is the aspect ratio, α is the slope angle of the wedge, $E_o(x,y)$ is the brightness at a point (x,y).

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The Frequency Spectrum of the Video Signal of Vertical and Horizontal Wedges in the Test Chart

Equation (1) shows how to decompose a 2-dimensional periodic function (Ref 2). $E_o(x,y)$ is then given by a double series as in (2). Summing all the components of the same frequency, the series is re-arranged in (3), where A_{oo} is the constant component of brightness, A_m is the x-axis harmonic, A_n is the y-axis harmonic, A_{mn} is the amplitude of the harmonic which is periodic in both directions, φ_{mn} is the phase angle associated with A_{mn}. Fig 2 shows the results of spectrum calculations for wedges of semi-angle 1°, 3° and 6°. The frequencies are normalized to line-frequency and the number of lines is also varied. It will be seen that at certain fixed frequencies there is more than one harmonic component and this gives rise to spurious responses. By increasing α and z, the number of lines, the spurious level decreases and vice versa. The first action also shifts the unwanted signals to the upper end of the spectrum while the second does the opposite. The frame frequency N

has no influence on the result. The physical explanation of the phenomenon is given in Fig 3. The sloping lines give rise to harmonic components of different wavelengths λ. A horizontally scanning spot encounters them all at equal intervals and generates components of the same frequency. Equation (6) is the expression for point-brightness with a vertical wedge and Fig 4 shows the video signal components in a way similar to Fig 2. The level of spurious responses is very low and the effect on the image is slight. In order to estimate the likely level at which the spurious responce (moiré pattern) will appear when a horizontal wedge is used, the brightness distribution (Gaussian) of Fig 5 is assumed. Equation(11) is the transfer function for the brightness components of the spurious elements. The interesting parameter here is g_ξ, the ratio of the scan pitch to the nominal radius of the scanning spot. According to Ya. A. Ryftin (Ref 4) there is an optimum value of this parameter to give best

 legibility, viz 2·2, and with this substitution Fig 6 shows

the transfer function (11). The abscissae quantity is the ratio of the number of harmonic components in the y-direction to the number of scanning lines. The most objectionable response occurs when (12) is fulfilled and Fig 7 shows how the magnitude of this worst effect varies with the value of g_1. Below $g_1 = 1{\cdot}5$ there is little effect but between 1·5 and 2·5 the effect increases five times. Under ordinary scanning conditions the maximum value of (11) is 0.35. Fig 8a shows the effect of scanning the horizontal wedge of Fig 8b through a photo-telegraph system equivalent to a television channel. Fig 9 shows the same conditions for a vertical wedge.

The Frequency Spectrum of the Video Signal of Vertical and Horizontal Wedges in the Test Chart

Hence the horizontal wedge may not be used for resolution measurements because of the moiré pattern created.

There are 9 figures and 4 references, 3 of which are Soviet.

SUBMITTED: February 24, 1958

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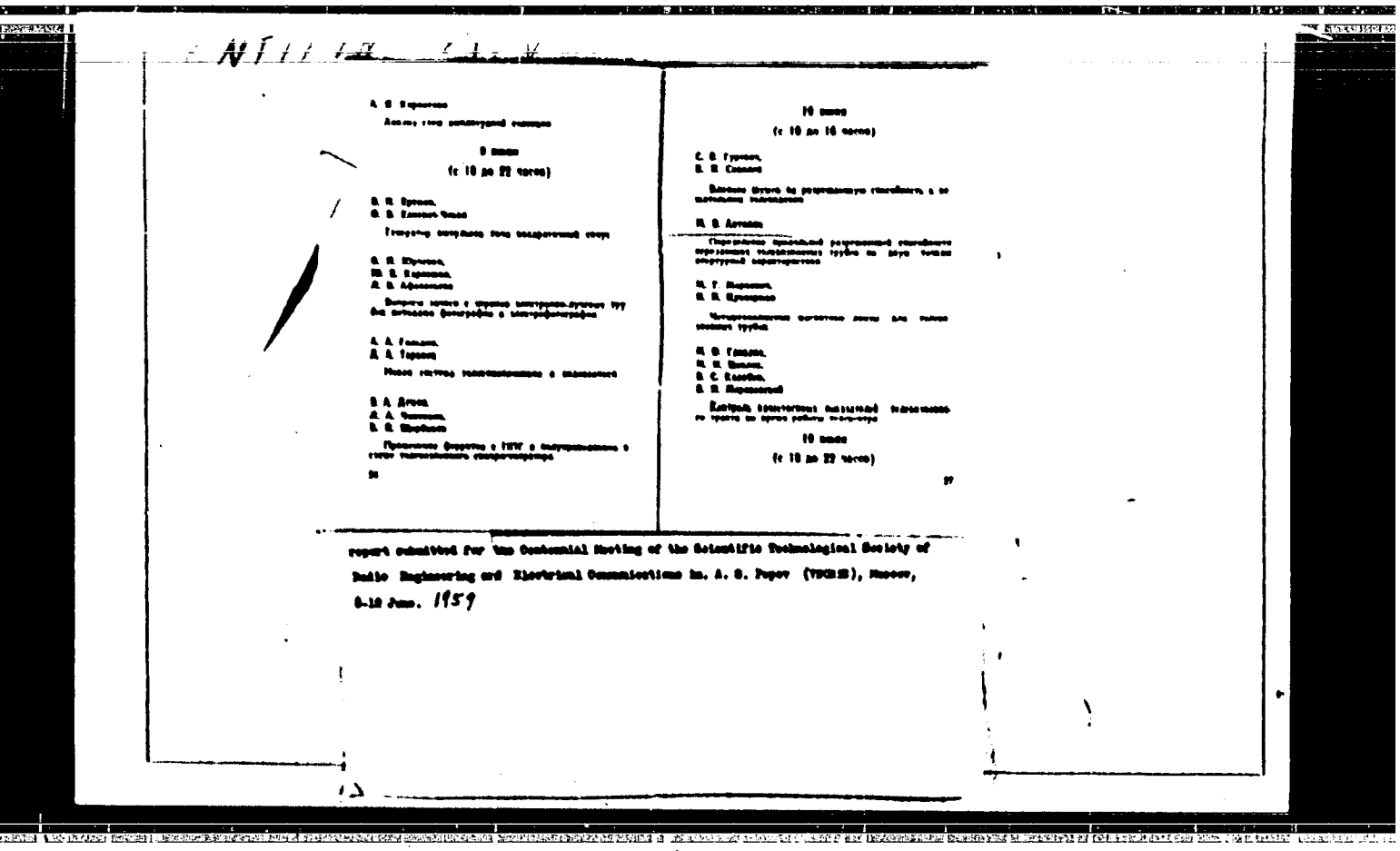


report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNOIRE), Moscow, 6-12 June. 1959

RYFTIN, Ya.A.; ANTIPIN, M.V.

New method for evaluating the resolving power of television transmitter tubes. Zhur.tekh.fiz. 29 no.2:252-260 F '59. (MIRA 12:4)

1. Leningradskiy elektrotekhnicheskiy institut im. V.I.Ul'yanova (Lenina).

(Television--Transmitters and transmission)

ANTIPIN, M.V.

Determining the longitudinal resolving power of pick-up tubes by two points of the aperture characteristic. Tekh.kino i telev. 4 no.6:49-56 Je '60. (MIRA 13:7)

1. Kafedra televideniya Leningradskogo elektrotekhnicheskogo instituta im. V.I.Ul'yanova (Lenina).
(Television cameras)

ANTIPIN, N. A.

Preparation for surveys of natural meadows and pastures in Ryazan Province. Korm. baza 3 no. 7, 1952.

SO: MLRA. September 1952.

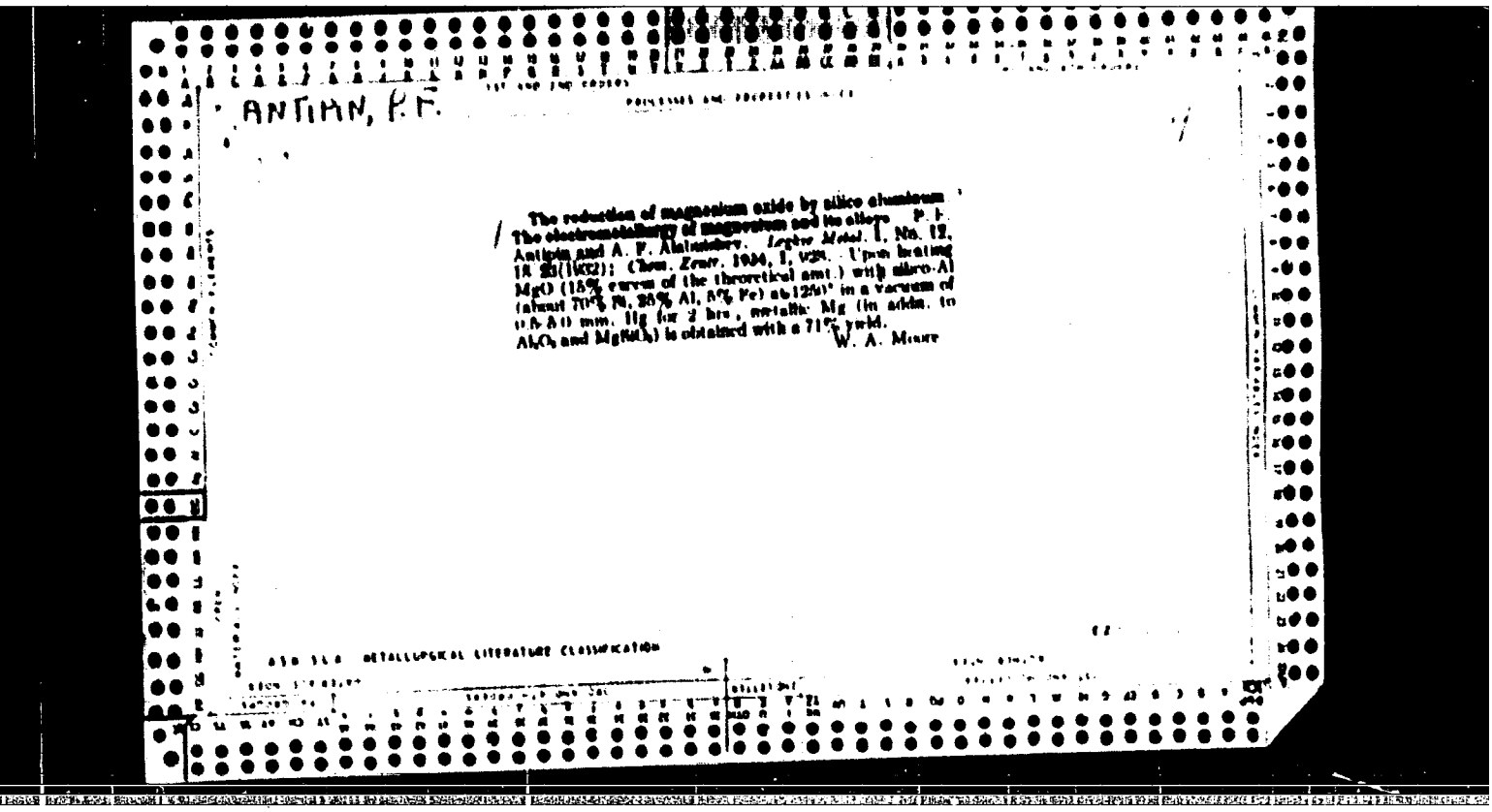
RAMENSKIY, Leontiy Grigor'yevich, doktor biologicheskikh nauk, professor [deceased]; TSATSENKIN, I.A., doktor sel'skokhozyaystvennykh nauk, professor; CHIZHIKOV, O.N., kandidat sel'skokhozyaystvennykh nauk; ANTIPIN, N.A., kandidat sel'skokhozyaystvennykh nauk; MOROZOV, D.N., redaktor; BALLOD, A.I., tekhnicheskiy redaktor

[Ecological rating of forage lands based on vegetation] Ekologicheskaia otsenka kormovykh ugodii po rastitel'nomu pokrovu. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1956. 470 p. (MLRA 10:2)
(Botany--Ecology) (Pastures and meadows)

TSATSENKIN, I.A., prof., doktor sel'skokhozyaystvennykh nauk; ANTIPIN, N.A., kand.sel'skokhozyaystvennykh nauk; CHIZHIKOV, O.N., kand. sel'skokhozyaystvennykh nauk. Prinimali uchastiye: NEMAROKOV, M.I., lugovod; KAVER, M.V., inzh.; YEMEL'YANOV, F.V., red.; ANTONOVA, N.M., tekhred.

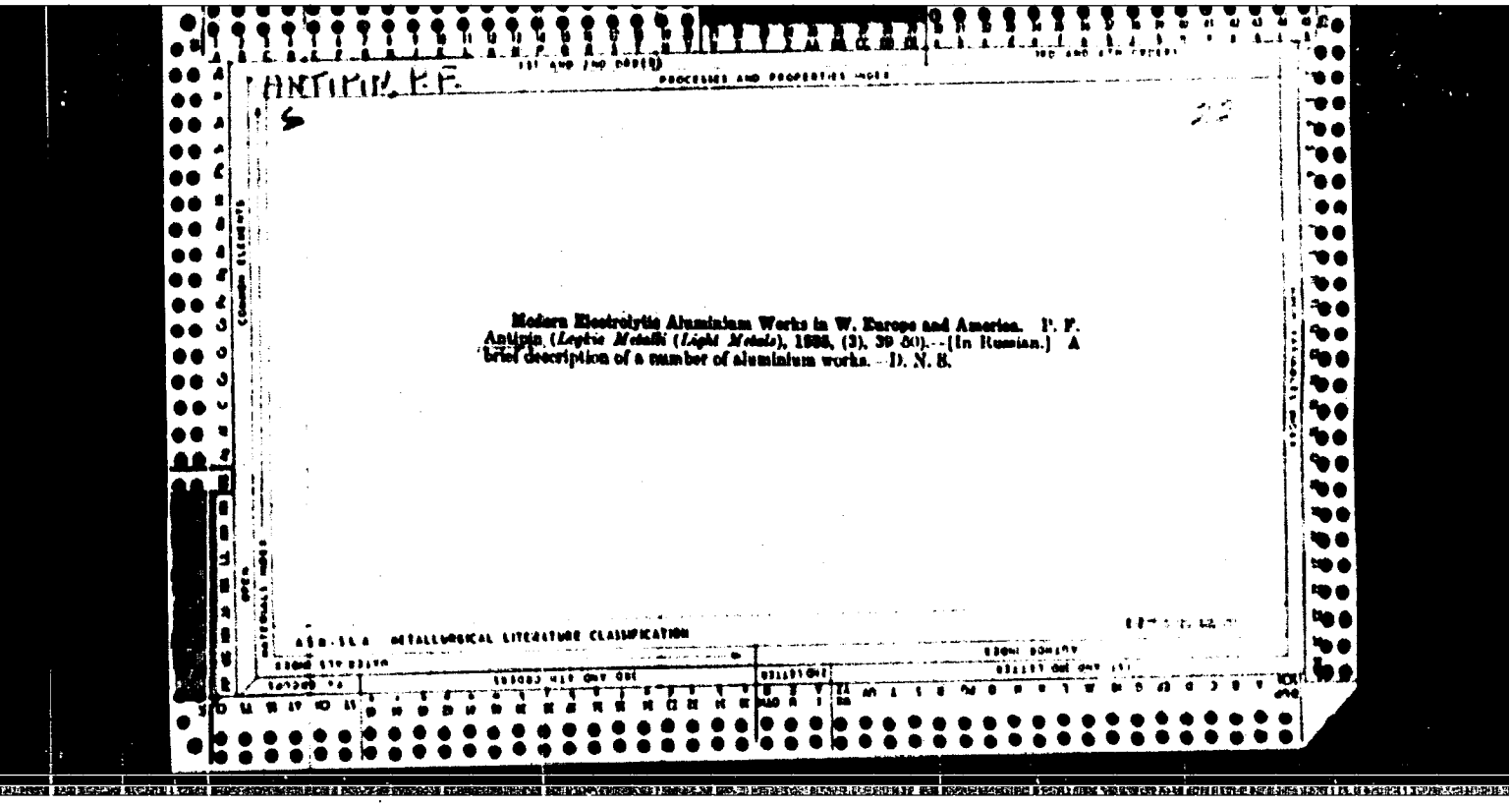
[Methods of evaluating natural pastures and meadows] Metodika pasportizatsii prirodnykh kormovykh ugodii. Moskva, Izd-vo M-va sel'. khoz. SSSR, 1959. 109 p. (MIRA 12:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut kormov. (Pastures and meadows)



ANTIKN, P.F.

The reduction of magnesium oxide by silico aluminum
The electrometallurgy of magnesium and its alloys P. F.
Antipin and A. P. Alabushev. *Legkie Metal.* 7, No. 12,
18-25(1932); (Chem. Zentr. 1934, I, 928. Upon heating
MgO (15% excess of the theoretical amt.) with silico-Al
(about 70% Si, 25% Al, 5% Fe) at 1250° in a vacuum of
0.5-0.0 mm. Hg for 2 hrs., metallic Mg (in addn. to
Al_2O_3 and $MgSiO_3$) is obtained with a 71% yield.
W. A. Moore



ANTIPIN, I. F.

5

Modern Electrolytic Aluminium Works in W. Europe and America. I. F. Antipin. (*Legkie Metalli* (*Light Metals*), 1938, (3), 39-50).--[In Russian.] A brief description of a number of aluminium works.--D. N. S.

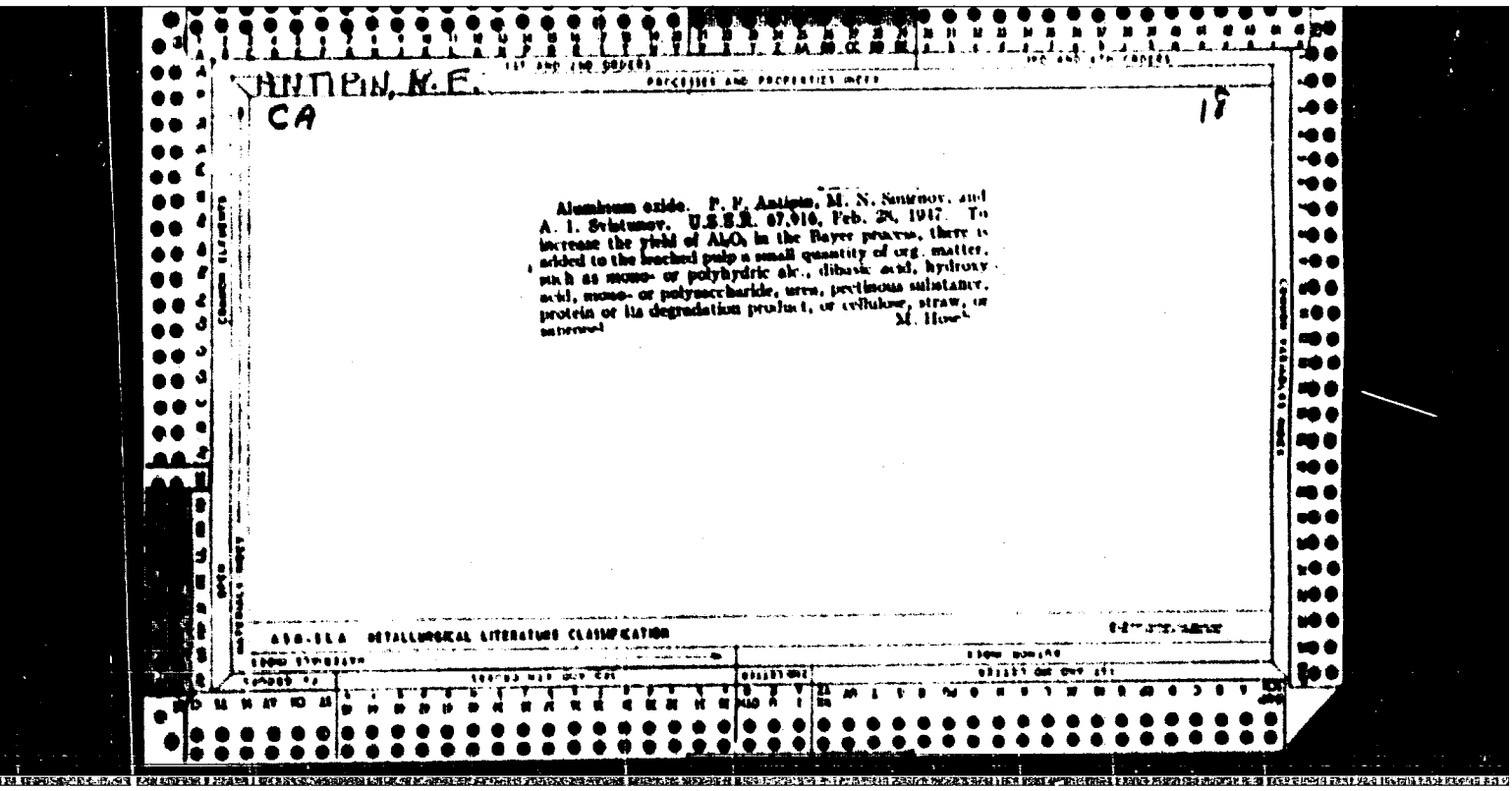
CA

ANTIPIN, P. F.

PROCESSES AND PROPERTIES INDEX

Utilizing the scum of fused cryolite oxide baths. M. I. Popkov and P. F. Antipin. *Trudy Vsesoyuz. Aluminiev. Magn. Inst.* 1939, No. 19, 231-9; *Khim. Referat. Zhur.* 1940, No. 6, 101.—Scum dried at 200° was sepd. into 3 fractions (1) 0-1 mm. (49.8%); (2) 1-3 mm. (28.8%), and (3) more than 3 mm. (21.4%). The last fraction, contg. approx. 90% cryolite was put back into the bath without any treatment. The mass of the first 2 fractions was ground to 70 mesh and added in amts. of from 10 to 66% to the electrode mix (instead of the fine fraction of petroleum coke) for prepg. Soderberg continuous electrodes. This mix usually consisted of petroleum coke 70% and pitch 30%. With addn. of sludges (1) and (2) the amt. of fine coke was decreased correspondingly. The electrodes were heated in an elec. furnace under conditions similar to those for baking Soderberg electrodes in a commercial Al bath. The electrode lengths weighed 6 kg. They were heated gradually to 1000° during 8 hrs., kept at this temp. for 4 hrs. and cooled for 6 8 hrs. down to 200°. Addn. of 10% (1) and (2) increased the resistance of the electrodes to oxidation, did not affect the mech. properties, and increased, slightly, the elec. resistance. Addn. of 25-30% of (1) and (2) increased the elec. resistance considerably. Addn. of over 30% of (1) and (2) is not recommended as the increase in elec. resistance is excessive and the electrodes become too porous. The performance of the electrodes was verified in an Al-cryolite bath at 1000 amp. A 10% addn. of (1) and (2) is recommended. The slight increase in resistivity is overbalanced by the advantages derived from utilizing the cryolite and C contained in the scum. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA ANTIPIN, F. F. 7

Formation of silicon carbide in the electrolysis of cryolite-alumina melts P. F. Antipin and L. I. Ivanova. *Doklady Akad. Nauk S.S.S.R.* 70, 283-6(1950).—Cryolite-Al_2O_3 melts contg. SiO_2 were electrolyzed at 1000° in a graphite crucible, with molten Al as cathode and graphite rod as anode. A fine-grained substance found in the melt was insol. in HF, and its n was equal to that of SiC. Calcn. of x-ray d. and chem. analysis indicate SiC. The amt. of SiC increased with time, reaching 2.14% by wt. in 6 hrs.; in the absence of metallic Al, SiC was not found. Formation of SiC can occur through $Al_4C_3 + 3SiO_2 = 2Al_2O_3 + 3SiC$, $Al_4C_3 + 3Si = 4Al + 3SiC$, and $Si + C = SiC$. Possibility of these reactions is confirmed by thermodynamic calcns. of max. work and consts. of equil. at 1300°K. As SiC gradually accumulates in the bath, it interferes with the normal electrolytic process. H. Z. Kamish

Silica subchloride. P. P. Antipin and V. V. Bergeev. *Zhur. Prikład. Khim.*, 37, [illegible].—To det. the conditions of formation of $SiCl_2$ and some of its properties, Cl was passed over Si in a quartz tube maintained at different temps. All of the Cl reacted at the entrance end of the tube so that only $SiCl_4$ passed on to the high-temp. zone of the reactor; the quartz condensers placed at the exit end of the tube were clean at the lower temps. and covered with elemental Si at the higher temps.; this indicates that the product formed ($SiCl_2$) decompd. The mol. ratio Cl/Si in the gas phase plotted as a function of the temp. gave the following values for the ratio at the temps. 1173, 1223, 1273, 1373, 1473, 1573, and 1673°K.: 4, 4, 3.95, 3.75, 3.18, 2.35, and 2.105, resp. The calcd. values of the equil. const. for the reaction $SiCl_4 + Si \rightleftharpoons 2SiCl_2$ were 0.0257, 0.1428, 0.695, 4.72, and 18 at 1273, 1373, 1473, 1573, and 1673°K., resp. For the corresponding temps. the free energies of the reaction were calcd. as +18.7, +11.0, +3.52, 3.6, and −10.7; the free energies of formation from the elements of $SiCl_2$ were then (by difference) −42.30, −44.7, −46.84, −49.8, and −50.7, resp. The increase in stability with temp. corresponds to the same effect with similar compds.: CO, SO, and AlCl. I. Bencowitz

ANTIPIN, P.Ye.; SMIRNOV, G.M.

Tension of yarn ends with forces acting in several directions. Izv. vyz.ucheb.zav.; tekh.tekst.prom. no.5:110-113 '60. (MIRA 13:11)

1. Zhdanovskiy metallurgicheskiy institut.
(Yarn) (Textile machinery)

[illegible], V.F., starshiy prepodavatel'

Determining stresses in a circular plate with a press-fitted square-shaped disk. Izv.vys.ucheb.zav.; mashinostr. no.7:5-10 '64.
(MIRA 17:10)

1. Zhdanovskiy metallurgicheskiy institut.

ANTIPIN, P.K., inzh.

Determining stresses in the bushing of a part in case of its wringing fit on a rounded trihedral shaft. Rasch.na prochn. no.11:89-95 '65. (MIRA 19:1)

ORLOV, S.I.; KOLMOGOROV, V.L.; ANTIPIN, S.V.; ZAVAROV, S.I.; SOLOV'YEV, B.P.; VOROB'YEV, G.M.; KIRCHUNOV, A.I.

Introduction of sectional drawplates for the manufacture of low-carbon wire steel. Metallurg. 10 no.10:28-29 O '65.
(MIRA 18:10)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov i Revdinskiy metizno-metallurgicheskiy zavod.

1. [illegible]

2. [illegible]

4. Yarn

7. One of the ways for accelerating on yarn. [illegible], 1952.

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

ANTIPIN, S.V.

New method of determining the closeness of a fabric's weave.
Tekst.prom. 14 no.2:30 F '54. (MLRA 7:5)
(Textile fabrics)

ANTIPIN, S.V.

Instrument for measuring the tension of the warp and web. Tekst. prom. 14 no.11:30-31 N '54. (MLRA 8:1)

1. Zaveduyushchiy laboratoriyey Leshnevskoy fabriki.
(Textile machinery)

ANTIPIN, S.V.

Experience acquired in staple fiber processing. Tekst.prom.16 no.1:50-52 Ja '56. (MLRA 9:4)
(Leshnevo--Textile industry)

ANTIPIN, S.V.

Ways of increasing the size of weft packages. Tekst.prom. 17 no.10:56 O '57. (MIRA 10:12)

1.Zaveduyushchiy laboratoriyey Leshnevskoy fabriki.
(Looms)

ANTIPIN, S.V.

Ways to improve the physicomechanical properties of cotton yarn. Tekst. prom. 19 no.7:76-78 Jl '59. (MIRA 12:11)

1.Zaveduyushchiy Leshnevskoy pryadil'no-tkatskoy fabriki.
(Cotton yarn)

ANTIPIN, S.V.

Simplified layout for spinning stable fibers. Tekst.prom. 20 no.6:60-61 Je '60. (MIRA 13:7)

1. Zaveduyushchiy laboratoriyey Leshnevskoy pryadil'no-tkatskoy fabriki.
(Spinning)

ANTIPIN, S.V.

Experience in the use of the [illegible] preparation in the sizing of spun yarn. Tekst. prom. 15 no.6:32-33 Je '55.

(MIRA 18:8)

1. Zavedyushchiy laboratoriyey [illegible] Ivanovskoy khlopchatobumazhnoy tkatskoy fabriki.

ANTIPIN, V.

Improve the structure and reduce the staff of state farms. Fin. SSSR 22 no.1:77-79 Ja '61. (MIRA 14:1)

1. Nachal'nik otdela finansirovaniya sel'skogo khozyaystva Krasnoyarskogo krayfinotdela.
(Krasnoyarsk Territory—State farms—Finance)

ANTIPIN, V.

Profitableness is the main thing. Fin.SSSR 23 no.11:60-64 N '62.
(MIRA 15:12)

1. Nachal'nik otdela finansirovaniya sel'skogo khozyaystva Krasnoyarskogo kraynogo finansovogo otdela.
(Krasnoyarks Territory—Agriculture—Finance)

FOGONYAYLO, G.F., kand. veter. nauk; ANTIPIN, V., veterinarnyy vrach; TOVATUKHO, F., veterinarnyy vrach; KONIYIV, I.M., veterinarnyy vrach

Immunization of young pigs against paratyphoid fever at an early age. Veterinariia 41 no.7.42-45 Jl '64. (MIRA 18:1)

1. Leningradskiy nauchno-issledovatel'skiy veterinarnyy institut (for Fogonyaylo). 2. Kemerovskaya oblastnaya veterinarnaya laboratoriya (for Antipin, Tovatukho). 3. Sebezhskoye proizvodstvennoye upravleniye, Pskovskoy oblasti (for Koniyiv).

ALEKSEYEV, S.N.; ANTILIN, V.A.; ARTAMONOV, V.S.; BALALAYEV, G.A., inzh.; VOLODIN, V.Ye.; GOL'DENBERG, N.L.; GORINA, B.S.; GOFEN, D.A.; GRISHIN, M.Ye.; DERESHKEVICH, Yu.V.; DORONENKOV, I.M.; KLINOV, I.Ya., doktor tekhn. nauk, prof.; LEYRIKH, V.E.; LUTONIN, N.V.; MOLOKANOV, A.V., dots.; NOGIN, A.Ya.; PAKHOMOV, N.M.; PROTOSAVITSKAYA, Ye.A.; ROMOV, I.V.; CHAPLITSKIY, L.A.; TSEYTLIN, A.G.; STRAV'YE, P.K.; MOSHCHANSKIY, N.A., doktor tekhn. nauk, prof., red.; PEREVALYUK, M.V., red.izd-va; TIMKINA, Ye.L., tekhn.red.

[Corrosion protection in the construction of industrial buildings] Zashchita ot korrozii v promyshlennom stroit-l'stve. Moskva, Gosstroiizdat, 1963. 406 p. (MIRA 16:12)

(Corrosion and anticorrosives)
(Industrial buildings)

ANTIPIN, V.A.

Milling and centering machine. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. 17 no.1:44-45 '64. (MIRA 17:2)

ANTIPIN, V.G.; BIKKAN, F.R.

Result of studies and prospects of harvesting grain in separate stages in the northwestern region of the U.S.S.R. Zemledelie 5 no.7:47-52 Jl '57. (MLRA 10:8)

1. Severo-zapadnyy nauchno-issledovatel'skiy institut sel'skogo khozyaystva.
(Russia, Northwestern--Grain--Harvesting)

ANTIPIN, Veniamin Georgiyevich; GRIGOR'YEV, Sergey Mikhaylovich; LUR'YE, Abram Bentsianovich; CHAPSKIY, O.U., red.; MOLODTSOV, N.G., tekhn.red.

[Grain combines, windrowers, and pick-up mechanisms: structure, operation and maintenance] Zernouborochnye kombainy, riadkovye shatki i podborshchiki; ustroistvo, regulirovka, tekhnicheskiy ukhod. Izd.2-oe, perer.i dop. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1957. 559 p. (MIRA 10:12)

(Combines (Agricultural machinery))

ANTIPIN, Veniamin Georgiyevich

[Grain combines, windrowers, and pick-up mechanisms] Zernouborochnye kombainy, riadkovye zhatki i podborshchiki. Izd.3., perer. i dop. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1959. 647 p. (MIRA 15:4)
(Combines (Agricultural machinery))

ANTIPIN, V.G.

Universal mounted self-loader and self-dumper. Biul.tekh.-ekon. inform. no.4:58-60.'60. (MIRA 13:11)
(Dump trucks)

ANTIPIN, Veniamin Georgiyevich; GRIGOR'YEV, Sergey Mikhaylovich; LUR'YE, Abram Bentsianovich; CHAPSKIY, O.U., red.; BARANOVA, L.G., tekhn. red.

[Grain harvesting combines and the organization of combine harvesting of grain crops] Zernouborochnye kombainy i organizatsiia kombainovoi uborki zernovykh kul'tur. Leningrad, Sel'khozizdat, 1962. 383 p. (MIRA 15:10)
(Combines (Agricultural machinery))
(Grain--Harvesting)

TRUBIN, B.G., prof.; LUR'YE, A.B.; GRIGOR'YEV, S.M.; IVANOVICH, E.M.; MEL'NIKOV, S.V.; ANTIPIN, V.G., kand. tekhn. nauk, retsenzent; VOLKOV, B.G., kand. tekhn. nauk, retsenzent; MULLAYANOV, R.G., kand. tekhn.nauk, retsenzent; OVSYUKOV, V.N., kand. tekhn. nauk, retsenzent; BELYAYEV, A.S., st. nauchnyy sotr., retsenzent; KOZLOVSKIY, Ye.V., inzh., retsenzent; TRAK, E.E., inzh., retsenzent; SIMONOVSKIY, N.Z., red.izd-va; SPERANSKAYA, O.V., tekhn. red.

[Agricultural machines; theory, design, and calculations] Sel'skokhoziaistvennye mashiny; teoriia, konstruktsiia i raschet. Pod red. B.G.Turbina. Moskva, Mashgiz, 1963. 575 p. (MIRA 16:5)

1. Nauchno-issledovatel'skiy institut mekhanizatsii i elektrofikatsii sel'skogo khozyaystva Severo-Zapada (for Antipin, Volkov, Mullayanov, Ovsyukov, Belyayev, Kozlovskiy, Trak).

(Agricultural machinery--Design and construction)

ANTIPIN, V.G., kand. tekhn. nauk

Determining the output of grain harvesting combines. Mekh. i elek. sots. sel'khoz. 21 no.1:14-17 '63. (MIRA 16:7)

1. Nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva Severo-Zapada.
(Combines(Agricultural machinery))

DIKSHTEYN, Ye.I.; DEYNEKO, D.I.; ANTIPIN, V.G.; KOLOZOV, A.K., doktor tekhn. nauk, prof., nauch. red.; SVET, Ye.B., red.

[Steelmaking at the Magnitogorsk Metallurgical Combine] Staleplavil'noe proizvodstvo na MMK. Chelyabinsk, Chelyabinskoe knizhnoe izd-vo, 1963. 43 p. (MIRA 17:6)

[illegible], [illegible] [illegible]VICH

[illegible] [illegible]OCHNYYE KOMBAYNY; USTROYSTVO, REGULIROVKA, TEKHNICHESKIY UKHOD (GRAIN COMBINE HARVESTERS, BY) V. B. [illegible], S.A. GRIGOR'YEV, (I) A. B. LUR'YE. MOSKVA, SEL'KHOZGIZ, 1955- V. ILLUS., DIAGRS., TABLES.

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1957 (2D [illegible].)

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AUTHOR: Antipin, V. G.

TITLE: On the problem of automation of the heating conditions of open-hearth furnaces

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 12, 1960, 146 - 150

TEXT: An automatic control system has been developed and is being tested at the Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine). It had been described previously (M. A. Torchinskiy. "Metallurg Yuznogo Urala", 1958, No. 1) and presents the first step in the development of a high-effective automatic heat control system for open-hearth furnaces. The system has proved successful. It is simple and dependable. The control pulse is produced by the checker top heating rate. The result is 2.5% output increase and 3.0% lower specific fuel consumption. The observations made up to now in operation are discussed and a calculation method for the processes in the furnace working area is suggested. It is clear that in the scrap-ore process the control pulses must come from dif-

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ferent spots during different periods, i.e. the temperature variation rate in the inner surface of the vertical uptake is the right pulse for the period of fritting, charging and heathing through, as the checker tops react in this time less clearly and with a lag to the changing heat absorption in the working space. It is obvious that the choice of the furnace brickwork element for the control pulse depends on the furnace design and the peculiarities of the process, and it appears not advisable to use the temperature in the main vault for this purpose. A study of the heat process with dependable measurements of gas and air temperatures and real volumes, quantity and chemical composition of the combustion products, etc., is only possible in special research work, but simple equations have been derived for approximate calculations (ignoring the combustion product losses through the charging hatches and hydrogen content in the combustion products. The equations are given in their final form only, in view of the simplicity of the derivations:

$$v_2 = v_1 \frac{N_2'}{N_2''}; \qquad (2)$$

$$v_2' = \frac{v_1'}{1+\alpha}\left[\frac{N_2'}{N_2''}(CO_2'' + CO'') - CO_2'\right]; \qquad (3)$$

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$$v_3' = \frac{av_1}{1+a}\left[\frac{N_2'}{N_2''}(CO_2'' + CO'') - CO_2'\right]; \quad (4)$$

$$v_4 = v_1\left(O_2' - O_2''\frac{N_2'}{N_2''}\right); \quad (5)$$

$$v_5 = \frac{v_1}{1+a}\left\{\left[O_2' - \frac{N_2'}{N_2''}(O_2'' - 0{,}5\,CO'')\right] + a\left[O_2' + 0{,}5\,CO_2' - \right.\right.$$
$$\left.\left. - \frac{N_2'}{N_2''}(O_2'' + 0{,}5\,CO_2'')\right]\right\}; \quad (6)$$

$$v_6 = \frac{0{,}5v_1}{1+a}\left[a\left(CO_2''\frac{N_2'}{N_2''} - CO_2'\right) - CO''\frac{N_2'}{N_2''}\right]; \quad (7)$$

$$v_7 = CO''\frac{N_2'}{N_2''}v_1; \quad (8)$$

$$v_8 = \frac{v_1}{1+a}\left[a\left(CO_2''\frac{N_2'}{N_2''} - CO_2'\right) - CO''\frac{N_2'}{N_2''}\right]. \quad (9)$$

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