AFANAS'YEV, A.N.; ANDREYEV, S.I.

Using heat-resistant steels for molding forms. Stek. i ker. 18 no.7:39-40 Jl '61. (MIRA 14:7)
(Steel) (Glass manufacture)

AFANAS'YEV, A.N.

Conference on underground waters of Eastern Siberia. Meteor.i gidrol. no.4:69 Ap '56. (MLRA 9:8)
(Siberia, Eastern--Water, Underground)

AFANAS'EV, A.N.; MAMONTOV, N.V.

Wavemeter rod in a fixed base. Meteor.i gidrol. no.8:52 Ag '56.
(Waves) (MLRA 9:11)

AFANAS'YEV, A.N.

Calculating the amount of evaporation from the surfaces of waters located within the physical geographical conditions of the Central Siberian Upland. Meteor.i gidrol. no.10:39-41 O '56. (MLRA 9:12)

(Siberia--Evaporation)

AFANAS'YEV, A. N. and O. I. KHALATYAN

Reported on the water balance of the Lake Baykal and the Khrami water reservoir.

report presented at the 3rd All-Union Hydrological Congress, 7-17 Oct 1957, Leningrad

[illegible]

AUTHOR: Afanas'yev, A. N. SOV/50-58-11-23/25

TITLE: Second Conference on Ground Waters and Engineering Geology in East Siberia (Vtoroye soveshchaniye po podzemnym vodam i inzhenernoy geologii Vostochnoy Sibiri)

PERIODICAL: Meteorologiya i gidrologiya, 1958, Nr 11, pp 68-69 (USSR)

ABSTRACT: The conference mentioned in the title was held in Chita from June 2 to 7, 1958. It had been organized by the Institut geologii Vostochno-Sibirskogo filiala AN SSSR (Institute of Geology of the East Siberian Branch, AS USSR), the Institut merzlotovedeniya im. V. A. Obrucheva AN SSSR (Institute of Ground Frost Science imeni V. A. Obruchev, AS USSR), the Laboratoriya gidrogeologicheskikh problem im. F. F. Savarenskogo (Laboratory of Hydrogeological Problems imeni F. F. Savarenskiy), the Chitinskoye, Irkutskoye and Buryatskoye geologicheskiye upravleniya Ministerstva geologii i okhrany nedr SSSR (Chita, Irkutsk, and Buryat Geological Administrations of the Ministry of Geology and Protection of Natural Resources, USSR), and the Sosnovskaya ekspeditsiya (Sosnovskaya Expedition). 12 lectures were held at the Plenary Meetings. They dealt with the results and tasks of hydrogeological and engineering-geological exploration

Card 1/4

of East Siberia, exploitation of natural resources, protection of mineral waters as well as the methods of compiling comprehensive and regional geological and hydrochemical multi-purpose maps. The greatest attention was attracted by the lectures delivered by I. K. Zaytsev "Hydrogeological Multi-purpose Maps of East Siberia 1 : 2,500,000" and two lectures by V. G. Tkachuk "The Mineral Waters of East Siberia" and "The Formation of Thermal Waters of the Sayano-Baykal'skiy Mountainous Region". The Conference consisted of three sections: 1) for general and methodical problems of hydrogeology, 2) for regional hydrogeology, and 3) for engineering geology and ground frost science. 17 lectures were heard in the first section: V. M. Stepanov confirmed the opinion of N. K. Ignatovich, stating that there is a vertical zone distribution in the formation of hydrochemical elements in mountainous regions. 22 lectures were heard in the second section. The losses caused by the outflow of the river bed discharge in the Bratskoye reservoir were submitted to sharp criticism. In the lecture delivered by V. V. Klimochkin (Buryatskoye geologicheskoye upravleniye = Buryat Geological Administration):"On the Condensed Water of

the West Zabaykal'ye (Transbaykal)" condensed water was proved to increase with rising height of the slopes in certain mountainous regions (up to 30% of the total balance of ground waters). The author of the present paper held a lecture: "On the Ground Water Component in the Salenga River Basin." The local dependences which were determined for the average annual subterranean discharge in the rivers are indicative of an increase in the discharge with the height and vice versa. The participants' attention was attracted by the lecture held by V. M. Lylo (Irkutsk UGMS). He dealt with the role played by the ground water in feeding the rivers of East Siberia. Despite a certain approximation of his data the role of this discharge is very important. 18 lectures were heard and discussed in the third section. The conference adopted a very important decision: hydrogeological investigations in East Siberia are to be extended, hydrological laboratories and stations are to be built, the relation between the sub- and superterranean waters is to be investigated, and finally, the role played by the condensation and discharge of ice on

the earth's surface in the balance of the waters mentioned is to be determined.

AFANAS'YEV,A.N.

Average discharge of river waters of the basin of Lake Baikal.
Trudy Vost.-Sib.fil.AN SSSR no.10:48-96 '59. (MIRA 13:4)
(Baikal region--Rivers)

AFANAS'YEV, A.N.

Distribution of mean runoff of the rivers of Irkutsk Province.
Izv. Sib. otd. AN SSSR no.11:63-74 '61. (MIRA 15:1)
(Irkutsk Province--Runoff)

AFANAS'YEV, A.P., inzh.

Hard-faced cutters for cold sheet metal cutting. Stal' 22 no.12:1104 D '62. (MIRA 15:12)

1. Orsko-Khalilovskiy metallurgicheskiy kombinat.
(Metal-cutting tools) (Hard facing)

AFANAS'YEV, A. P. Eng.

"Use Nonferrous Metals Sparingly," Vest. svyazi, No.8, p. 22, 1953

Translation No. 544, 30 Apr 56

AFANAS'YEV, A.P.; YERMOLAYEV, M.M.

Mineralogy of the ancient weathering crust of the western slope of the Baltic Shield. Izv.Kar.i Kol.fil.AN SSSR no.5:23-37 '58. (MIRA 12:9)

1. Geologicheskiy institut Kol'skogo filiala AN SSSR.
(Baltic Shield--Mineralogy)

AFANAS'YEV, A.P.

Some results from studying clay fractions from the preglacial weathering crust and moraine on the Kola Peninsula. Izv.Kar. i Kol'.fil. AN SSSR no.2:36-46 '59. (MIRA 12:11)

1. Geologicheskiy institut Kol'skogo filiala AN SSSR.
(Kola Peninsula--Clay)

AFANAS'YEV, A.P.

Some data on the mineralogy of the preglacial weathering crust in the Yena-Kovdora region (Kola Peninsula). Izv.Kar.i Kol'. fil.AN SSSR no.4:34-46 '59. (MIRA 13:5)

1. Geologicheskiy institut Kol'skogo filiala AN SSSR.
(Kola Peninsula--Mineralogy)

AFANAS'YEV, A.P.

Composition of the clay fraction of Quaternary sediments in the Kola Peninsula. Vop.geomorf. i geol.osad.pokr.Kol'.poluost. 1: 151-159 '60. (MIRA 15:1)

(Kola Peninsula--Clay--Analysis)

LYUBTSOV, V.V.; AFANAS'YEV, A.P.

Possibilities of using electron microscopy for the isolation of microscopic organic remains in solid sedimentary rocks. Vop. geol. i min. Kol'. poluos. no.4:87-90 '63. (MIRA 16:10)

AFANAS'YEV, A.P.; KOZLOV, M.T.

Composition of clay weathering products from the contact of rocks of basic and acid composition. Mat. po min. Kol'. poluost. 3:204-210 '62. (MIRA 17:3)

AFANAS'YEV, A.P.

Hydrobiotite-vermiculite from the weathering surface of garnet-biotite gneisses. Mat. po min. Kol'. poluost. 3:211-217 '62. (MIRA 17:3)

AFANAS'YEV, A.P.

Mineralogy of the ancient weathering surface on rocks of the Imandra-Varzuga series to the south of the Khibiny Mountains. Kora vyvetr. no.6:13-47 '63. (MIRA 17:9)

1. Geologicheskiy institut Kol'skogo filiala imeni Kirova AN SSSR, stantsiya Apatity Murmanskoy oblasti.

AFANAS'YEV, A.P., inzhener.

Why the Kazan city telephone network is still not up to par. Vest. sviazi 7 no.7:9 Jl '47. (MLRA 9:1)
(Kazan--Telephone)

AFANAS'YEV, A. P.

USSR/Miscellaneous

Card 1/1 : Pub. 133 - 10/21

Authors : Afanas'ev, A. P., Sr. engineer of the main controlling office for the GTS (City telephone stations) of the Ministry of Communications

Title : Let us speed up our tempo in constructing the city telephone networks

Periodical : Vest. svyazi 9, page 17, Sep 1954

Abstract : It is pointed out that the lag in construction of city telephone communications still exists in spite of the order, issued by the XIX-th conference of the Communist Party, to increase the city telephone network up to 30-35% during the current five-year plan is discussed.

Institution : ...

Submitted : ...

MARCHENKO, A.F.; NIKOL'SKIY, K.K.; RAZUMOV, L.D.; AFANAS'YEV, A.P., otv. za vypusk; KUVSHINOV, B.P., otv. za vypusk; BROYT, E.M., red.; SLUTSKIN, A.A., tekhn.red.

[Revisions and additions to the "Regulations for the corrosion protection of underground communication cables."] Izmeneniia i dopolneniia k "Rukovodstvu po zashchite podzemnykh kabelei sviazi ot korrozii" (Sviaz'izdat, 1956 g.). Moskva, Sviaz'izdat, 1959. 21 p. (MIRA 13:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye mezhdugorodnoy telefonno-telegrafnoy svyazi. 2. TSentral'nyy nauchno-issledovatel'skiy institut svyazi (for Marchenko, Nikol'skiy, Razumov). (Electric lines--Underground)

AFANAS'YEV, A.P.

"Differential thermal analyses of some Quaternary clays of Fennoscandia" by U.Soveri. Reviewed by A.P.Afanas'ev. Vop.geomorf. i geol.osad.pokr.Kol'.poluost. 1:188-191 '60. (MIRA 15:1)
(Fennoscandia--Clay) (Soveri, U.)

AFANAS'YEV, A.P.; ANUCHIN, V.G.; VINOGRADOV, K.V.; GARANINA, M.M.; GILEROVICH, M.M.; DUBROVSKIY, Ye.P.; YEVSTIGNEYEV, A.A.; IOKHVIN, M.R.; KALMYKOV, P.M.; KRENGEL', I.TS.; LOSEV, I.G.; MAYEVSKIY, F.M.; MAZEL', S.I.; MIZHERITSKIY, G.S.; NOVIKOV, M.I.; NAZAR'YEV, O.V.; PCHELKINA, I.A.; RAZUMOV, V.S.; ROZENBLYUM, I.M.; SEROV, B.P.; SKRYPNIK, T.I.; SAL'VIN, Ye.S.; SMOTRINA, V.F.; TELEPNEVA, N.S.; FIL'CHAKOV, N.I.; KHRAPUNOVA, Ye.L.; UNDREVICH, G.S.; UR'T'YEV, P.P.; SHILOV, A.A.; SHIKKOV, A.P.; KIRILLOV, L.M., red.; MARKOCH, M.G., tekhn.red.

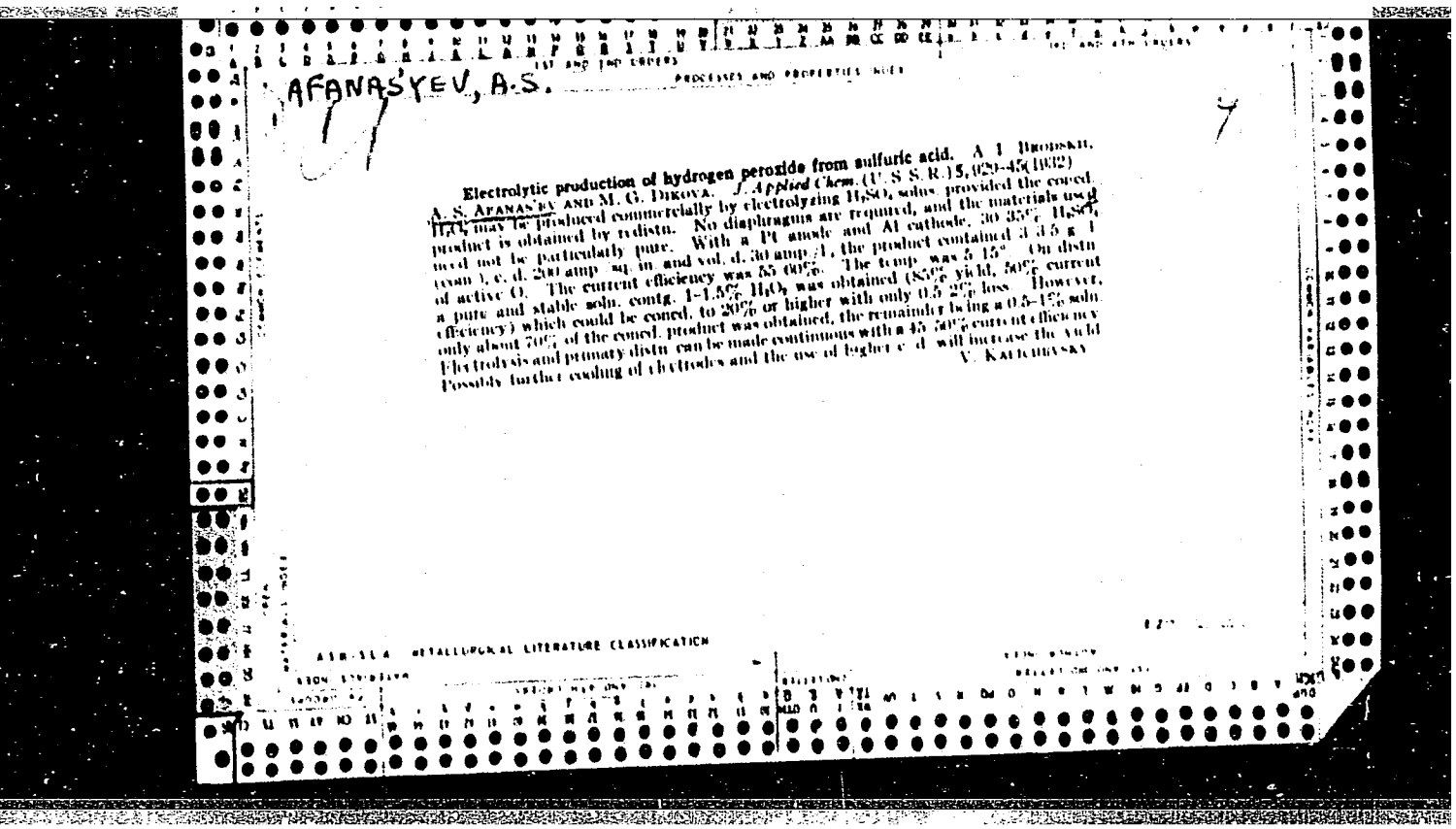
[Regulations on the construction of minicipal telephone network lines] Pravila po stroitel'stvu lineinykh sooruzhenii gorodskikh telefonnykh setei. 2.izd. Moskva, Sviaz'izdat, 1962. 511 p. (MIRA 15:5)

1. Russia (1923- U.S.S.R.) Ministerstvo svyazi. Glavnoye upravleniye kapital'nogo stroitel'stva.
(Telephone lines)

KANTOR, L.Ya.; GUMELYA, A.N.; ROZENBERG, Ya.G.; AFANAS'YEV, A.P.; SAMORUKOV, D.A.; GUSEV, S.S.; DOGADIN, V.N.; [redacted], B.N.; KARASIK, N.S.; PIONTKOVSKIY, B.A.; Prinimal uchastiye MEDOVAR, A.I.; SVERDLOVA, I.S., rad.; ULANOVSKAYA, N.M., red.; MARKOCH, K.G., tekhn. red.

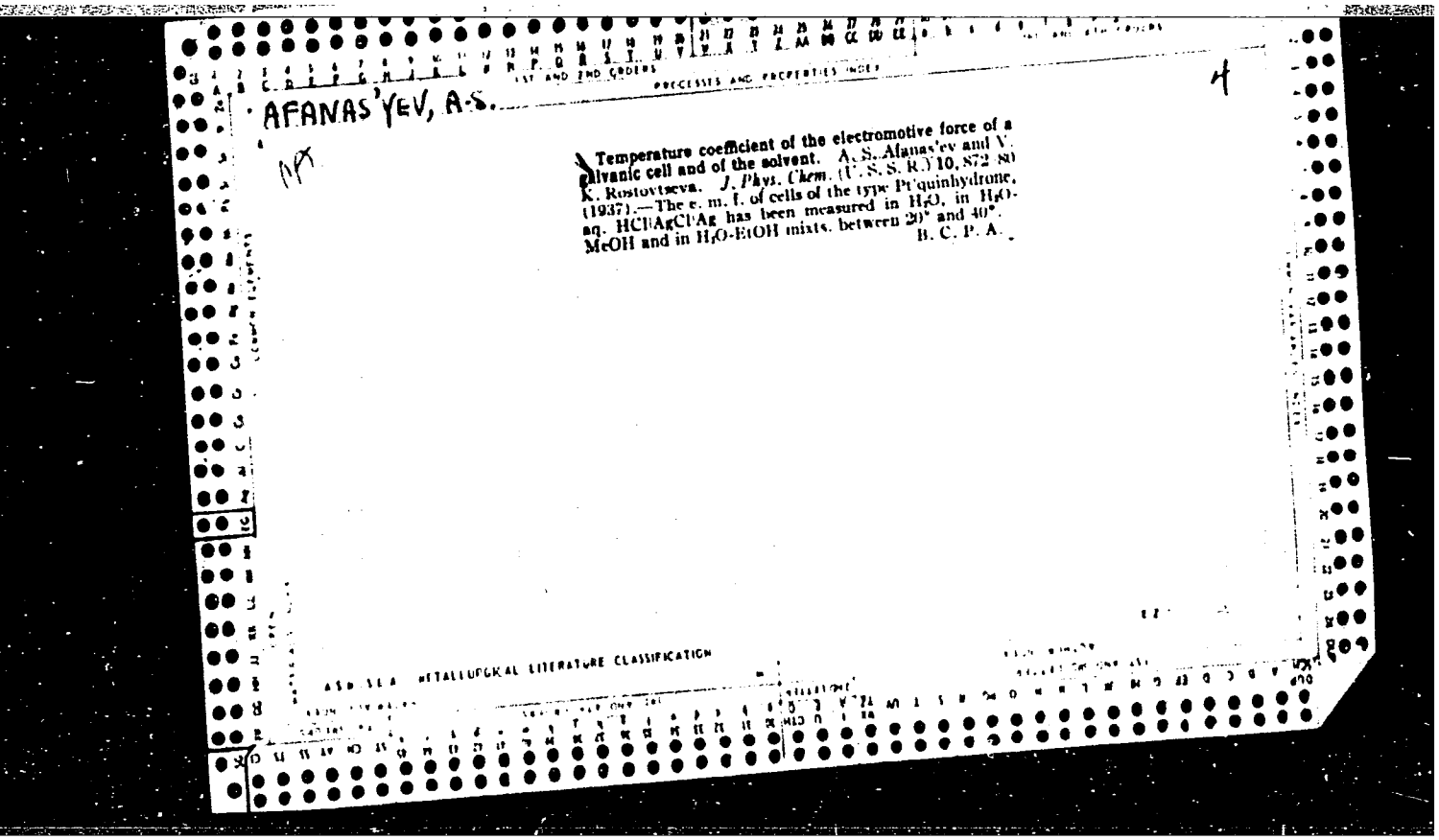
[Electrical communications and wire broadcasting] Elektricheskaia sviaz' i radiofikatsiia. [By] L.IA.Kantor i dr. Izd.2., dop. i ispr. Moskva, Sviaz'izdat, 1963. 672 p. (MIRA 16:8)

(Wire broadcasting) (Telecommunication)



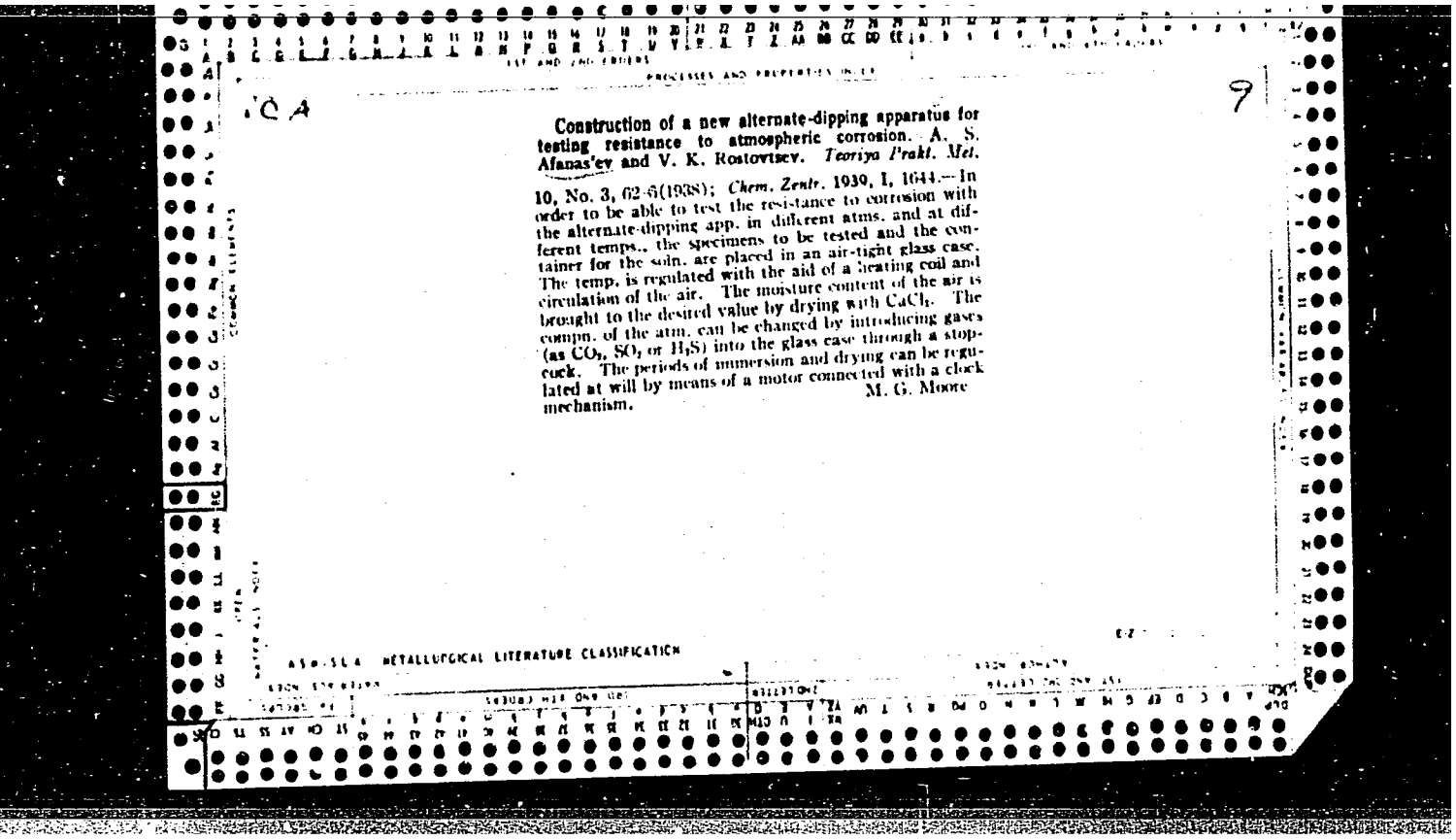
AFANASYEV, A.S.

Electrolytic production of hydrogen peroxide from sulfuric acid. A. I. Brodskii, A. S. Afanas'ev and M. G. Dikova. *J. Applied Chem.* (U.S.S.R.) 5, 929-45 (1932). H_2O_2 may be produced commercially by electrolyzing H_2SO_4 solns. provided the concd. product is obtained by redistn. No diaphragms are required, and the materials used need not be particularly pure. With a Pt anode and Al cathode, 30-35% H_2SO_4 (room t., c. d. 200 amp./sq. in. and sol. d. 30 amp./l., the product contained 3.3-5 g. l of active O. The current efficiency was 55-60%. The temp. was 5-15°. On distn a pure and stable soln. contg. 1-1.5% H_2O_2 was obtained (85% yield, 50% current efficiency) which could be concd. to 20% or higher with only 0.5-2% loss. However, only about 70% of the concd. product was obtained, the remainder being a 0.5-1% soln. Electrolysis and primary distn. can be made continuous with a 45-50% current efficiency. Possibly further cooling of the electrodes and the use of higher c. d. will increase the yield. V. Karchmarsky



AFANAS'YEV, A.S.

Temperature coefficient of the electromotive force of a galvanic cell and of the solvent. A. S. Afanas'ev and V. K. Rostovtseva. *J. Phys. Chem.* (U.S.S.R.) 10, 872-80 (1937).—The e. m. f. of cells of the type Pt'quinhydrone, aq. HCl'AgCl'Ag has been measured in H_2O, in H_2O-MeOH and in H_2O-EtOH mixts. between 20° and 40°. B. C. P. A.



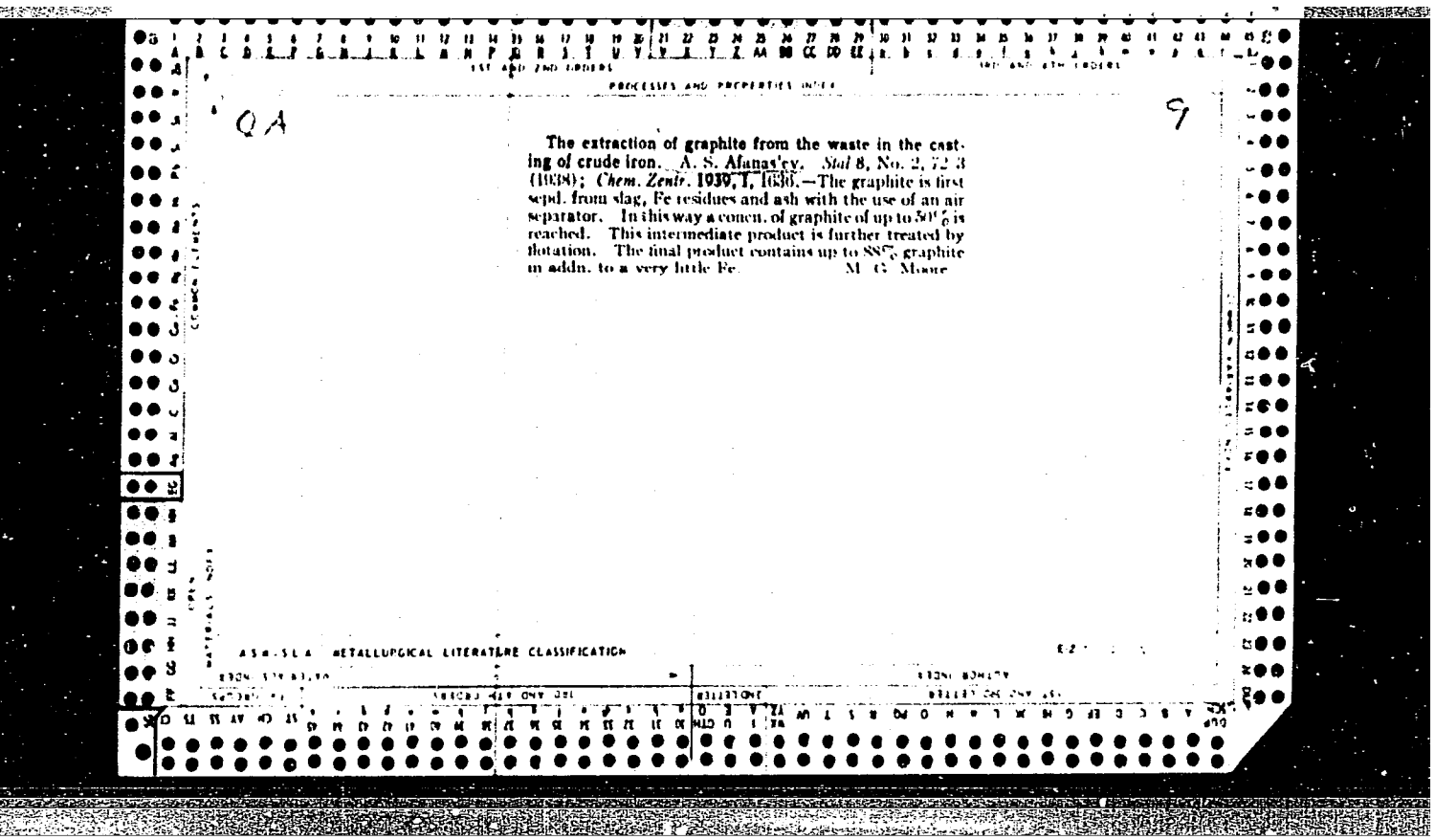
CA

9

Construction of a new alternate-dipping apparatus for testing resistance to atmospheric corrosion. A. S. Afanas'ev and V. K. Rostovtsev. *Teoriya Prakt. Met.* 10, No. 3, 62-6(1938); *Chem. Zentr.* 1930, I, 1644.—In order to be able to test the resistance to corrosion with the alternate-dipping app. in different atms. and at different temps., the specimens to be tested and the container for the soln. are placed in an air-tight glass case. The temp. is regulated with the aid of a heating coil and circulation of the air. The moisture content of the air is brought to the desired value by drying with $CaCl_2$. The compn. of the atm. can be changed by introducing gases (as CO_2, SO_2 or H_2S) into the glass case through a stopcock. The periods of immersion and drying can be regulated at will by means of a motor connected with a clock mechanism.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

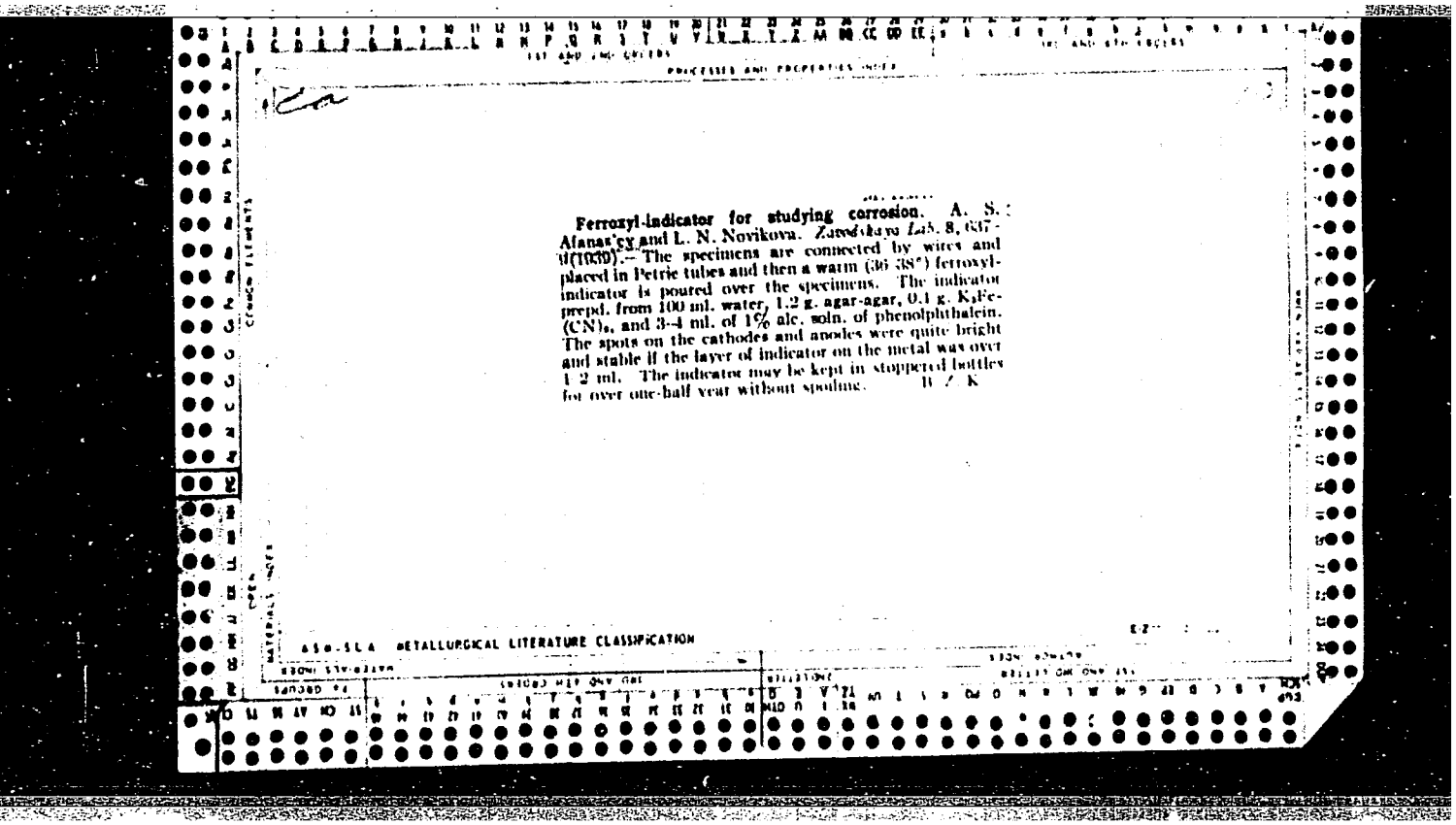


QA

9

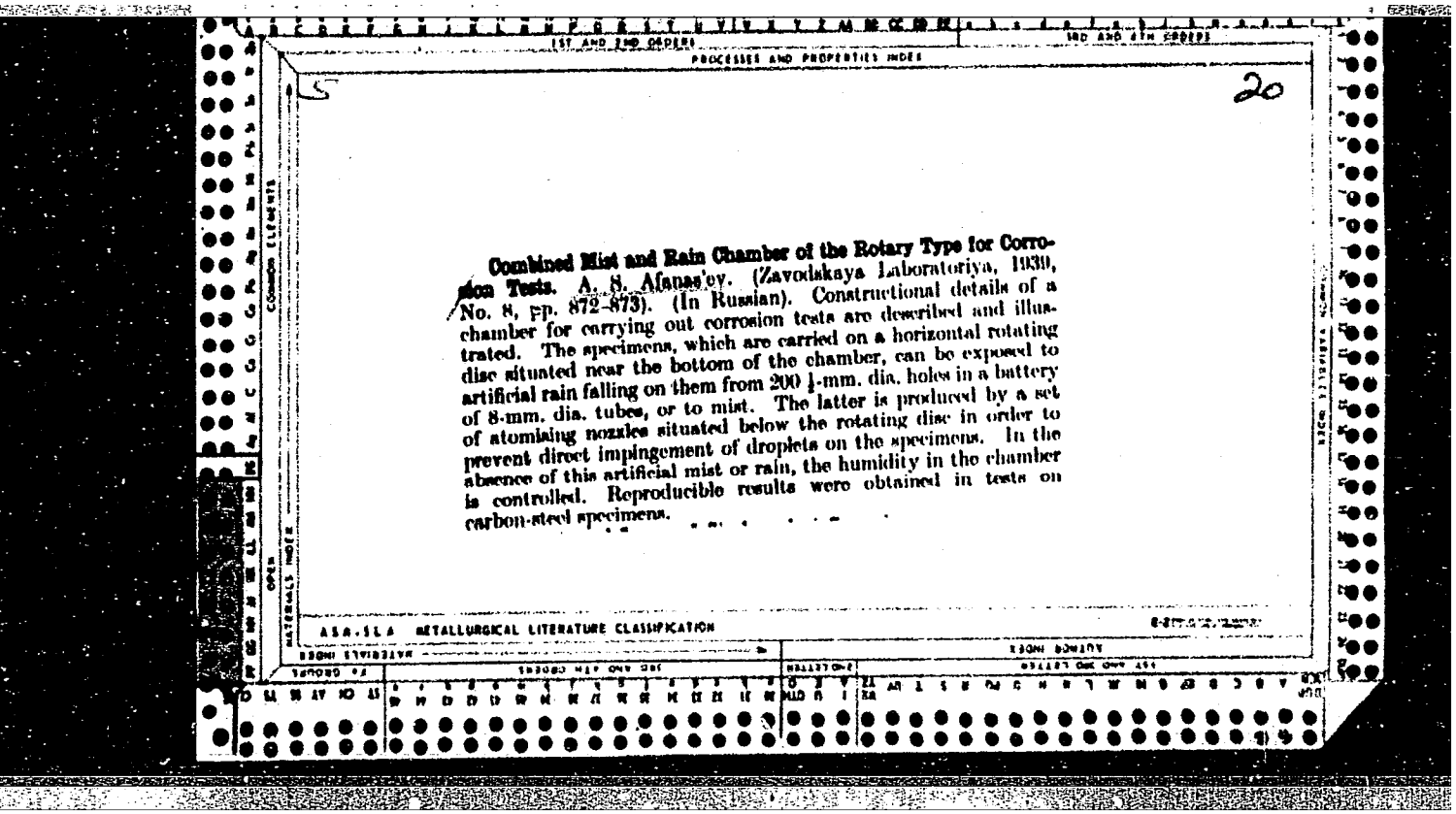
The extraction of graphite from the waste in the casting of crude iron. A. S. Afanas'ev. *Stal* 8, No. 2, 72-3 (1938); *Chem. Zentr.* 1939, I, 1636.—The graphite is first sepd. from slag, Fe residues and ash with the use of an air separator. In this way a concn. of graphite of up to 50% is reached. This intermediate product is further treated by flotation. The final product contains up to 88% graphite in addn. to a very little Fe. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

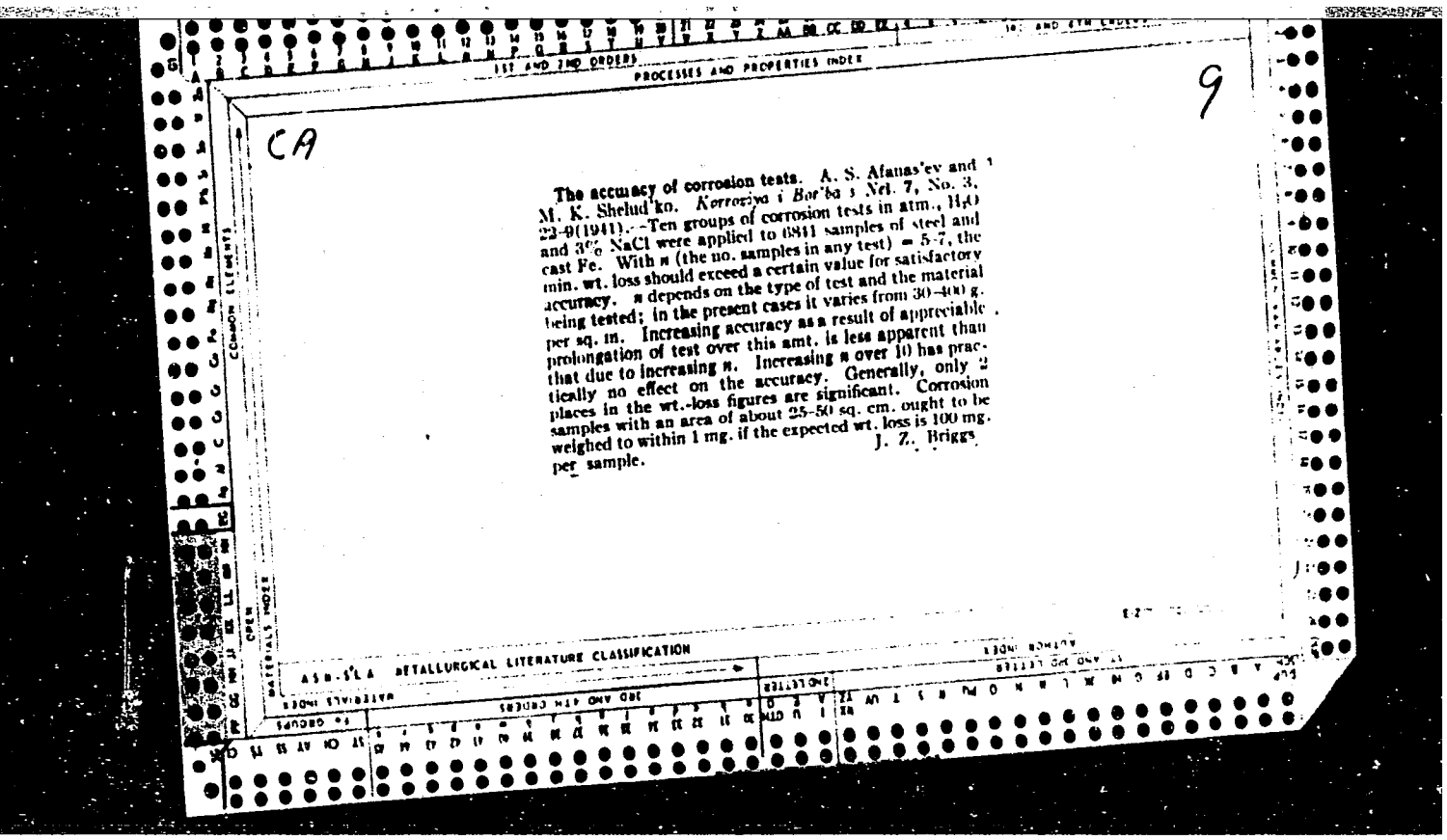


Ferroxyl-indicator for studying corrosion. A. S. Afanas'ev and L. N. Novikova. *Zavodskaya Lab.* 8, 637-9(1939).—The specimens are connected by wires and placed in Petric tubes and then a warm (36-38°) ferroxyl-indicator is poured over the specimens. The indicator prepd. from 100 ml. water, 1.2 g. agar-agar, 0.1 g. $K_3Fe(CN)_6$, and 3-4 ml. of 1% alc. soln. of phenolphthalein. The spots on the cathodes and anodes were quite bright and stable if the layer of indicator on the metal was over 1.2 ml. The indicator may be kept in stoppered bottles for over one-half year without spoiling. B. Z. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Combined Mist and Rain Chamber of the Rotary Type for Corrosion Tests. A. S. Afanas'ev. (Zavodskaya Laboratoriya, 1939, No. 8, pp. 872–873). (In Russian). Constructional details of a chamber for carrying out corrosion tests are described and illustrated. The specimens, which are carried on a horizontal rotating disc situated near the bottom of the chamber, can be exposed to artificial rain falling on them from 200 ¼-mm. dia. holes in a battery of 8-mm. dia. tubes, or to mist. The latter is produced by a set of atomising nozzles situated below the rotating disc in order to prevent direct impingement of droplets on the specimens. In the absence of this artificial mist or rain, the humidity in the chamber is controlled. Reproducible results were obtained in tests on carbon-steel specimens.



CA

9

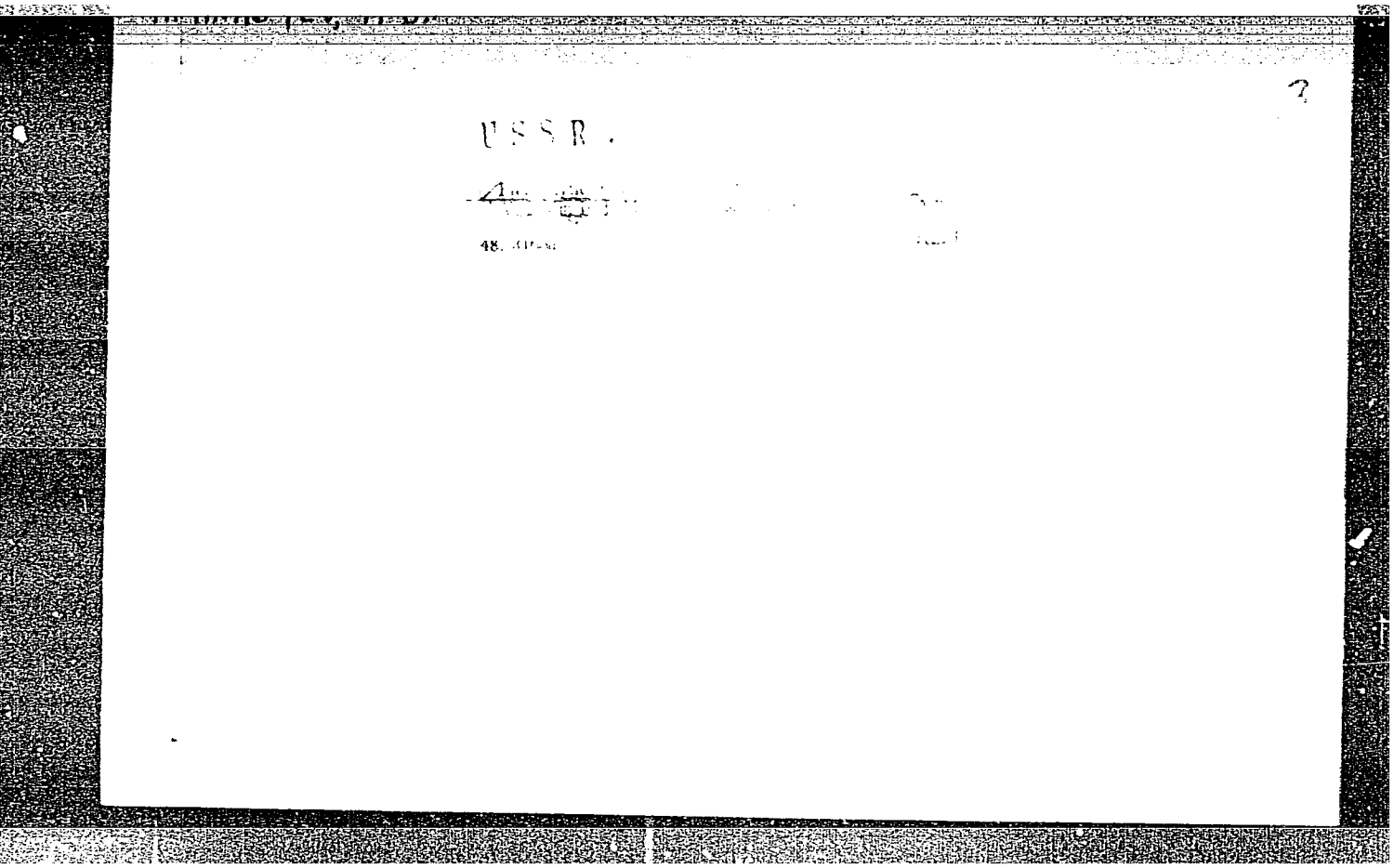
The accuracy of corrosion tests. A. S. Afanas'ev and M. K. Shelud'ko. *Korroziya i Bor'ba s Nei.* 7, No. 3, 23-9(1941).—Ten groups of corrosion tests in atm., H$_2$O and 3% NaCl were applied to 0811 samples of steel and cast Fe. With n (the no. samples in any test) = 5-7, the min. wt. loss should exceed a certain value for satisfactory accuracy. n depends on the type of test and the material being tested; in the present cases it varies from 30–400 g. per sq. in. Increasing accuracy as a result of appreciable prolongation of test over this amt. is less apparent than that due to increasing n. Increasing n over 10 has practically no effect on the accuracy. Generally, only 2 places in the wt.-loss figures are significant. Corrosion samples with an area of about 25–50 sq. cm. ought to be weighed to within 1 mg. if the expected wt. loss is 100 mg. per sample.

J. Z. Briggs

AFANAS'YEV, A.S.

Cathodic polarization of rusted steel in alkalies. Ukrain. Khim. Zhur. 16, No.5, 492-500 '50. (MLRA 6:4)
(CA 47 no.22:12061 '53)

1. I.V.Stalin Dnepropetrovsk Met. Inst.



Chemical Abst
Vol. 48 No. 6
Mar. 25, 1954
Electrochemistry

Electrolytic reduction of iron rust. A. S. Alanasev (I.V. Stalin Met. Inst., Dnepropetrovsk). *Zav. Prikład. Khim.* 26, 140–7 (1953).—This is the first article of a projected series of removing rust from Fe surfaces without loss of Fe. The elec. potentials ε of Fe electrodes exposed to periodic wetting, drying, and SO$_2$ were measured in an 8% KOH soln. against a Hg | HgO electrode, the tip of which was pressed against the rust on the surface. The progress of the surface changes and the resultant H evolution in the cavities of the rust owing to cathodic polarization was observed microscopically. Measurements were made under several different conditions in an attempt to test the effect of [illegible]. ε vs. Q (coulombs × 10^{-3}) curves were analyzed in great detail. The most important depolarizing reactions were: $O_2 + 2H_2O + 4e^- \rightarrow 4OH^-$; $Fe^{4+} + e \rightarrow Fe^{3+}$; $Fe^{3+} + 2e^- \rightarrow Fe$; $H_3O^+ + e^- \rightarrow H + H_2O$. It was concluded that rusted Fe was an effective O cathode in the first stages of the electrolytic process by virtue of the absorption of O by the rust. I. Bencowitz

AFANASYEV, A. S.

USSR/ Chemistry - Physical chemistry

Card 1/1 : Pub. 147 - 15/22

Authors : Afanasyev, A. S., and Chankova, E. N.

Title : Electro-reduction processes on oxidized steel. Part 1.-Electro-reduction of oxygen

Periodical : Zhur. fiz. khim. 28/11, 1975-1986, November 1954

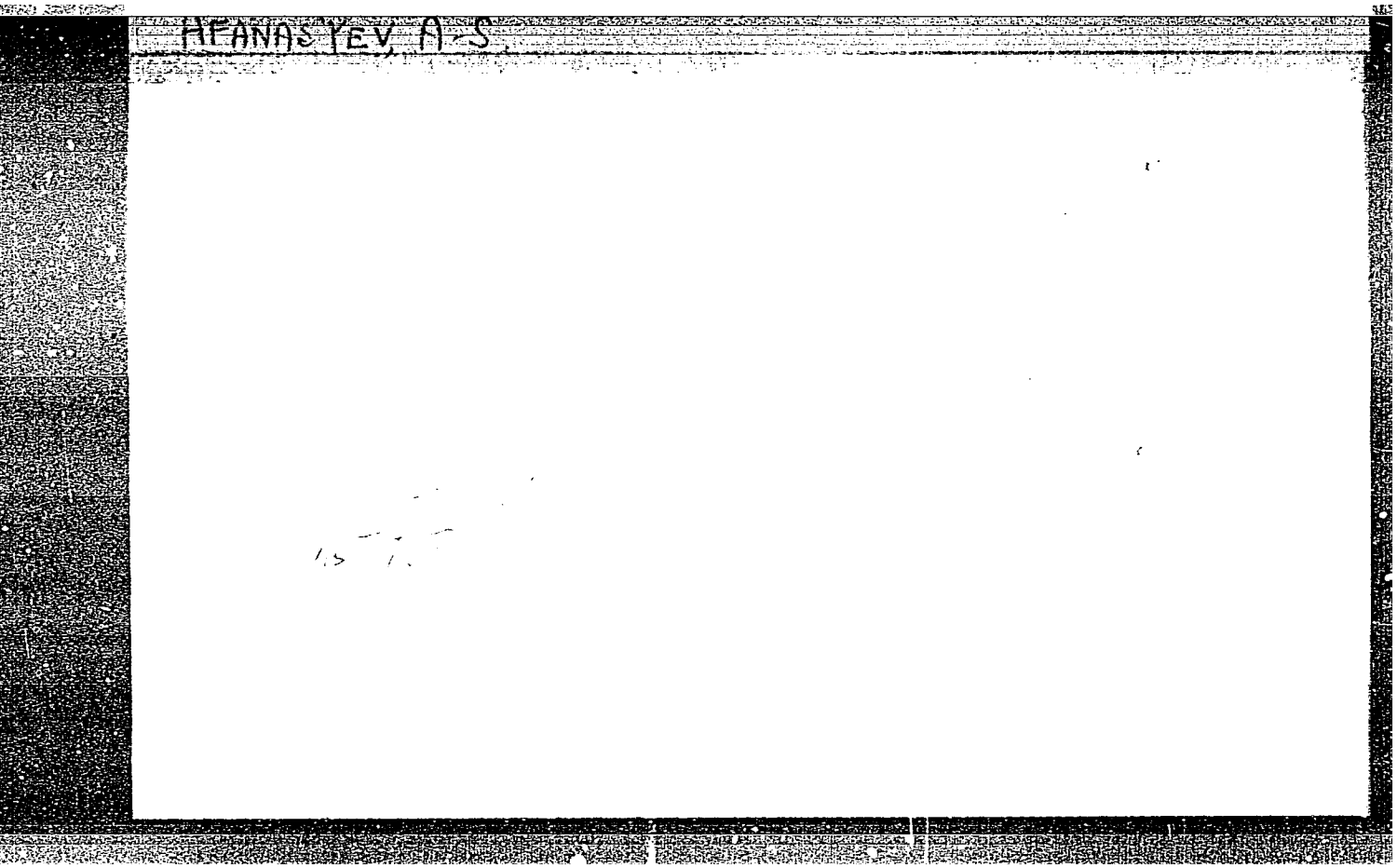
Abstract : Cathode polarization curves, obtained for steel coated with four types of oxide layers and for steel freshly pickled in an aqueous KOH solution and in an N. D. Tomashov corrosion electrolyte at various conditions of electrode aeration, are analyzed. The mechanism of oxygen electro-reduction, which depends upon the chemical composition and physico-chemical properties of the electrolyte and the electrode material, is explained. The values for the electrode and polarization current density potentials, in which oxygen electro-reduction is the potential determining process, are listed. Eight USSR references (1935-1953). Tables; graphs.

Institution : Metallurgical Institute, Dnepropetrovsk

Submitted : March 18, 1954

AFANAS'YEV A.S.

sence of an outside current is close to the equil. potential of the process; at stronger cathodic polarization, the principal process dels the potential is apparently the electrolytic



AFANAS'YEV, A.S.

AUTHORS: Miroshnichenko, O.Ya. and Afanas'ev, A.S. 73-2-6/22

TITLE: Automatic graphing of polarization curves on solid electrodes. (Avtomaticheskoye snyatiye polyarizatsionnykh krivykh na tverdykh elektrodakh).

PERIODICAL: "Ukrainskiy Khimicheskiy Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.174-179 (USSR).

ABSTRACT: The method of plotting polarisation curves based on the relation between the velocity of the electrochemical reaction and the potential of the electrode is widely used. The authors constructed an automatic apparatus for plotting the polarisation curves. The current density passing through the cell changes automatically according to the logarithmic law, the potential of the electrode being simultaneously registered on a photocell (max.size 30 x 40 cm). Diagram 1 gives a scheme of the polarograph AP-1. A special potentiometer (Diagram 2) was designed consisting of 10 units connected in series. Each unit has an insulated wire coil of manganese-nickel-copper alloy (manganin) of 0.15 mm diameter. The cathode is magnetite monocrystal with an effective surface of 0.05-0.1 cm^2. The anode consists of oxidised iron with an effective

Card 1/2

(Polarography)

Dnepropetrovskiy metallurgicheskiy Institut.

AFANAS'YEV, A.S.

18 1/4E2c

Rust elimination from specimens for gravimetric corrosion testing. A. S. Afanas'ev (Met. Inst., Dnepropetrovsk). *Zavodskaya Lab.* 23, 217–23(1957).—Thirteen chem. and 9 elec. chem. methods of rust removal from steel for corrosion testing were studied. The cathodic etching in an aq. 8% NaOH or KOH soln. was selected as best. The electrolysis (at c.d. 20 amp./sq.in.) is continued for 4–6 min., the loose rust removed with a wooden spatula, and the operation repeated. Less than 10 min. treatment is usually sufficient. Increasing the c.d. to 64 amp./sq.in. speeded up the cleaning 4–5 times without any appreciable increase in the loss of wt. Reducing the c.d., or interruption in the etching did not result in a soln. of the steel. W. M. Steinberg

SOV/156-58-4-8/49

AUTHORS: Afanas'yev, A. S., Miroshnichenko, O. Ya.

TITLE: The Cathodic Reduction of Monocrystals of Magnetite Under Hydrogen Separation (Katodnoye vosstanovleniye monokristallov magnetita pri vydelenii vodoroda)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 642-645 (USSR)

ABSTRACT: The polarization curves of natural monocrystals of magnetite in 1.75 n aqueous solutions of NaOH at 25±0.05°C were investigated. The curves φ-lgi (potential of the electrode logarithm of current density) plotted were measured according to the compensation method. The surface of the electrode was photographed during polarization and the reduced layer was radiographically investigated. At a separation potential φ = -1.07±0.01V on the curve φ-lgi a curvature occurs, and at the edges of the electrode a light coloring is formed which spreads over the whole surface when electrolysis is carried on. The radiographic investigations have proved that the light surface on magnetite is pure iron. The reduction process of Fe_3O_4 is accompanied by hydrogen separation. The

Card 1/2

The Cathodic Reduction of Monocrystals of Magnetite Under Hydrogen Separation

influence of the surface conditions of Fe_3O_4 monocrystals on the course of the curve φ-lgi in the electrolyte 1.75 n NaOH was investigated without stirring, and it was found that with an increase of the specific surface of the magnetite electrode the reducibility increases too. There are 3 figures and 6 references, 5 of which are Soviet.

ASSOCIATION: Kafedra fizicheskoy khimii Dnepropetrovskogo metallurgicheskogo instituta (Chair of Physical Chemistry at the Dnepropetrovsk Institute of Metallurgy)

SUBMITTED: May 19, 1958

AUTHORS: Afanas'yev, A.S. and Miroshnichenko, O.Ya.

TITLE: Phase Electrolytic Reduction of Magnetite Single Crystals (Stupenchatoye elektrovosstanovleniye monokristallov magnetita)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 7, pp 756-759 (USSR)

ABSTRACT: The authors investigated cathode reduction of natural single crystals of Fe_3O_4 in an aqueous solution of 1.75 N (pH - 14.2) NaOH at 25°C. The main methods of investigations were the taking of cathode polarization curves at the variable density i of the polarization current, in which potential φ is plotted versus lgi, and at the constant current density, where φ is plotted versus the amount of elctric current Q in Coulombs, and the curves of potential drop after switching off the polarization current, φ versus τ (time) curves. Among the mechan-

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Phase Electrolytic Reduction of Magnetite Single Crystals

isms of cathode reduction of the oxides, the mechanism of phase electronic reduction proposed by A.N. Frumkin (Ref. 1) is mostly used. According to B.N. Kabanov (Ref. 2), the oxidation of iron proceeds in two phases. The results of the authors' experiments show that electrolytic reduction of Fe_3O_4 to pure metal Fe also proceeds through two phases: I) - $Fe(OH)_3 + e \rightarrow Fe(OH)_2 + OH^-$ (the value of $\varphi_{equil.} = 0.57$ v,); and II) - $Fe(OH)_2 + 2e \rightarrow Fe + 2OH^-$ (the value of $\varphi_{equil.} = -0.83$ v). With phase reduction, only a very thin superficial layer of the crystal is reduced. Therefore, this reduction can be detected only in crystals with a very rough surface. There are 3 graphs and 7 Soviet references.

Phase Electrolytic Reduction of Magnetite Single Crystals 21-58-7-17/27

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

PRESENTED: By Member of the AS UkrSSR, A.I. Brodskiy

SUBMITTED: January 28, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration

1. Single crystals--Reduction 2. Magnetite--Properties
3. Electronic equipment--Applications 4. Mathematics--Applications

Card 3/3

S/081/61/000/022/009/076
B102/B108

AUTHORS: Afanas'yev, A. S., Miroshnichenko, O. Ya.

TITLE: Influence of surface relief on cathode polarization of magnetite electrode

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 65, abstract 22B460 (Sb. nauchn. tr. Dnepropetr. metallurg. in-t, no. 34, 1958, 147-151)

TEXT: Polarization curves (φ, log i) and charge curves (φ, Q) (Q = quantity of electricity) were used to study the effect of microstructure (in the case of uniform polishing) and of the surface relief (in the case of uniform microstructure) on cathode polarization of a Fe_3O_4 single crystal (SC) in 1.75N NaOH at 25°C in an H_2 atmosphere. In the range of O_2 reduction, the (φ, log i) and (φ, Q) curves of massive SC were found to depart from those porous SC toward negative φ; in the range of H_2 liberation the inclination of the polarization curves of porous SC is less than that of

Card 1/2

smooth ones. This difference is explained partly by the enhanced specific surface area of the porous electrodes. Electrical reduction of Fe_3O_4 to Fe takes place much easier with porous and coarsely ground SC than with smooth and massive ones. This is due not only to the increased specific surface area of the porous crystals, but, obviously, also to the increased activity of the individual sections of their surfaces. [Abstracter's note: Complete translation.]

Card 2/2

AFANAS'YEV, A.S.; SHEVCHENKO, V.V.

Electrical reduction of oxygen on iron. Ukr. khim. zhur. 24 no. 2:158-161 '58. (MIRA 11:6)

1. Dnepropetrovskiy metallurgicheskiy institut, kafedra fizicheskoy khimii.

(Oxygen)
(Reduction, Electrolytic)

AUTHORS: Afanas'yev, A. S., Chankova, Ye. N. SOV/76-32-9-11/46

TITLE: Electroreductive Processes on Oxidized Steel (Elektrovosstanovitel'nyye protsessy na okislennoy stali) IV. Evolution of Hydrogen (IV. Vydeleniye vodoroda)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9, pp 2015 - 2019 (USSR)

ABSTRACT: The evolution of hydrogen at a cathode consisting of steel oxidized on its surface was investigated. A 1,5 n. potash solution was used as the electrolyte. During the course of the hydrogen evolution oxygen and the iron oxides of the phase layers were electrochemically reduced at the same time. Charge curves at different current densities were plotted (Fig 1), as were polarization curves for steel with different oxidation layers (Figs 2,3, and 4). The constants in Tafel's equation were determined for different oxide layers and at different degrees of aeration of the electrodes (Table 2). In the case of any reduction of the iron oxide the values of the constants a', a and b in Tafel's equation decrease.

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Electroreductive Processes on Oxidized Steel. IV. Evolution of Hydrogen SOV/76-32-9-11/46

The simultaneous reduction of the oxygen raises the value of b if the reduction current of the oxygen is allowed for. There are 4 figures, 1 table, and 16 references, 16 of which are Soviet.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: April 1, 1957

Card 2/2

AFANAS'YEV, A.S.; LYSENKO, G.I.

Study of the inhibiting action of urotropine on acid corrosion of steel. Nauch.dokl.vys.shkoly; khim.i khim.tekh. no.1: 52-56 '59. (MIRA 12:5)

1. Predstavlena kafedroy fizicheskoy khimii Dnepropetrovskogo metallurgicheskogo instituta.
(Hexamethylenetetramine)
(Corrosion and anticorrosives)

AUTHORS: Afanas'yev, A.S. and Zhuk, G.V. SOV/80-59-1-23/4

TITLE: Study of the Protective Action of Corrosion Inhibitor Mixtures in Neutral Media (Issledovaniye zashchitnogo deystviya smesey ingibiterov korrozii v neytral'nykh sredakh)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 141-150 (USSR)

ABSTRACT: Although corrosion inhibitors are often more effective in mixtures than individually, their mixtures have been poorly investigated thus far. This paper describes the results of laboratory tests of several mixtures performed by the authors. The tests were made on samples of St 20 steel, cleaned and freed from fat. The duration of tests was up to 5,650 hours at room temperature. The following inhibitors were tested for their effect on the atmospheric and underwater corrosion: sodium nitrite, sodium silicate, triethanolamine, sodium triphosphate, emulsol, and their mixtures in various concentrations. The minimum concentrations fully protecting steel were established for each inhibitor individually and for their mixtures. It was quantitatively established that the mixtures of these inhibitors are considerably more effective than the same inhibitors taken individually in equal concentrations.

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SOV/80-59-1-23/44

Study of the Protective Action of Corrosion Inhibitor Mixtures in Neutral Media

There are 6 graphs, 4 tables and 4 Soviet references.

ASSOCIATION: Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University)

SUBMITTED: June 10, 1957

Card 2/2

18(7), 5(3) SOV/156-59-1-13/54

AUTHORS: Afanas'yev, A. S., Lysenko, G. I.

TITLE: On the Problem of the Mechanism of the Inhibitory Effect of Urotropin on Acid Corrosion of Steel (K voprosu o mekhanizme ingibitornogo deystviya urotropina na kislotnuyu korroziyu stali)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 52 - 56 (USSR)

ABSTRACT: It was to be investigated how far organic cations are superficially adsorbed by iron in sulfuric acid. Although iron differs very much in nature from mercury, it is, in a certain degree, possible for iron to transfer the data on the surface activity of substances to mercury, according to publications (Ref 8, Ref 9). Therefore the specific effect of urotropin (hexamethylene tetramine)(20 g/l) was investigated by plotting electrocapillary curves with mercury in sulfuric acid with a change of pH from 1 to 5 (for 0.2-n solutions) and from 0.4 to 1.8 (for 1-n solutions) in comparison to samples without urotropin. Moreover, the influence of the decomposition products of urotropin on

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On the Problem of the Mechanism of the Inhibitory Effect of Urotropin on Acid Corrosion of Steel

SOV/156-59-1-13/54

the electrocapillary curve was investigated by the addition of CH_3NH_2, $CH_2(NH_2)_2$, $CH(NH_3)_3$, and NH_3 with HCOH with the addition of urotropin an anomalous variation takes place in the course of the electrocapillary curve. Between -0.6 and - 0.8 v the surface tension of mercury drops, and between -0.8 and -1.0 v levelings and curvatures appear, which increase with falling pH. Among the decomposition products of urotropin only dimethyl amine has a similar effect on the electrocapillary curve. The addition of NH_3 and CHOH increases this effect and brings the form of the curve near to that of urotropin. Urotropin acts mainly as a cation addition (shift of the potential of the zero toward more positive values). Its surface activity depends on the decomposition products. A molecular adsorption of formaldehyde occurs herein. Therefore urotropin is a surface-active addition of the cation-molecular type. There are 4 figures and 12 references, 8 of which are Soviet.

Card 2/3

On the Problem of the Mechanism of the Inhibitory Effect of Urotropin on Acid Corrosion of Steel

SOV/156-59-1-13/54

ASSOCIATION: Kafedra fizicheskoy khimii Dnepropetrovskogo metallurgicheskogo instituta (Chair of Physical Chemistry of the Dnepropetrovsk Institute of Metallurgy)

SUBMITTED: June 13, 1958

Card 3/3

30636

S/081/61/000/020/065/089
B139/B101

5.4700

AUTHORS: Afanas'yev, A. S., Miroshnichenko, O. Ya.

TITLE: Electroreduction of oxygen on a magnetite electrode in alkali

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 291, abstract 20K119 (Sb. nauchn. tr. Dnepropetr. metallurg. in-t, no. 38, 1959, 3-10)

TEXT: A new technique was worked out, a device developed, and the cathodic polarization in alkali of magnetite single crystals studied in the range within which the electroreduction of O_2 is the main potential-determining factor. The ranges of electrode potential and density of polarizing current in which the electrode potential is determined by the cathodic reduction of O_2 were established. The influence of various factors on the electroreduction process of O_2 was elucidated, and some of the kinetic characteristics of this process were determined. It was found that under

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30646

S/081/61/000/020/065/089
B139/B101

Electroreduction of oxygen on a...

strong aeration the kinetics of the electroreduction of O_2 with intermediate formation of H_2O_2 are only slightly dependent on the properties of the electrode. [Abstracter's note: Complete translation.]

Card 2/2

AFANAS'YEV, A.S.; BRYNZA, A.P.; GERASYUTINA, L.I.; LYSENKO, G.I.

Effect of urotropine on the acid corrosion of steel. Ukr.khim. zhur. 25 no.1:73-80 '59. (MIRA 12:4)

1. Dnepropetrovskiy metallurgicheskiy institut, kafedra fizicheskoy khimii i Dnepropetrovskiy gosuniversitet, kafedra neorganicheskoy khimii.
(Hexamethylenetetramine) (Steel--Corrosion)

30647
S/081/61/000/020/066/089
B139/B101

Oxidation of finely dispersed iron...

more porous and triable the crystal is, the higher is the oxidation rate and the smaller the relative quantity of oxidized Fe (as compared to the total quantity of Fe at the electrode). [Abstracter's note: Complete translation.]

X

Card 2/2

S/153/60/003/005/015/016
B013/B058

AUTHORS: Afanas'yev, A. S., Lysenko, G. I.

TITLE: Effect of Urotropin on Corrosion of Steel in Sulfuric Acid

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 5, pp. 942-946

TEXT: The specific effect of Urotropin on oxidative corrosion of steel of the grade МСт-2 (MSt-2) in strongly acid solutions was studied here. In this study, as well as in Ref. 1, "Urotropin" means a Urotropin complex, i.e. the totality of HCOH amino salts and NH_4^+. It was established that the minimum value of the inhibiting Urotropin concentration becomes the smaller, the lower the pH of the solution (Fig. 1). The effect of Urotropin was classified into cathodic and anodic processes on the basis of polarization measurements in 0.2 and 1 N H_2SO_4 inhibited with Urotropin. It was established that Urotropin is an inhibitor of mixed type, which influences cathodic as well as anodic processes by accelerating or slowing down these processes depending on the particular conditions

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Effect of Urotropin on Corrosion of Steel in Sulfuric Acid

S/153/60/003/005/015/016
B013/B058

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut, Kafedra fizicheskoy khimii (Dnepropetrovsk Metallurgical Institute, Department of Physical Chemistry)

SUBMITTED: March 2, 1959

Card 3/3

S/073/60/026/004/013/018/XX
B023/B064

AUTHORS: Afanas'yev, A. S. and Sotnikova, V. I.

TITLE: Effect of H_2O_2 Upon the Potential of the Oxygen Electrode on the Oxidized Surface of Steel in Alkaline Solution

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 4, pp. 466-470

TEXT: The present paper was read at the III Conference on Physical Chemistry of the Ukrainian Republic. The authors aimed at determining the mechanism of the electric reduction of oxygen on the steel electrode, and especially, the dependence of the "currentless" potential of the oxygen electrode upon the H_2O_2 concentration in the electrolyte. First, the durability of H_2O_2 in 0.1 and 1.7 N KOH solutions, saturated with air, and in contact with the oxidized surface of steel at room temperature, was investigated. H_2O_2 was found to decompose slowly so that it is possible to use the usual compensation methods to measure the electrode potential (φ).

Card 1/3

...strova and Ye. N.
...steel electrode in 1.86 N NaOH solution

at 25°C values, which are closely related to those of the authors. Absolute φ values determined by the authors vary in dependence on the passivity of the electrode, i.e., they depend on the relationship between the surface of the oxide layer of the passivating film on the metal and the surface of the non-passivated metal. The character of this relation as well as the sign and the value of A confirm the assumption that for the investigated electrode as well as for the dropping mercury electrode the electrode potential is determined by the equilibrium of the first stage of electric reduction of oxygen: $O_2 + H_2O + 2\bar{e} = OH^- + H_2O$. Papers by A. I. Krasil'shchikov (Refs. 3-5), A. N. Frumkin, V. S. Bagotskiy, and Z. A. Iofa (Refs. 1, 6, 12-15) are mentioned. There are 4 figures and 17 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut; Kafedra fizicheskoy khimii (Dnepropetrovsk Metallurgical Institute; Chair of Physical Chemistry)

SUBMITTED: February 21, 1959

AFANAS'YEV, A.S.; BURMISTROVA, A.N.; CHANKOVA, Ye.N.

Role of hydrogen peroxide in the polarization of a steel electrode in an alkali by currents of low density. Ukr. khim. zhur. 26 no.5:579-584 '60. (MIRA 13:11)

1. Dnepropetrovskiy metallurgicheskiy institut, kafedra fizicheskoy khimii.

(Hydrogen peroxide) (Polarization (Electricity))
(Steel)

AFANAS'YEV, A.S.; BRYNZA, A.P.; GERASYUTINA, L.I.

Effect of urotropine on the acid corrosion of steel. Ukr. khim. zhur. 26 no.6:723-729 '60. (MIRA 14:1)

1. Dnepropetrovskiy gosudarstvennyy universitet, kafedra neorganicheskoy khimii, i Dnepropetrovskiy metallurgicheskiy institut, kafedroy fizicheskoy khimii.
(Hexamethylenetetramine) (Steel--Corrosion)

S/137/61/000/011/090/123
A060/A101

AUTHORS: Afanas'yev, A. S., Shteynberg, B. Sh.

TITLE: Corrosion resistance of sheet cast iron

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 4, abstract 11I17 (V sb. "Polucheniye izdeliy iz zhidk. met. s uskoren. kristallizatsiyey". Moscow - Kiyev, Mashgiz, 1961, 281 - 296)

TEXT: The structure of the metallic base of sheet cast iron has little influence upon its atmospheric corrosion resistance. Sheet cast iron with ferritic, pearlitic, and ferritic-pearlitic structure possesses almost the same corrosion resistance; that having mixed ferritic-cementitic structure is somewhat less resistant. An increase in the P content of the cast iron up to 0.23% and above raises considerably (by 25%) its corrosion resistance. The addition of small quantities of Cu to the cast iron leads to a considerable increase in the corrosion resistance. The addition of 0.2% Cu introduces practically no change in the mechanical characteristics of the sheet and does not complicate the technological process of its preparation, ensuring a considerable economical effect. There are 19 references.

A. Savel'yeva

[Abstracter's note: Complete translation]

Card 1/1

S/073/61/027/004/004/004
B127/B203

AUTHOR: Afanas'yev, A. S.

TITLE: Fourth Conference on Physical Chemistry of the Ukrainian Republic

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v. 27, no. 4, 1961, 544-546

TEXT: The above-mentioned Conference held in Khar'kov on November 21-24, 1960, was attended by more than 300 scientists who delivered and discussed 105 reports. A. I. Brodskiy opened the Conference together with N. N. Beketova. A. Z. Golik (Kiyev) presented results of his studies on compressibility and viscosity as related with the structure of liquids. L. S. Palatnik (Khar'kov) spoke about physicochemical properties of thin condensation layers. S. S. Urazovskiy and I. I. Yezhik reported on recent studies of structural transformations based on measurements of dielectric losses in solutions. A. I. Brodskiy (Kiyev) spoke about the mechanism of oxidizing reactions studied by isotopic methods. V. D. Bezuglyy (Khar'kov) used polarographic methods for studying the structure of organic compounds. G. I. Mikulin (Khar'kov) presented new results of the

Fourth Conference on Physical...

electrostatic theory of concentrated solutions of strong electrolytes. A. S. Afanas'yev (Dnepropetrovsk) revealed the mechanism of the effect of an oxygen electrode and its effect on oxidized iron surfaces. Three sections worked at the Conference: 31 papers on chemical structures and thermodynamics were read. N. M. Dombrovskiy (Chernovtsy) on reactions in hard phosphates, S. S. Gitis and A. Ya. Kaminskiy (Dnepropetrovsk) on the structure of products of the Yanovskiy reaction. A. I. Brodskiy and V. A. Lunenok-Burmakina (Kiyev) reported on the oxidation of inorganic substances with peroxide compounds. L. A. Ganyuk, A. I. Brodskiy, G. A. Blokh, V. A. Khizhnyy (Kiyev) spoke about the introduction of free radicals in rubber studied by means of resonance spectra. Ye. V. Yermolayeva (Khar'kov) showed the dependence of various properties of oxide melts on the ion structure. S. N. Solodushenkov, V. N. Krasnosel'skiy, and L. N. Polushina (Rubezhnoye) spoke about thermodynamics of aromatic amines in solutions. A. I. Kryukov, B. Ya. Dain (Kiyev), I. I. Dilung, and S. S. Butsko (Kiyev) reported on photochemistry of chlorophyll and reduction of Fe^{3+}; optical properties of substances: Ye. V. Titov (Khar'kov), aromatic amines; A. Ye. Lutskiy and V. N. Konel'skaya (Khar'kov), nitro-aniline and other amines; P. M. Bugay, I. I. Naydenova,

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and A. S. Gol'berkova (Khar'kov), diphenyl amine; V. P. Morozov, D. S. Koval'chuk, V. N. Khlebnikova, and N. K. Morozova (Dnepropetrovsk) tetrahedral hydrides and their deuterosubstitutions. Six papers on structure of liquids and liquid solutions: I. V. Krasovskiy and V. N. Solon'ko (Khar'kov), determination of association of liquids; G. P. Roshchina and E. D. Ishchenko (Kiyev), fluctuation in electrolytic solutions; Ye. N. Obchinnikova and G. L. Kobus (Odessa), viscous flow of liquids; A. F. Skryshevskiy and B. P. Klochkov (Kiyev), liquid organo-silicon compounds; A. Ye. Lutskiy and Ye. M. Obukhova (Khar'kov), liquid binary mixtures; A. Ye. Lutskiy and S. A. Mikhaylenko (Khar'kov), liquid substituted benzene. Thermodynamics and physicochemical analysis: I. S. Galinker and N. A. Belova (Khar'kov), calculation of the thermal capacity at various temperatures; S. S. Urazovskiy, V. A. Voloshin (Khar'kov), investigation of gas coal; V. N. Yeremenko and G.M. Lukashenko (Kiyev), the systems Mg-Zn and Mg-Al; V. I. Minenko and S. M. Petrov (Khar'kov), oxygen electrode in melts; N. L. Yarym-Agayev, V. Ya. Rudin, V. A. Titova, and Ye. A. Kogan (Stalino), interaction of components in saturated vapor; N. L. Yarym-Agayev, V. A. Titova (Stalino) binary salt melts; A. V. Voronov (Khar'kov), some special points of reversible

chemical reactions; N. N. Drozin (Khar'kov), calculation of entropy of hard compounds; G. V. Kukolev and K. M. Mikhaylova (Khar'kov), caking of kaolin and other mixtures; Ye. Ye. Cherkashin and M. Yu. Teslyuk (L'vov), the systems Mg-Cu-Sn and others; A. P. Zaytsev and B. G. Yasnitskiy (Khar'kov), the system chloroacetic acid - HNO_3 - H_2O; L. S. Palatnik, G. R. Vinogorov, M. B. Kagan, and N. D. Gorban' (Khar'kov), tertiary and quaternary heterogeneous liquid systems; M. N. Tsarevskaya (Lugansk), interaction of carbonic acid with amines; and G. I. Batalin (Kiyev), investigation of melts by ultrasonics. Another section (electrochemistry) delivered 31 reports: the following papers dealt with electrochemistry of solutions, especially with the phenomena of solvation: S. S. Urazovskiy, I. T. Slyusarov, and M. Ye. Postoyeva (Khar'kov), configuration changes of macromolecules; O. K. Skarre and M. O. Tereshkevich (Dnepropetrovsk), exchange of oxygen in nitrate ions; I. S. Galinker, I. M. Rodnyanskiy, V. I. Korobkov, and M. L. Gavrish (Khar'kov), properties of electrolytic solutions in a wide temperature range; N. A. Ismaylov and Yu. F. Rybkin (Khar'kov), contact differences of potentials between solutions; Ye. K. Zolotarev (Lisichansk), hydration of monatomic cations; V. V. Aleksandrov and V. I. Lebed' (Khar'kov), temperature dependence of

of activity and pH. The following papers dealt with electrochemical processes in solutions and melts: I. S. Galinker, I. M. Rodnyanskiy, V. L. Krasnosel'skiy, and S. M. Sheyn (Khar'kov, Rubezhnoye), determination of free alkalis; A. M. Shkodin (Khar'kov), effect of solvent on ion mobility; O. M. Dolgaya (Chernovtsy), mechanism of electrical conductivity in electrolytes; Yu. Ya. Fialkov (Kiyev), degree of acid-basic reaction; V. I. Yermolenko (Kiyev), calculation of the instability constant; Ye. Ya. Gorenbeyn and N. S. Kavetskiy (Kiyev), overvoltage of dissociation of melts. The following papers dealt with electrochemical test methods: N. P. Shimanskaya and V. D. Bezuglyy (Khar'kov), relationship of electrochemical characteristics of substances and structure and optical properties; M. Ya. Fioshin (Moscow), anodic processes at high positive potential; V. D. Bezuglyy, T. A. Alekseyeva, V. N. Dmitriyeva, and G. G. Belous (Khar'kov), polarography of polymerization kinetics; S. S. Dukhin (Kiyev), electrocapillary phenomena; V. A. Kremer and Ye. I. Vayl' (Khar'kov), sulfide electrodes; N. P. Dzyuba and V. P. Georgiyevskiy (Khar'kov), potentiometry with nonaqueous solvents. Some papers dealt with electrolytic deposition of metals: D. N. Gritsan and D. S. Shun (Khar'kov), effect of surface-active substances; A. V. Pamfilov and V. S. Kuzub (Lisichansk),

the role of adsorption; G. A. Yemel'yanenko and Ye. Ya. Baybarova (Dnepropetrovsk), unsteady processes of metal deposition; V. P. Galushko, V. N. Semeryuk, Ye. F. Zavgorodnyaya, and T. P. Dorosh (Dnepropetrovsk), metallic powders; P. M. Fedash (Dnepropetrovsk), anodic precipitation in dissolving of metals. The following papers dealt with corrosion protection of metals: A. S. Afanas'yeva, A. N. Burmistrova, V. I. Sotnikova, and Ye. N. Chankova (Dnepropetrovsk), mechanism of the first stage of the oxygen electrode; I. L. Roykh (Odessa), isolation of hydrogen peroxide in metal corrosion; A. P. Brynza, L. I. Gerasyutina, and T. N. Kryachek (Dnepropetrovsk), inhibitors of acid corrosion of Ti; G. I. Lysenko and A. S. Afanas'yev (Dnepropetrovsk, Melitopol'), adsorption mechanism of the effect of corrosion inhibitors; Yu. M. Tyurin (Severo-Donetsk), effect of pH on H_2 adsorption; and A. I. Tsinman (Severo-Donetsk), oxygen supertension.

34 reports were delivered in the section on kinetics, catalysis, and surface phenomena. Structure of industrial catalysts: G. P. Korneychuk (Kiyev), methods of studying the kinetics of heterogeneous catalysis; O. A. Strel'tsov, N. P. Samchenko, M. T. Rusov, and Yu. A. Snigurovskaya (Kiyev), formation of ammonia catalysts; M. V. Tovbin and V. Ya. Zabuga (Kiyev), the role of

polymorphous transformation; Ya. V. Zhigaylo, V. V. Raksha, and L. A. Kalashnikova (Kiyev), structure investigation in the production of catalysts; M. T. Rusov, V. M. Vlasenko, and G. M. Kosub (Kiyev), character of conductivity and catalytic properties; A. V. Pamfilov and Ya. S. Mazurkevich (Chernovtsy), photoelectric sensibility and photocatalytic activity. I. A. Tarkovskaya and D. N. Strazhesko (Kiyev) spoke about the role of diffusion factors in catalysis; I. G. Ryss (Dnepropetrovsk), on nucleophilic substitution. The following reports dealt with kinetics and catalysis of industrial processes: V. I. Atroshchenko, V.I. Konvisar, V. T. Yefimov, Ye. I. Kordysh, I. I. Litvinenko, Ye. G. Sedasheva, and V. M. Kaut (Khar'kov), main transformation of nitric oxides to HNO_3; A. N. Tseytlin and A. Ya. Kraynyaya (Khar'kov), denitration of nitroses; V. A. Royter, N. A. Stukanovskaya, G.P. Korneychuk, N. S. Volikovskaya, and G. I. Golodets (Kiyev), isotopic investigation of kinetics of oxidation of SO_2; V.I.Atroshchenko, N. A. Gavrya, and Z. M. Shchedrinskaya (Khar'kov), oxidation of natural gas; V. I. Atroshchenko, A. I. Zasorin, B. Bibr, and K. Ye. Romanenko (Khar'kov), kinetics of CO transformation; Ya. B. Gorokhovatskiy,

Ye. P. Popova, V. M. Belousov, and M. Ya. Rubanik (Kiyev), oxidation of propylene in acrolein; R. V. Kucher, M. A. Kovbus, and S. D. Kaz'min (L'vov), liquid-phase oxidation of hydrocarbons; G. P. Korneychuk, V. A. Royter, V. P. Ushakova, and T. G. Skorbilina (Kiyev), transformation of catalysts in naphthalene oxidation; L. M. Litvinenko and A. I. Kirichenko (Khar'kov), kinetics of acylation of amines; B. G. Yasnitskiy and A. P. Zaytsev (Khar'kov), reactions of chloro acetaldehyde with HNO_3 and nitric oxides; A. I. Yurzhenko, S.S. Ivanchov, O. S. Zarechnyuk, and V. I. Galibey (Odessa), polymerization of styrene. The following papers dealt with sorbents and sorption processes: M. A. Piontkovskaya, I. Ye. Neymark, A. Ye. Lukash, and R. S. Tyutyunnik (Kiyev), molecular screen properties of zeolites; I. B. Slinyakova and I. Ye. Neymark (Kiyev), adsorption properties of silica gel; N. A. Ismaylov and Ye. F. Kvyatkovskaya (Khar'kov), production of salts from ionites; N. K. Krupskiy and R. Z. Davydova (Khar'kov), volume sorption in bentonite; A. T. Davydov and G. M. Lisovina (Khar'kov), ion exchange sorption of anions; L. S.Ivanova and D. N. Strazhesko (Kiyev), sorptive separation of acid mixtures; Yu. V. Shostenko, I. P. Savel'yeva,

and V. I. Yevtushenko (Khar'kov), sorption with suspension layer of the sorbent; V. N. Yeremenko, V. N. Nizhenko, and Yu. V. Naydich (Kiyev), surface tension of binary metal systems; F. Ya. Reznik (Khar'kov), surface tension of pure liquids and solutions; M. A. Al'tshuler (Kiyev), capillary phenomena in pores open on one side; O. N. Myagkoy and V. P. Meleshko (Voronezh), adsorption of light and heavy water by ionites; V. D. Chmil', Yu. V. Shostenko, and S. Kh. Mushinskaya (Khar'kov), distribution chromatography; Ya. Ye. Geguzin and N. N. Ovcharenko (Khar'kov), healing of surface defects on crystals; S. G. Teletov (Khar'kov), foaming of electrolytic solutions; and A. I. Zolin and D. S. Bidnaya (Khar'kov), evaporation of solutions of surface-active substances. A further report was delivered by Irži Myloy (Czechoslovakia). The participants of the Conference considered it to be necessary to establish a branch of the Institut fizicheskoy khimii im. L. V. Pisarzhevskogo AN USSR (Institute of Physical Chemistry imeni L. V. Pisarzhevskiy AS UkrSSR) at Khar'kov.

S/137/62/000/001/195/237
A006/A101

AUTHORS: Afanas'yev, A. S., Lysenko, G. I.

TITLE: The effect of urotropine on steel corrosion in sulfuric acid

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 85, abstract 1I601 ("Sb. nauchn. tr. Dnepropetr. metallurg. in-t", 1959, no. 38, 65-76)

TEXT: Urotropine is a mixed-type inhibitor. It affects both the cathodic and anodic process by accelerating or retarding same, depending on the conditions. The mechanism of this effect is complicated and depends on the urotropine ability of changing the pH of the solution, on the surface-activity of urotropine and its products, and on their chemical properties. The co-existence of molecular and ionic type substances in the solution makes it difficult to explain a series of phenomena. However, results obtained from electrocapillary measurements, explain fully the desorption limits of substances on Fe (by taking into account the potential Fe zero charge) and also the inhibiting and stimulating effects of urotropine exerted on cathodic and anodic processes. During cathodic etching of scale-covered МСт.2 (MSt.2) steel in 1 n. H_2SO_4, admixture of urotropine reduces noticeably overetching of the steel. During

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S/081/62/000/002/052/107
B156/B101

AUTHORS: Afanas'yev, A. S., Shteynberg, B. Sh.

TITLE: The corrosion resistance of iron plate

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1962, 324-325, abstract 2I160 (Sb. "Polucheniye izdeliy iz zhidk. met. c uskoren. kristallizatsiyey", Moscow-Kiyev, Mashgiz, 1961, 281-296)

TEXT: The effects of the composition of the atmosphere, its corrosive properties, the structure and chemical composition of the iron, and the alloying additives on the corrosion resistance (CR) of the iron have been investigated. The CR was studied by conducting laboratory experiments and field and full scale tests. The comparison metal used was mild roofing steel plate of the following compositions: Cu 0.15, Ni 0.20 and Cr 12 %. It was established that, in atmospheres not contaminated with corrosive gases, the plate iron had a CR 150-250 % higher than that of the roofing steel. The CR of iron and steel are greatly reduced in atmospheres contaminated with corrosive gases. The relative decrease in the CR of the

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LYSENKO, G.I. [Lysenko, H.H.]; AFANAS'YEV, A.S. [Afanas'iev, O.S.]

Mechanism of the adsorption action of certain inhibitors of acid corrosion. Dop. AN URSR no.8:1049-1051 '61. (MIRA 14:9)

1. Dnepropetrovskiy metallurgicheskiy institut i Melitopol'skiy pedagogicheskiy institut. Predstavleno akademikom AN USSR Yu.K. Delimarskim [Delimars'kyi, IU.K.].

'Hexamethylenetetramine)
(Corrosion and anticorrosives)

AFANAS'YEV, A.S.

Fourth Ukrainian Republic Conference on Physical Chemistry.
Ukr. khim. zhur. 27 no.4:544-546 '61. (MIRA 14:7)
(Chemistry, Physical and theoretical congresses)

AFANAS'YEV, A.S.; BURMISTROVA, A.N.; SOTNIKOVA, V.I.; CHANKOVA, Ye.N.

Effect of hydrogen peroxide on the potential of an oxygen electrode on oxidized steel in alkaline solution. Part 2: Passivation of an electrode surface and cyclic polarization. Ukr.khim.zhur. 27 no.5:624-628 '61. (MIRA 14:9)

1. Dnepropetrovskiy metallurgicheskiy institut, kafedra fizicheskoy khimii.
(Oxygen) (Polarization (Electricity))

AFANAS'YEV, A.S.; BURMISTROVA, A.N.; SOTNIKOVA, V.I.; CHANKOVA, Ye.N.

Effect of hydrogen peroxide on the potential of the oxygen electrode. Part 3: Kinetic mechanism of the electrode process. Ukr.khim.zhur. 28 no.4:492-495 '62. (MIRA 15:8)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Hydrogen peroxide) (Electromotive force)

AFANAS'YEV, A.S.; SHEVCHENKO, V.V.

Mechanism of the electroreduction of oxygen on oxidized iron. Report No.2. Ukr.khim.zhur. 28 no.9:1061-1065 '62. (MIRA 15:12)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Iron oxides)
(Reduction, Electrolytic)

AFANAS'YEV, A.S., doktor tekhn. nauk, prof.; IDEL'S, S.L., assistent

Selecting corrosion-resistant metals for the feed valve of the injector. Trudy DIIT no.24:166-171 '54.
(MIRA 16:11)

AFANAS'YEV, A.S.; YAMPOL'SKAYA, R.B.

Effect of thiourea on the acid corrosion of low-carbon steel protected by an oxide film. Ukr. khim.zhur. 29 no.9:991-995 '63. (MIRA 17:4)

1. Dnepropetrovskiy gosudarstvennyy universitet.

AFANAS'YEV, A.S.; SOTNIKOVA, V.I.; PASHUTA, Yu.S.

Thiourea as an inhibitor of the acid corrosion of steel. Ukr.khim. zhur. 29 no.12:1317-1321 '63. (MIRA 17:2)

1. Dnepropetrovskiy metallurgicheskiy institut.

AFANAS'YEV, A.S.; CHAYKOV, Ye.N.; BURMISTROVA, A.N.; SOTNIKOV, V.I.

Methods for determining the amount of scale formed on low carbon steel. Zav. lab. 30 no.5:586 '64. (MIRA 17:5)

1. Dnepropetrovskiy metallurgicheskiy institut.

AFANAS'YEV, A.S.; MALYSHEVA, T.V.

Pickling rate of steel cleaned and coated with oxide layers.
Zhur. prikl. khim. 37 no. 4:901-906 Ap '64. (MIRA 17:5)

1. Dnepropetrovskiy metallurgicheskiy institut.

AFANAS'YEV, A.S.; KHVEDCHENYA, G.M.

Correlation between the potential of scale-covered steel and the loss of weight on etching in sulfuric acid. Ukr. khim. zhur. 30 no.4:405-410 '64. (MIRA 17:6)

1. Dnepropetrovskiy metallurgicheskiy institut.

LEYSHMAN, M.B.; BALASHOV, M.Ye.; AFANAS'YEV, A.S.; MIKHELEV, V.M.; TAKHVANOV, G.I.; SHKHALAKHOV, Yu.Sh.; SANNIKOV, Yu.I.; SLAVIN, A.A.; BEYRAKH, Z.Ya.; KAPLINSKIY, B.I.; ORLOV, O.A.; PEVZNER, V.V.; VALOV, O.V.; KIREYEV, V.V.

Inventions. Avtom. i prib. no.3:76-77 Jl-S '64. (MIRA 18:3)

AFANAS'YEV, A.S.; GAMAZOV, V.P. (Dnepropetrovsk)

Platinum reference electrode for sodium hydroside melts. Part 1: Oxygen function of platinum. Zhur. fiz. khim. 38 no.12:2823-2827 D '64. (MIRA 18:2)

1. Dnepropetrovskiy metallurgicheskiy institut.

AFANAS'YEV, A.S.; DENISOVA, V.G.

Effect of arsenic content of steels on their corrosion resistance.
Ukr. khim. zhur. 31 no.6:621-625 '65. (MIRA 18:7)

1. Dnepropetrovskiy metallurgicheskiy institut.

AFANASIEV, [illegible]

Experimental station on acid corrosion inhibitors. Zashch. met. 1 no.3:345 My-Je '65. (MIRA 18:8)

AFANAS'YEV, A.S.; KIVEDCHENYA, G.M.

Relation between the potential of scale-coated steel and the decrease in weight of the sample in acid etching. Part 2: Behavior of steel during cathodic and anodic polarization. Ukr. khim. zhur. 31 no.8: 856-863 '65. (MIRA 18:9)

1. Dnepropetrovskiy metallurgicheskiy institut.

AFANAS'YEV, A.S.; KHVEDCHENYA, G.M.

Interrelation between the potential of scale-covered steel and the decrease of weight during acid pickling. Part 3: Effect of the macrostructure of scale. Ukr. khim. zhur. 31 no.9:966-973 '65. (MIRA 18:11)

1. Dnepropetrovskiy metallurgicheskiy institut.

MALYSHEVA, T.V.; AFANAS'YEV, A.S.

Comparison between ChM and catapin inhibitors. Zhur. prikl. khim. 38 no.3:559-564 Mr '65. (MIRA 18:11)

1. Dnepropetrovskiy metallurgicheskiy institut. Submitted January 21, 1963.

L 37657-66 FDN/WE

ACC NR: AP6024905 (N) SOURCE CODE: UR/0317/66/000/007/0082/0082

AUTHOR: Afanas'yev, A. S.

15
B

ORG: none

TITLE: Mechanical device for cleaning tanks

SOURCE: Tekhnika i vooruzheniye, no. 6, 1966, 82

TOPIC TAGS: storage tank, propellant tank, mechanical engineering

ABSTRACT: This Author Certificate introduces a completely mechanized device for the cleaning of tanks (see Fig. 1). The housing (3) of this device is mounted on a

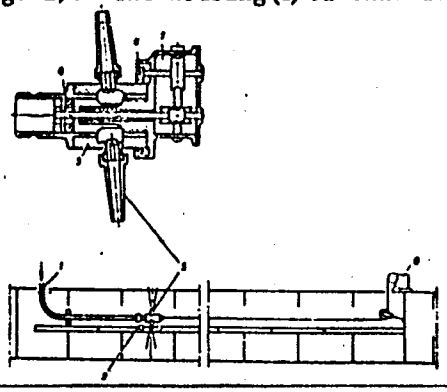

Fig. 1. Mechanized device for cleaning tanks.

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ACC NR: AP7006799 SOURCE CODE: UR/0418/66/000/006/0075/0078

AUTHOR: Afanas'yev, A. S. (Doctor of technical sciences ; Chankova, Ye. N. (Candidate of chemical sciences); Burmistrova, A. N. (Candidate of ch mical sciences); Tsvikevich, R. I. (Engineer)

ORG: None

TITLE: New industrial inhibitors of acid corrosion in metals

SOURCE: Tekhnologiya i organizatsiya proizvodstva, no. 6, 1966, 75-78

TOPIC TAGS: corrosion inhibitor, metal etching, sulfuric acid, low carbon steel, pickling, durability control, ACID CORROSION

ABSTRACT: The article is a report on a method for determining the effectiveness of inhibitors during cleaning of low-carbon steel covered with scale. The procedure was developed by the testing station for checking new industrial inhibitors of acid corrosion in metals associated with the Department of Physical Chemistry at the Dnepropetrovsk Metallurgical Institute. New inhibitor specimens sent to the station are pretested for protection of low-carbon steel during pickling in a 20% solution of H_2SO_4 at 80°C for 40 minutes in an open mixing tank. The inhibitors which pass this preliminary test are then checked out for protection of the same type of steel in the same tanks under conditions of industrial pickling in various sulfuric acid solutions at 50-95°C. Pickling duration at these temperatures is selected for complete removal

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UDC: 620.197.3