L 23574-66
ACC NR: AP6002596

stable positioning of the rolls by bringing together and increasing the support surfaces of the chains of the intermediate conveyer, the sections of the supporting rollers at the bending points of the sprocket wheel chains have a decreased width relative to the remaining rollers and are made without flanges (see Fig. 1).

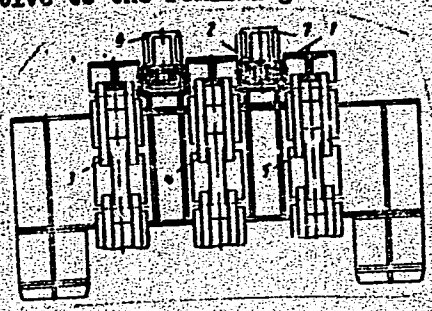

Fig. 1. 1 and 2 - fixed supporting rollers; 3-5 - endless closed chains of intermediate conveyer; 6 and 7 - endless closed chains of connected conveyers.

Orig. art. has: 1 diagram.

SUB CODE: 13/ SUBM DATE: 07Feb64

Card 2/2 PB

MAKOGON, Ya.Ye., master-sadovod; VOLCHENKO, V.V.

Letters to the editor. Zashch. rast. ot vred. i bol. 9 no.3:
13 '64. (MIRA 17:4)

1. Yasinovatskaya distantsiya zashchitnykh lesonasazhdeniy Donetskoy zheleznoy dorogi (for Makogon).

MAKOGON, Yu.F.; VOYTSITSKIY, V.P.; PETUKHOV, Ye.I.

Temperature schedule for the operation of gas-well head setup and gas field pipelines. Gaz. prom. 6 no.12:7-13 '61. (MIRA 15:2)

(Gas wells—Equipment and supplies)

MAKOGON, Yu. F.

Preventing the formation of hydrates in the exploitation of the Shchelkovo underground storage. Gaz. delo no. 11:24-30 '63. (MIRA 17:5)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I. M. Gubkina.

TREBIN, F.A.; MAKOGON, Yu.F.

Certain results of laboratory investigations of hydrate formation. Trudy MINKHiGP no.42:196-209 '63. (MIRA 17:3)

MAKOGON, Yu.F.

Moisture content of natural gases. Trudy MINKHiGP no.42:228-245 '63.

Unit for investigating the formation and disintegration of hydrocarbon-gas hydrates. Ibid.:246-255 (MIRA 17:3)

MAKOGON, Yu.F.

Equipping gas fields. Trudy MINKHiGP no.48:218-227 '64.
(MIRA 18:3)

MAKOGON, Yu.F.

Formation of hydrates in a gas-bearing bed under the conditions of permafrost. Gaz.prom. 10 no.5:14-15 '65.

(MIRA 18:6)

ZLOTNIKOV, I.M.; MAKOGON, Yu.F., kand. tekhn. nauk

Using calcium chloride for preventing hydrate formation. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.10:9-10 O '65. (MIRA 18:12)

MAKOGONCHUK, P. A. (Veterinarian)

Treatment of wounds with streptostaphylococcal bacteriophage.

SO: TABCON Veterinariya; 4-5; April/May 1945, Unclassified.

Makogonchuk, P. H.

GORBOVSKAYA, T. G.; CHEMMERINSKAYA, K. S.; MAKOGONCHUK, P. A.

Preliminary data on the combined antibiotic therapy of chronic gonorrhea in girls with combination of antibiotics. Vest. ven. i derm. no.5:43-46 S-O '55 (MLRA 9:1)

1. Iz Kiyevskogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instututa (dir. G. Ye Koryakin, nauchnyyrukovoditel'-prof. K. A. Karysheva) i Kiyevskogo gorodskogo kozhno-venerologicheskogo dispansera (zav. A.S. Ivanov)

(GONORRHEA, in infant and child
ther, antibiotics combination in girls)
(ANTIBIOTICS, ther. use
gonorrhea in girls, combination ther)

GORBOVSKAYA, T.G.; MAKOGONCHUK, P.A.; POLTORATSKIY, V.G.

Characteristics of bacterial flora in postgonorrheal diseases of urogenital organs in men. Vest.ven. i derm. 30 no.2:35-37 Mr-Ap '56. (MLRA 9:7)

1. Iz bakteriologicheskoy laboratorii (zav.-kandidat meditsinskikh nauk T.G.Gorbovskaya) Kiyevskogo nauchno-issledovatel'skogo dermato-venerologicheskogo instituta (dir. G.M.Koryakin) i gonorroynogo otdela Kiyevskogo ogorodskogo vendispansera (glavnyy vrach A.S. Ivanov)

(UROGENITAL SYSTEM, dis.
postgonorrheal in men, bacterial flora in)
(GONORRHEA
postgonorrheal dis. of urogenital system in men
bacterial flora in)

USSR/General Problems of Pathology. Immunity. U

Abs Jour: Ref Zhur-Biol., No 8, 1958, 37043.

Author : Gorbovskaya, T.G., Makogonchuk, P.A.
Inst :
Title : To the Problem of the Role of the Nervous System in the Formation of Antigenococcic Complement Fixation Materials in Rabbits.

Orig Pub: v. sb. Sovrem. vopr. dermatol. Kiev Gosmedizdat. USSR. 1957, 43-46.

Abstract: Fivefold immunization with gonovaccine of rabbits kept intermittently under the effect of urethane-veronal sleep, produced a higher complement titer (CT; 1:1200 - 1:1500, in controls 1:200 - 1:800). Following a single immunization during uninterrupted sleep for 72 hours, antibody formation did not take place. Following stimula-

Card : 1/2

1. MAKOGONENKO, G. P.

2. USSR (600)

4. Radishchev, Aleksandr Nikolaevich, 1749-1802

7. A. N. Radishchev and Russian social thought of the 18th century.
Vest. AN SSSR 22 No.9, 1952

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

MAKOGONENKO, Georgiy Panteleymonovich

MAKOGONENKO, Georgiy Panteleymonovich

MAKOGONENKO, Georgiy Panteleymonovich - Academic degree of Doctor of Philological Sciences, based on his defense, 31 October 1955, in the Council of the Leningrad Order of Lenis State U imeni Zhdanov, of his dissertation entitled: "Radishchev and his time."
For the Academic Degree of Doctor of Sciences

SO: Byulleten' Ministerstva Vyshego Obrazovaniya SSSR, List No. 2, 21 January 1956, Decisions of the Higher Certification Commission concerning academic degrees and titles.

MAKOGONOV, L.V.

130-8-10/20

AUTHOR: Klyucherov, A.P. and Makogonov, L.V., Engineers.

TITLE: Improved Open-hearth Furnace Ends (Usovershenstvovannyye golovki martenovskikh pechey)

PERIODICAL: Metallurg, 1957, No.8, pp. 26 - 27 (USSR).

ABSTRACT: The authors describe a design of open-hearth furnace end adopted at the Nizhniy Tagil' Metallurgical Combine in 1954 for 140-ton furnaces fired with mixed (coke-oven and blast furnace) gas. There are three air ports, two of them arched, inclined at 11° to the bath surface and situated on either side of and on the same level as the gas port, and the third above the gas port. Two 1 1/4-inch diameter tubes were provided on either side of the port for compressed-air injection, and the authors discuss briefly compressed-air injection practice at the Kuznetsk Metallurgical Combine (KMK) (through a slot under the gas port). The Kuznetsk method was less effective than that of injecting the compressed air at the sides of the port, and the latter practice was extended to Venturi furnaces (leading to a 9.5% increase in production per unit working time, compared with one of 11.5% for arch ends). The authors present comparative data on the operation of 140-ton furnaces with various types of head with compressed air injection and also for a Venturi-end furnace without the injection. The data

Card 1/2

KASHNITSKIY, L.A.; KUPRIYANOV, N.F.; MAKOGONOV, V.A.; FARBMAN, I.B., redaktor; POLOSINA, A.S., tekhnicheskiy redaktor

[Instructions for planning, accounting and calculating the cost of oil and gas production] Instruktsiia po planirovaniiu, uchetu i kal'kulirovaniiu sebestoimosti dobychi nefti i gaza. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1956. 123 p. (MLRA 9:7)

1. Russia (1923- U.S.S.R.) Ministerstvo neftyanoy promyshlennosti.
(Petroleum industry) (Gas, Natural)

MAKOGONOV, V. Ye.: Master Phys-Math Sci (diss) -- "X-ray investigation of the fatigue breakdown of large-grain metals". Frunze, 1958. 11 pp (Min Higher Educ, Kirgiz State U), 200 copies (KL, No 6, 1959, 124)

21025

18.7510 1555, 1454, also 1035

S/058/61/000/005/033/050
A001/A101

AUTHOR: Makogonov, V.Ye.

TITLE: Growing of single crystals of metals by the recrystallization method

PERIODICAL: Referativnyy zhurnal. Fizika, no 5, 1961, 289, abstract 5E404 ("Tr. Przheval'skogo ped. in-ta", 1957 (1958), no 5, 15 - 18)

TEXT: The author describes designs of installations for the recrystallization annealing of Al, Cu and Fe specimens with the crystalline degree of deformation. He gives information on the procedures of deformation and annealing for growing large (several cm^3) crystals.

[Abstracter's note: Complete translation.]

Card 1/1

SOV/58-59-8-17942

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 135 (USSR)

AUTHORS: Makogonov, V.Ye., Terminasov, Yu.S.

TITLE: An X-Ray Study of the Mechanism of Fatigue in Metals Possessing Crystals of Dissimilar Sizes

PERIODICAL: Tr. Leningr. inzh.-ekon. in-ta, 1958, Nr 23, pp 46-67

ABSTRACT: Al, Cu and commercial Fe with crystals of dissimilar sizes were studied by means of the Laue and reverse-exposure method. The samples were subjected to a bending of alternate sign. The samples of Al had crystals ranging in size from 10^{-4} to 5 cm and were subjected to the fatigue test at amplitudes of 1, 3 and 10 mm. In fine-crystalline samples at all test amplitudes distortions of the second type (crushing of the crystalline blocks and of crystallite deformations), which would have been manifested in the line width, did not arise during cyclical loading. For a crystal size of 10^{-2} cm a crushing of the crystalline blocks is observed, and their incidental disorientation can be discovered on the Laue diffraction patterns; however, crystallite deformations do not arise. For samples having crystalline grains of a size ranging from 1 mm to greater dimensions,

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An X-Ray Study of the Mechanism of Fatigue in Metals Possessing Crystals of Dissimilar Sizes

crushing occurs without the development of crystallite deformations; furthermore, the greatest crushing takes place at the crystal boundaries. The above-mentioned process of deformation of the crystalline structure of Al (crushing of the blocks) reduces the sample to a condition of "friability", which is the cause of the metal's loss of endurance after the passage of a certain number of cycles. Unlike Al, few crystallite deformations arise in red Cu during the first period of cyclical loading. In other respects the process of the development of the fragmentation of crystalline blocks is analogous to the corresponding process occuring in the Al samples, with only this difference that a greater amount of crushing of the crystalline blocks, observable only in the pre-fracture period itself, takes place at the site of the sample's fatigue fracture. The samples of commercial Fe, subjected to cyclical loading, disintegrate in a manner analogous to that of the copper samples, and in the first test period small crystalline deformations arise in them. The development of crystalline deformations in the structure of metals is connected with the physical nature of the materials under investigation and can not serve as a structural indication of metal fatigue.

The author's conclusions

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18.8200

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AUTHORS: Buyko, V.M., Makogonov, V.Ye., Terminasov, Yu.S., and Toropov, A.M.

TITLE: X-ray Study of the Mechanism of Fatigue in Ferrous and Non-Ferrous Materials and Alloys (Mono- and Poly-Crystalline Specimens)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 5, pp 93-101 (USSR) (+ 1 plate)

ABSTRACT: The aim of this work is the elucidation of the following problems: 1) the reason for the broadening of interference lines in X-ray photographs of metals subjected to cyclic deformation; 2) whether the change in intensity of the X-ray lines can be used as a criterion for fatigue; 3) how does the fatigue process proceed in specimens of ferrous and non-ferrous alloys of different crystal sizes up to monocrystals, and 4) whether low temperature brings about changes in the structure of metals subjected to fatigue. The authors have submitted the following metals and alloys to fatigue tests: commercially pure iron (Armco iron), cuprite, aluminium, and brass. Brass specimens were tested first. These were cylindrical in shape. Various crystal sizes

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X-ray Study of the Mechanism of Fatigue in Ferrous and Non-Ferrous Materials and Alloys (Mono- and Poly-Crystalline Specimens)

were attained in these specimens by means of heat treatment. The latter were tested in a fatigue testing machine of the NU type at room temperature. One part of the specimens was tested in the annealed condition, the other part in a worked condition (work hardening was due to turning in a lathe). All tested specimens were subjected to deformation by bending to a definite degree at definite loads for different numbers of cycles. The second group of specimens was made from sheet material. The specimens were in the form of a uniform resistance beam or rectangular plate (Fig 1). One part of the specimens had a fine-grained structure (normal poly-crystalline specimens), the other part was submitted to preliminary working and subsequent recrystallisation which enabled crystals of different dimensions, from 10^{-3} mm to several cms, to be grown. For fatigue testing the authors built an apparatus in which specimens could be bent symmetrically. Its construction was based on the principle of constant deformation (Fig 2). In this

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machine the specimens were tested at amplitudes of 1, 3, and 10 mm. Testing of all the above specimens was carried out at normal temperatures as well as at liquid nitrogen temperature. The specimens were X-rayed by the back reflection method as well as by the Laue method. The significant portion of the polycrystalline specimens was X-rayed in an ionisation apparatus of the URS-50I type. Specimens submitted to testing at liquid nitrogen temperature were subsequently X-rayed at normal temperature. In order to be able to predetermine the place of fatigue fracture of these specimens during testing, their middle portion had a different diameter from those portions of the specimen which were close to the grips of the machine. By means of heat treatment the following crystal sizes were attained in brass specimens: 10^{-4} mm, 10^{-3} and 10^{-2} mm (vacuum annealed specimens). X-ray investigations of these specimens were carried out by the ionisation method. The investigation of finely crystalline specimens (with crystal sizes of

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X-Ray Study of the Mechanism of Fatigue in Ferrous and Non-Ferrous Materials and Alloys (Mono- and Poly-Crystalline Specimens)

10^{-4} mm) led to the following results. In the testing of these specimens at cyclic stresses of 14, 18 and 22 kg/mm^2, and different numbers of cycles, no secondary effects (broadening of interference lines) were observed. X-ray investigation of specimens of the second group (with crystal sizes of 10-3 mm), tested at the same cyclic stresses, exhibited a broadening of interference lines within limits of up to 1 million cycles (Fig 3). The third group of specimens (with crystal sizes of 10^{-2} mm), tested under the same cycle stresses, exhibited a broadening of interference lines within the limits of testing up to 3 million cycles. The maximum broadening of the lines was 20% as compared with the initial width of a non-deformed specimen (Fig 4). Figs 5 and 6 show the dependence of the intensity of the (511) line on the number of cycles at a cycle stress of 22 kg/mm^2 for crystals of 10-2 and 10-4 cm, respectively. Fig 7 shows the distribution of points in the specimen which were X-rayed. Fig 8 shows a Laue-graph of Al before, and

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X-Ray Study of the Mechanism of Fatigue in Ferrous and Non-Ferrous Materials and Alloys (Mono- and Poly-Crystalline Specimens)

Fig 9 after, fracture. Fig 10 is a Laue-gram for Armco iron. The physical mechanism of fracture of coarsely crystalline metals is the same for all the different metals investigated in this work. Specimens of the metals investigated, which were submitted to fatigue tests at liquid nitrogen temperature and then X-rayed at normal temperature, exhibited stronger distortions in their crystal structure. A comparison of the results of the investigation of fine grained metals with that of coarse grained ones, which essentially represent monocrystals, shows that the development of secondary effects (fragmentation of crystal blocks and crystal distortions) depends on the initial condition of the metal and is not a structural characteristic of fatigue. The change in line intensity, reflecting the development of tertiary distortions, signals the approach of fracture of the specimen, but for the time being it cannot be used as a universal criterion for fatigue, and further work in this direction is required. However, there is no doubt that

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X-Ray Study of the Mechanism of Fatigue in Ferrous and Non-Ferrous Materials and Alloys (Mono- and Poly-Crystalline Specimens)

the "disintegrations" in the metal structure appearing in fatigue testing are associated with dislocations which in their turn cause the development of tertiary distortions which, in a definite measure, are responsible for fracture.

Card 6/6

There are 11 figures and 5 references, of which 4 are Soviet and 1 is English.

ASSOCIATION: Leningradskiy inzhenerno-ekonomicheskiy institut (Leningrad Engineering-Economics Institute)

SUBMITTED: February 13, 1959

4

USSR/Medicine - Conjunctivitis Jun 1947
Medicine - Therapeutics

"Acute Larval Conjunctivitis," M. S. Makokha, 1 p

"Voyenno Med Zhur" No 6

Brief discussion of emergency and regular treatment of patients with the "Oriental" blister.

14T85

MAKOKHA, N. S. -- "Shock-Absorbing-Extension Method of Treating Fractures of the Hip." Sub 15 Jan 52, Central Inst for the Advanced Training of Physicians. (Dissertation for the Degree of Candidate in Medical Sciences.)

SO: Vechernaya Moskva January-December 1952

MAKOKHA, N.S., kandidat meditsinskikh nauk; BREYTMAN, R.Sh.

Case of strangulated embryonal hernia. Akush. i gin. no.3:80 My-Je '54. (MLRA 7:8)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. prof. A.N.Mangeym) Chernovitskogo meditsinskogo instituta.

(HERNIA,
*umbilical cord)
(UMBILICAL CORD, diseases,
*hernia)
(INFANT, NEWBORN, diseases,
*hernia of umbilical cord)

MAKOKHA, N.S.

Law method of the treatment of fractures of the femur with skeletal traction and with simultaneous walking. Khirurgiia no.4:57-59 Ap '54. (MLRA 7:6)

1. Iz kafedry fakul'tetskoy khirurgii (zav. prof. Ye.R. TSitritskiy) Chernovitskogo meditsinskogo instituta (dir. dotsent N.B.Man'kovskiy)

(HIP, fractures,
*ther., traction with simultaneous walking)
(FRACTURES,
*hip, ther., traction with simultaneous walking)

MAKOKHA, N.S.; GUDKOV, V.I.

Case of late secondary hemorrhage in a patient with rupture of the kidney. Urologiia 25 no.6:49-50 '59. (MIRA 13:12)
(KIDNEYS--RUPTURE) (HEMATURIA)

MAKOKHA, N.S.; KOTELEVSKIY, S.S.

Torsion of the gall bladder. Khirurgiia 36 no.4:55-59 Ap '60.
(MIRA 13:12)
(GALL BLADDER—ABNORMITIES AND DEFORMITIES)

MAKOKHA, N. S., dotsent; ZINOV'YEV, A. S., kand. med. nauk

Case of papillary cystadenoma of the pancreas. Khirurgiia 37 no.7:140-142 Jl '61. (MIRA 15:4)

1. Iz Omskoy oblastnoy klinicheskoy bol'nitsy (glavnyy vrach K. I. Shekhurdina)

(PANCREAS--TUMORS)

MAKOKHA, N.S., dotsent (Omsk)

Case of acute hydatid cholecystitis. Klin.med. 39 no.2:139-140 F '61. (MIRA 14:3)

1. Iz Omskoy oblastnoy klinicheskoy bol'nitsy (glavnyy vrach K.I. Shekhurdina).

(GALL BLADDER--HYDATIDS)

MAKOKHA, N.S., dotsent

Problem of the diagnosis and radical surgical treatment of pancreatuduodenal cancer. Khirurgiia no.8:77-87 Ag '62.
(MIRA 15:8)

1. Iz kliniki fakul'tetskoy khirurgii (zav. - prof. N.A. Telkov) Omskogo meditsinskogo instituta. Nauchnyy konsul'tant - deystvitel'nyy chlen AMN SSSR prof. A.I. Savitskiy.
(PANCREAS--CANCER) (DUODENUM--CANCER)

MAKOKHA, N.S., dotsent

Tuberculoma of the head of the pancreas. Khirurgiia 39 no.10:121-123 O '63. (MIRA 17:9)

1. Iz Omskoy oblastnoy klinicheskoy bol'nitsy (glavnyy vrach - zasluzhennyy vrach RSFSR K.I. Shekhurdina) i Omskogo meditsinskogo instituta.

MAKOKHA, N.S., dotsent

Combined anomaly of the annular head of the pancreas and cancer of the duodenal papilla. Khirurgiia 40 no.3:39-42 Mr '64. (MIRA 17:9)

1. Klinika gospital'noy khirurgii (zav.- dotsent N.S. Makokha) Omskogo meditsinskogo instituta i Dorozhnoy klinicheskoy bol'nitsy No.2 (nachal'nik S.F. Mel'nik).

MAKOKHA, N.S., doktor med. nauk

Pathogenesis of acute vascular dystonia during surgery for pancreatoduodenal cancer. Khirurgiia 41 no.4:64-70 Ap '65.
(MIRA 18:5)

1. Kafedra gospital'noy khirurgii (zav. - doktor med. nauk N.S. Makokha) Omskogo meditsinskogo instituta imeni Kalinina.

MAKOKHA, N.S., dotsent [illegible]

Some problems in the [illegible] in the area of the head of the pancreas. Vest. khir. [illegible] .5:39-42 My'63
(MIRA 17:5)

1. Iz gospital'noy [illegible] khirurgii (zav. - prof. G.D. Shushkov) Orskogo meditsinskogo [illegible] i oblastnoy klinicheskoy bol'nitsy [illegible] (glavnyy vrach - L.I. Shekhurdina).

MAKOKINA, S.M.; KHOLODOV, Yu.A.

Conditioned inhibition and conditioned disinhibition in chimpanzees, sphynx baboons, and dogs. Zhur.vys.nerv.deiat. 9 no.4:555-560 Jl-Ag '59. (MIRA 12:12)

1. Kafedra fiziologii vysshey nervnoy deyatel'nosti Moskovskogo gosudarstvennogo universiteta.
(REFLEX CONDITIONED)

MAKOKINA, S.M.

Effect of aminazine on the activity of the higher sections of the central nervous system in white rats. Trudy Inst. vys. nerv. deiat. Ser. patofiziol. no.9:123-133 '61. (MIRA 15:4)
(CHLORPROMAZINE) (CONDITIONED RESPONSE)

MAKOKINA, S.M.

Effect of repeated administration of aminazine on the activity of the higher sections of the central nervous system of white rats in diphtherial intoxication. Trudy Inst. vys. nerv. deiat. Ser. patofiziol. no. :134-143 '61. (MIRA 15:4)

(CHLORPROMAZINE) (CONDITIONED RESPONSE)
(DIPHTHERIA)

MAKOKINA, S.M.

Effect of aminazine on the interaction of alimentary and defensive conditioned reflexes. Trudy 1-go MMI 26:285-292 '63. (MIRA 17:2)

MAYOLA, Marian

Employment of Polish workers in the Czechoslovak Socialist Republic. Praca zabezp spol 6 no.4 32-36 Ap'64

6045 669.112.228.1.002.3:669.74:669.5

Bragiński A., Kulikowski J., Makolągwa S. **Manganese-Zinc Ferrites**

„Ferryty manganowo-cynkowe". Przegląd Telekomunikacyjny. No. 8—9, 1958, pp. 231—239, 19 figs., 3 tabs.

This paper indicates how advisable it is to use Mn-Zn ferrites having a high permeability over the frequency range of up to 1 megacycle. Present views are discussed concerning the crystalline structure of the ferrites under discussion, the oxidation and reduction process, and the effect of this process on the magnetic permeability. Information is included concerning the effect of additions (ingredients) and the size of crystals upon the magnetic properties, together with a comparison of the properties of a few items now being produced in Poland and abroad.

BRAGINSKI, Aleksander, mgr inz.; KULIKOWSKI, Jacek, mgr nauk techn., mgr inz.; MAKOLAGWA, Stefan, inz.

Temperature coefficients of the permeability of Mn-Zn ferrites. Prace Inst teletechn 3 no.1:3-40 '59.

1. Zaklad Materialow Magnetycznych, Biuro Badawcze, Instytut Telei Radiotechniczny, Warszawa.

MAKOLAGWA, S.

Effect of potassium ions on final properties of Mn-Zn ferrite.
In English. Bul Ac Pol tech 8 no.9:543-545 '60. (EEAI 10:7)

1. Research Laboratory For Magnetic Materials "Polfer", Warsaw.
Presented by J. Groszkowski.
(Manganese zinc ferrates) (Potassium) (Ions)

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24.2200,

S/058/62/000/009/028/069
A006/A101

AUTHORS: Ciastoń, Władysław, Kulikovski, Jacek, Makolagwa, Stefan

TITLE: Mn-Mg-Zn ferrites with almost rectangular hysteresis loop and low coercive force H_c

PERIODICAL: Referativnyy zhurnal, Fizika, no. 9, 1962, 40, abstract 9E285 ("Prace zakł. apar. mat. PAN", 1961, v. B, no. 8, 9 s., ill., Polish)

TEXT: The authors investigated ferrites of the Mn-Zn-Fe-O system described by general formula $Mn_zZn_yFe_xO_{4\pm\gamma}$, where $1.2 \leq x \leq 2.0$ and $0 \leq y \leq 0.4$. One of these ferrites has a relatively high rectangularity of the hysteresis loop and low coercive force H_c; into this ferrite some MgO was introduced with the aid of a special-developed method; the MgO amount replaced proportionally all the other components. Most detailed investigations were made with ferrites of system $(MgO)_x(Mn_{0.6}Zn_{0.4}Fe_2O_4)_{1-0.5x}$ at $0 \leq x \leq 0.4$. In materials of this system the coefficient of rectangularity of the hysteresis loop attains values of $S > 0.9$ and H_c of about 0.3 oersted. They can therefore be used as cores in computer storage systems.
[Abstracter's note: Complete translation]
Card 1/1

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24 2200,

S/058/62/000/008/091/134
A062/A101

AUTHORS: Ciastoń, W., Kulinowski, J., Makolagwa, S.

TITLE: Mn-Mg-Cd ferrites having rectangular hysteresis loops

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 36, abstract 8E262 ("Prace zakł. apar. mat. PAN", 1961, B, no. 9, 8s., il., Polish; summary in English)

TEXT: An investigation was made of the magnetic properties of the Mn-Mg-Cd-Fe-O system which may be described by the general formula $M_2Cd_yFe_xO_{4+\gamma}$, $1.4 \leq x \leq 2.2$; $0 \leq y \leq 0.9$. These ferrites are ranged in the class of magnetically soft materials. The addition therein of a certain quantity of MgO converts them into materials with rectangular hysteresis loops. Likewise the coercive force and the hysteresis loop shape of the $(MgO)_x(Mn_{0.6}Cd_{0.4}Fe_2O_4)_{1-0.5x}$ system, wherein $0 \leq x \leq 0.4$, were investigated. It was found that for any values of x in the investigated range of MgO concentrations the coercive force of these materials is < 0.2 oersted. The rectangularity of the hysteresis loop S varies in dependence of the quantity of Mg^{2+} ions in the solution; $S_{max} > 0.9$.

[Abstracter's note: Complete translation]

Card 1/1

13632

P/053/62/000/007/004/004
I010/I242

AUTHORS: Ciaston, Władysław, Kulikowski, Jacek, and Makolagwa, Stefan

TITLE: Properties of some Polish ferrites with a square hysteresis loop

PERIODICAL: Przegląd Elektroniki, no.7, 1962, 419-430

TEXT: Polish ferrites developed by "Polfer" and by the Zakład Aparatów Matematycznych (Department of Mathematical Apparatus) are comparable to those produced abroad. The static hysteresis loop parameters in three types of Polish ferrites R-1, R-2, R-3 were measured using 10x6x6 mm ring samples. The dynamic parameters of the cores are listed. The static characteristics show a similar B for all three types but their loop characteristics show a similar

P/053/62/000/007/004/004
I010/I242

Properties of some Polish ferrites...

width and the H_m for the maximum squareness factor S are different. No material with $H_c \approx 1.5 - 2,0$ oersteds was found. Dynamically, the R-2 has a very low H_m opt at which $\frac{U_s}{U_z}$ reaches its maximum. Its drawback consists of a long τ (3 μsec). The R-3 has $\tau = 1.5$ μsec but its H_m opt is 3 times higher. The R-1 has intermediate properties so that it is useful both for memory and switching circuits. The measurements proved that the R-2 may be used in automatics, teletechnical systems, ferractor systems of digital machines etc. and R-3 mainly in matrix coincidence memories. The shortest switching time obtained with the R-3 cores is still too long for application in fast computers. Faster elements are being developed. There are 12 figures and 1 table.

ASSOCIATION: Zakład Aparatów Matematycznych i WBR Zakładu Materiałów Magnetycznych (Department of Mathematical Apparatus and WBR Department of Magnetic Materials)

Card 2/2

41679
P/053/62/000/009/002/003
D271/D308

AUTHORS: Ciaston, Władysław, Kulikowski, Jacek and Makolągwa, Stefan

TITLE: Mn-Mg-Zn square loop ferrites with low H_c

PERIODICAL: Przegląd elektroniki, no. 9, 1962, 545-549

TEXT: The development of square loop ferrites with low coercive force is reported. In the temperature range of 1280° - 1360°C the samples were sintered in air, at higher temperatures - in oxygen in order to prevent reduction to Fe^{2+}. The samples were water quenched for chemical analysis, and cooled in vacuum or argon when intended for electrical tests. The Mn-Zn ferrite was taken as the basis of development, and squareness ratio and coercive force characteristics are shown for a range of compositions corresponding to the formula $Mn_yZn_xFe_{3-(x+y)}O_{4\pm\gamma}$; x was varied in experiments between 0 and 0.4, Fe content - between 35 and 50% mol, with corresponding variations in Zn content. On the basis of the above preliminary work, the composition of 50% Fe, 20% Zn and 30% Mn was chosen

Card 1/2

Mn-Mg-Zn square loop ferrites ...

as the starting point. MgO was added to it in varying proportions, at the proportional expense of remaining components. The influence of MgO is shown in characteristics of the squareness ratio and coercive force, in the range of $\delta = 0 - 0.6$ in the formula $(MgO)_\delta (Mn_{0.6}Zn_{0.4}Fe_2O_4)_{1-0.5\delta}$. It was found that $\delta = 0.4$ gives optimal results when cores are sintered in oxygen at 1400°C. Squareness ratios greater than 0.9 and coercive force lower than 0.3 oersted were obtained. Further improvement is expected by better control of primary materials and a less abrupt transition from oxygen atmosphere used in sintering to fully neutral atmosphere applied in cooling. The development of usable material was accelerated by the choice of Fe-Mn-Zn ferrite as the basis to which MgO was added. A. Braginski is thanked for supervision of the work. There are 5 figures.

ASSOCIATION: ZAM PAN (ZAM PAS) (W. Ciastoń) WBR, 'Polfer' (J. Kulikowski and S. Makolagwa)

Card 2/2

CIASTON, Wladyslaw; KULIKOWSKI, Jacek; MAKOLAGWA, Stefan

Mn-Mg-Cd ferrites with rectangular histeresis loop. Zakl apar matem prace no. B9: 1-8 '61.

MAKOLDI, M.

4

94. An investigation of caloric processes in rotary furnaces. — *Forgókemencék hőfolyamatainak vizsgálata.* — M. Makoldi. (Building Materials — *Építőanyag* — Vol. 6, 1954. No. 2, pp. 46—54, 7 figs., 2 tabs.)

The Caloric Engineering Research Institute effected measurements with fourteen rotary clinker-burning furnaces in order to set up the thermal balances. The caloric processes in the interior of the furnaces have also been calculated from the power supply of the thermal balances by methods published in literature. The probable length of seven characteristic zones of the furnaces has been determined on this basis. The calculations are explained in detail. Results of the calculations for one furnace are summarized in diagrams and tables. Suggestions on the further tasks of research are presented.

MAKOLDI, M. - Vol. 8, no. 4, Apr. 1955. - Magyar Energiagazdasag.

Possibilities for economy of coal in the turning furnaces of the cement industry. p. 121.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955 Uncl.

MAKOLDI, Mihaly

Correlation between the specific heat consumption and the quality of coal in the clinker combustion rotary furnaces. Epitoanyag 14 no.11:397-399 N '62.

KORANYI, Gyorgy, dr.; WUNSCH, Walter, Dr. ing.; OECHELHAUSER, Kurt; PUTNOKY, Janos; SOMHEGYI, Karoly; SZUMAN, Witold; VALY, Ferenc, dr.; DOBO, Laszlo; NAGY BIRO, Sandor; VIDA, Miklos; TOBAK, Lajos; MAKOLDI, Mihaly; NASZALYI, Laszlo; HUNEK, Emil

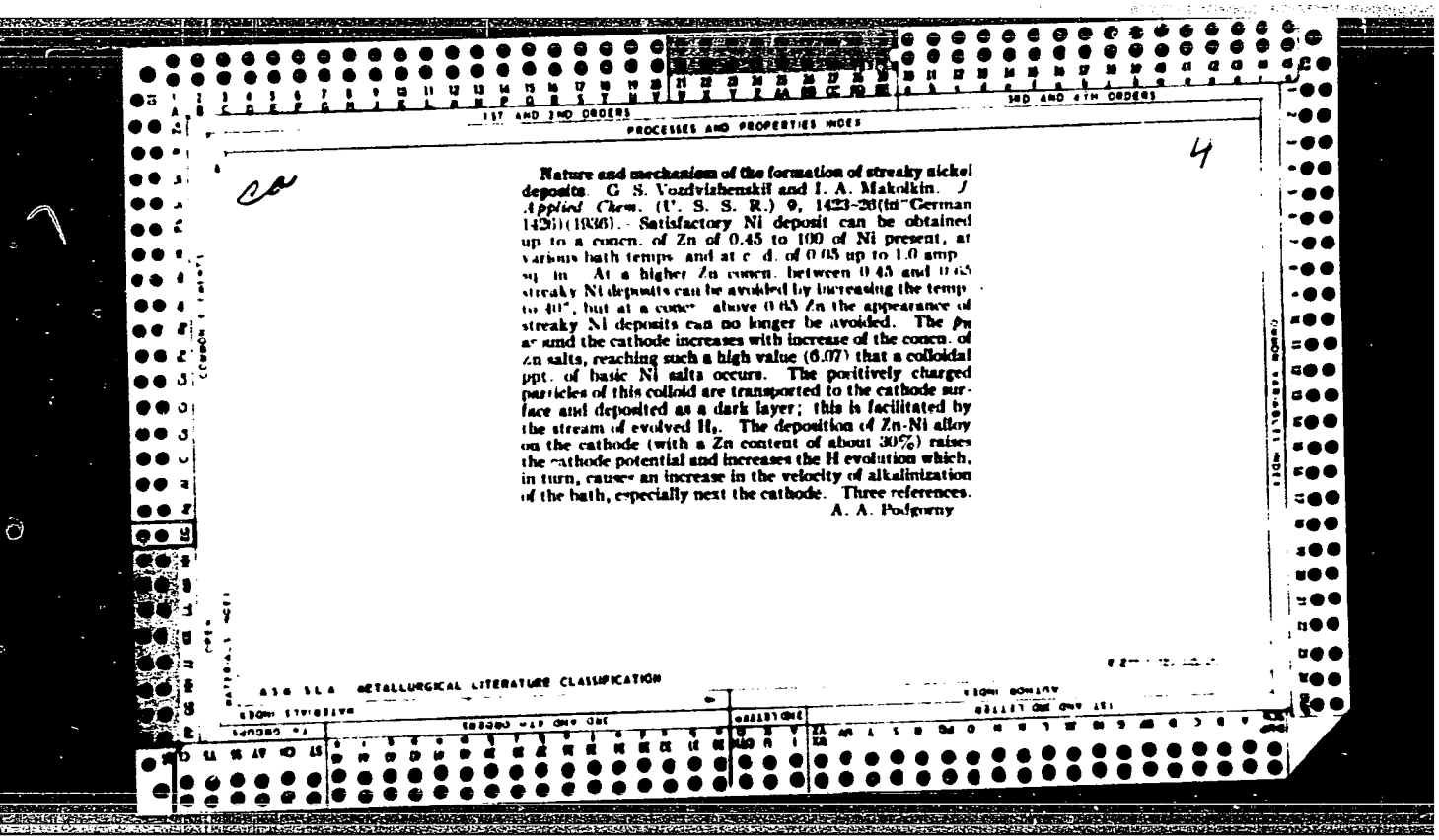
Technical and economic questions relating to gas utilization. Ipari energia 3 no.1/2:9-14 Ja-F '62.

1. Fovarosi Gazmuvek muszaki igazgatoja (for Valy).

MAKOLDI, Mihaly, tudomanyos munkatars

Remark about Gerhard Bornschein's lecture. Epitoanyag 15 no.11:448 N '63.

1. Epitoanyagipari Kozponti Kutato Intezet.



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

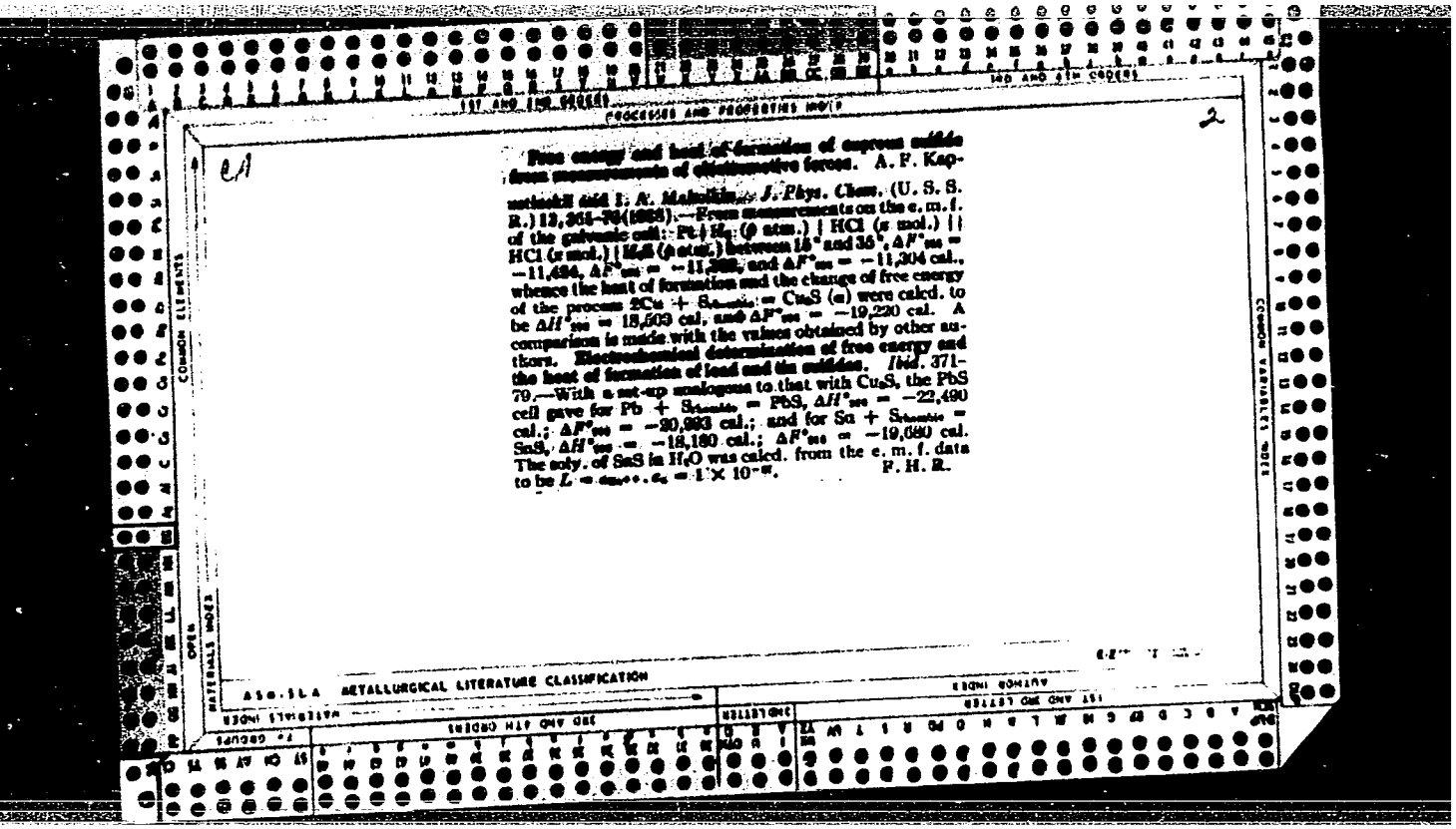
PROCESSES AND PROPERTIES INDEX

4

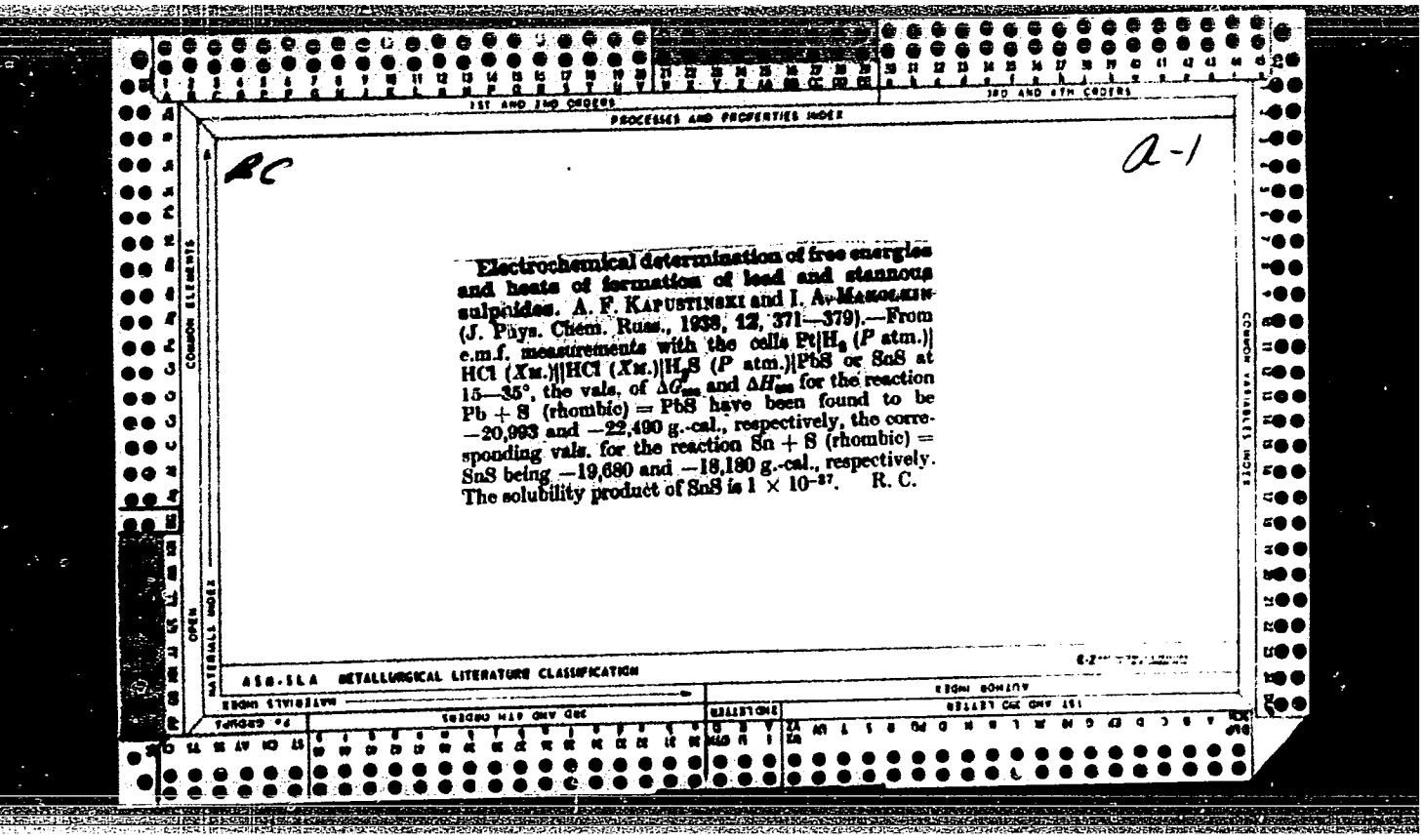
Nature and mechanism of the formation of streaky nickel deposits. G. S. Vozdvizhenskii and I. A. Makolkin. *J. Applied Chem.* (U. S. S. R.) 9, 1423-26(in German 1425)(1936). Satisfactory Ni deposit can be obtained up to a concn. of Zn of 0.45 to 100 of Ni present, at various bath temps. and at c. d. of 0.05 up to 1.0 amp. sq. in. At a higher Zn concn. between 0.45 and 0.65 streaky Ni deposits can be avoided by increasing the temp. to 40°, but at a concn. above 0.65 Zn the appearance of streaky Ni deposits can no longer be avoided. The p_H at and the cathode increases with increase of the concn. of Zn salts, reaching such a high value (6.07) that a colloidal ppt. of basic Ni salts occurs. The positively charged particles of this colloid are transported to the cathode surface and deposited as a dark layer; this is facilitated by the stream of evolved H_2. The deposition of Zn-Ni alloy on the cathode (with a Zn content of about 30%) raises the cathode potential and increases the H evolution which, in turn, causes an increase in the velocity of alkalinization of the bath, especially next the cathode. Three references.

A. A. Podgorny

A 36 11 A METALLURGICAL LITERATURE CLASSIFICATION



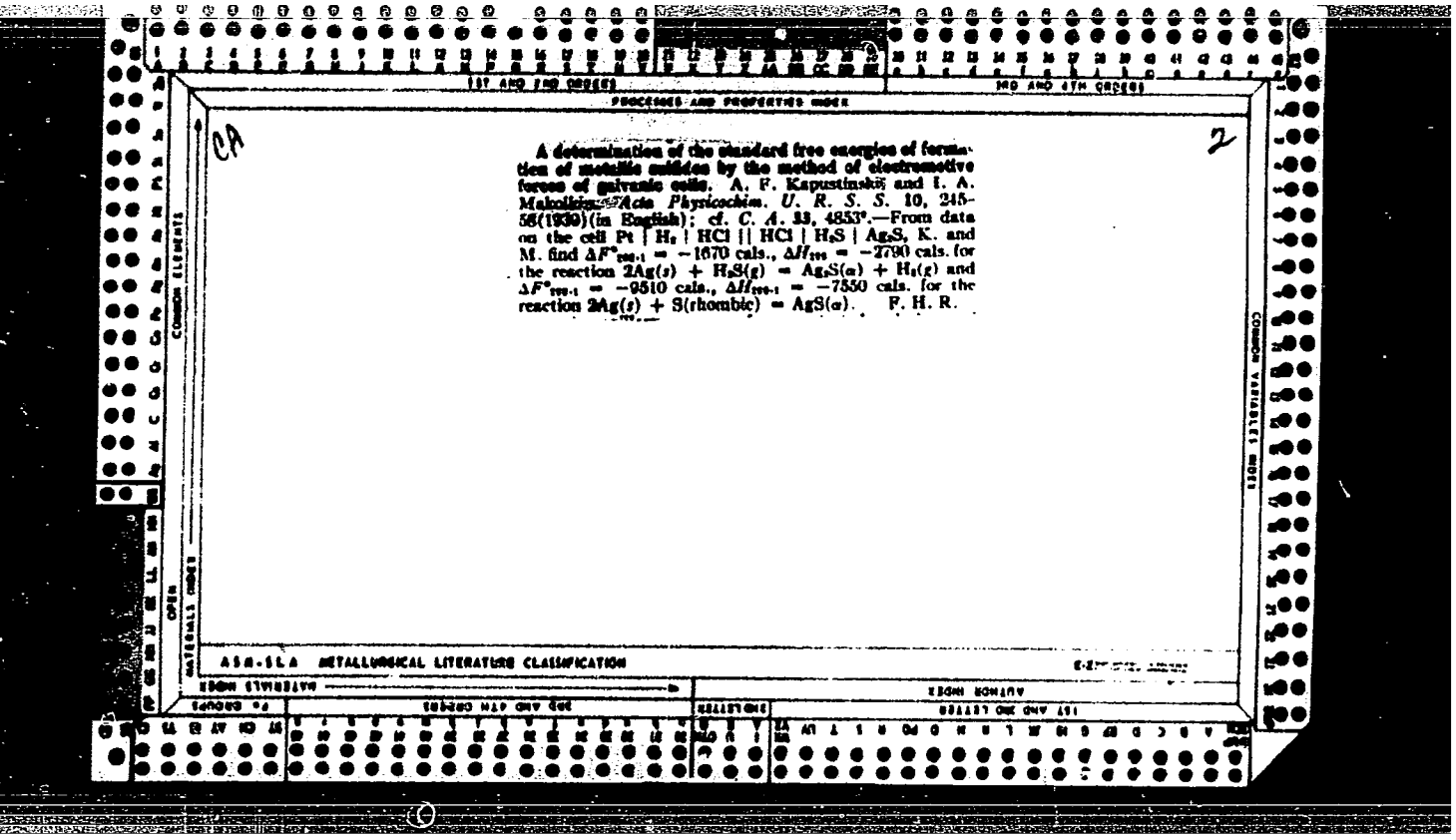
Free energy and heat of formation of cuprous sulfide from measurements of electromotive forces. A. F. Kapustinskii and I. A. Malofeiva. *J. Phys. Chem.* (U. S. S. R.) 12, 361–70(1938).—From measurements on the e. m. f. of the galvanic cell: Pt | H_2 (p atm.) | HCl (x mol.) || HCl (x mol.) | Hg$_2$Cl$_2$ (p atm.) between 18° and 35°, $\Delta F°_{298}$ = −11,494, $\Delta F°_{291}$ = −11,308, and $\Delta F°_{308}$ = −11,304 cal., whence the heat of formation and the change of free energy of the process 2Cu + S$_{rhombic}$ = Cu$_2$S (α) were calcd. to be $\Delta H°_{298}$ = 18,503 cal. and $\Delta F°_{298}$ = −19,220 cal. A comparison is made with the values obtained by other authors. Electrochemical determination of free energy and the heat of formation of lead and tin sulfides. *Ibid.* 371–79.—With a set-up analogous to that with Cu$_2$S, the PbS cell gave for Pb + S$_{rhombic}$ = PbS, $\Delta H°_{298}$ = −22,490 cal.; $\Delta F°_{298}$ = −20,993 cal.; and for Sn + S$_{rhombic}$ = SnS, $\Delta H°_{298}$ = −18,180 cal.; $\Delta F°_{298}$ = −19,080 cal. The soly. of SnS in H_2O was calcd. from the e. m. f. data to be L = [illegible] = 1×10^{-8}. F. H. R.



RC

A-1

Electrochemical determination of free energies and heats of formation of lead and stannous sulphides. A. F. KAPUSTINSKI and I. A. MAKOLKIN (J. Phys. Chem. Russ., 1938, 12, 371—379).—From e.m.f. measurements with the cells Pt|H_2 (P atm.)|HCl (XM.)||HCl (XM.)|H_2S (P atm.)|PbS or SnS at 15—35°, the vals. of ΔG_{298} and ΔH_{298} for the reaction Pb + S (rhombic) = PbS have been found to be −20,993 and −22,490 g.-cal., respectively, the corresponding vals. for the reaction Sn + S (rhombic) = SnS being −19,680 and −18,180 g.-cal., respectively. The solubility product of SnS is 1×10^{-27}. R. C.



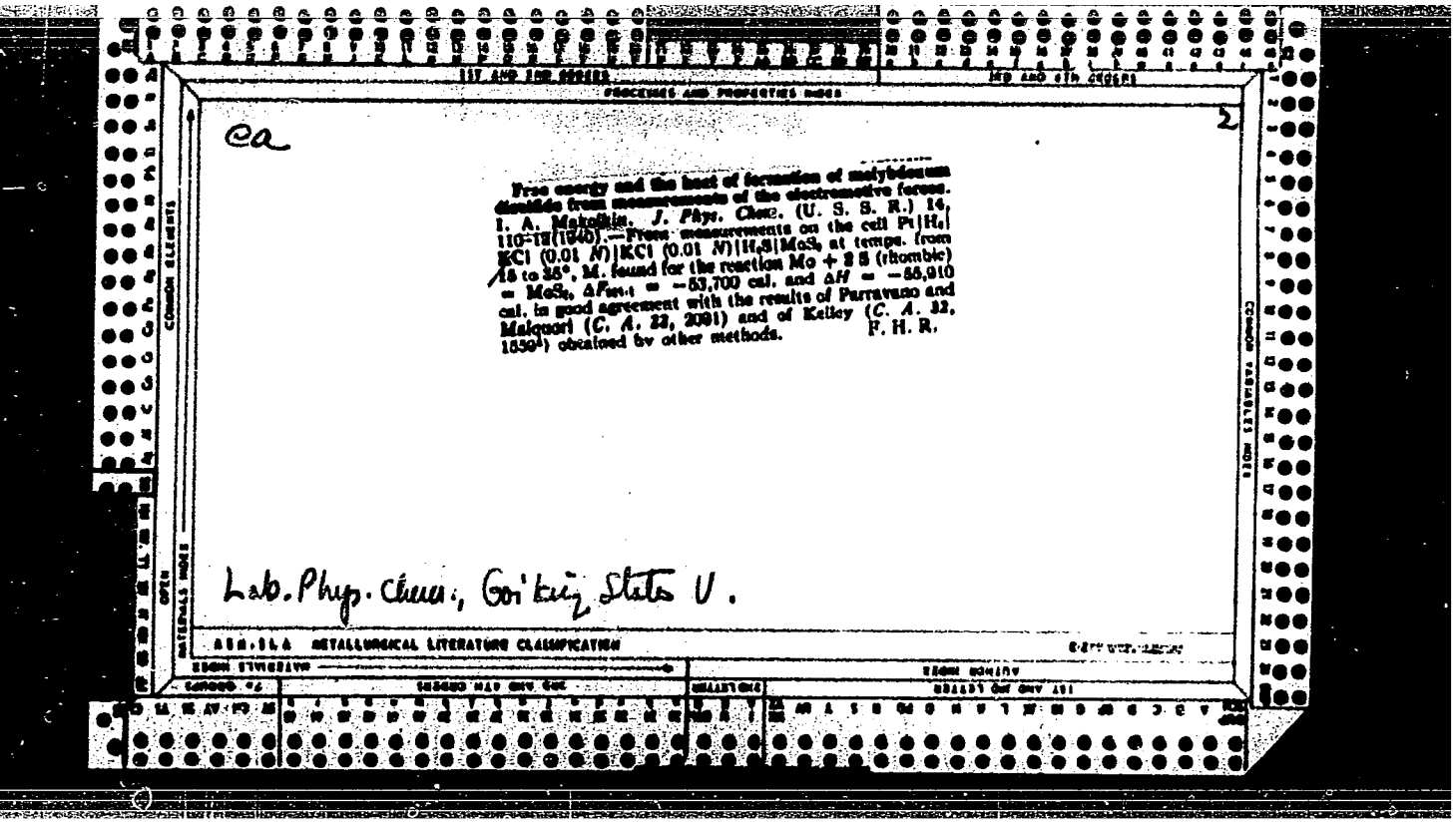
A determination of the standard free energies of formation of metallic sulfides by the method of electromotive forces of galvanic cells. A. F. Kapustinskiĭ and I. A. Makolkina. *Acta Physicochim. U. R. S. S.* 10, 245-58(1939)(in English); cf. *C. A.* 33, 4853°.—From data on the cell Pt | H_2 | HCl || HCl | H_2S | Ag_2S, K. and M. find $\Delta F°_{298.1} = -1670$ cals., $\Delta H_{298} = -2790$ cals. for the reaction $2Ag(s) + H_2S(g) = Ag_2S(\alpha) + H_2(g)$ and $\Delta F°_{298.1} = -9510$ cals., $\Delta H_{298.1} = -7550$ cals. for the reaction $2Ag(s) + S(\text{rhombic}) = AgS(\alpha)$. F. H. R.

A-1

13C

Standard free energies of formation of metallic sulphides from e.m.f. I. A. Makoltkin (*Acta Physicochim. U.R.S.S.*, 1949, 12, 341—360).—The e.m.f. of the cells Pt|H_2 (1 atm.)| KCl (0·01N.)||KCl (0·01N.)|H_2S (1 atm.)|CdS or ZnS or MoS_2 have been measured at 25° and the following thermodynamic vals. for the formation of the sulphides are evaluated: $\Delta G_{298\cdot2°}$. CdS −32,970, ZnS −46,730, and MoS_2 −53,960 g.-cal. per g.-mol., $\Delta H_{298\cdot2°}$. CdS −34,000, ZnS −47,980, and MoS_2 −55,930 g.-cal. per g.-mol., $\Delta S_{298\cdot2°}$. CdS −3455, ZnS −3780, and MoS_2 −6906 entropy units per g.-mol.

J. W. S.



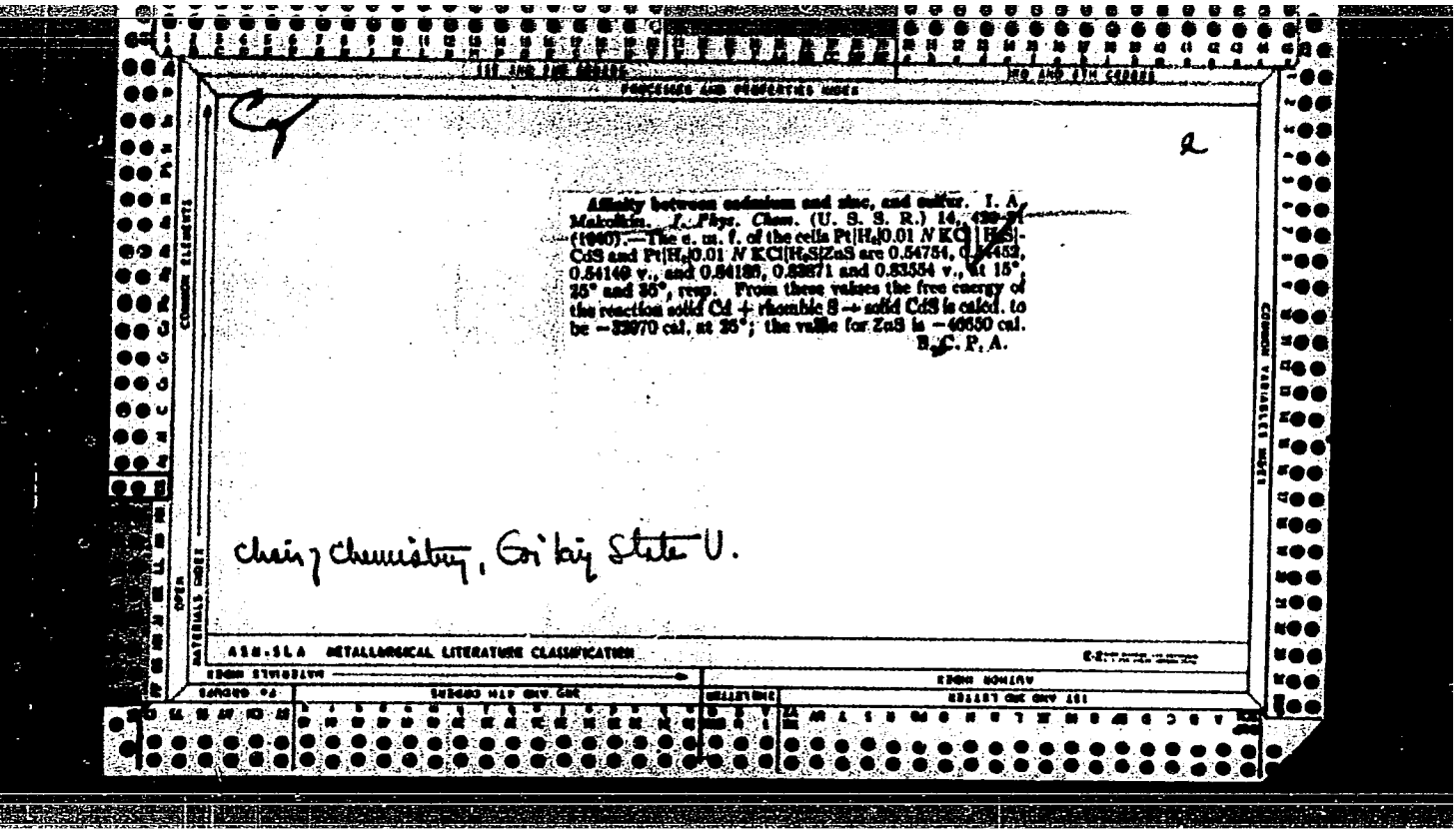
ca

2

Free energy and the heat of formation of molybdenum disulfide from measurements of the electromotive forces. I. A. Matolkin. *J. Phys. Chem.* (U. S. S. R.) 14, 110–12(1940).—From measurements on the cell Pt|H_2|KCl (0.01 *N*)|KCl (0.01 *N*)|H_2S|MoS_2 at temps. from 15 to 35°, M. found for the reaction Mo + 2 S (rhombic) = MoS_2, $\Delta F_{298.1}$ = −53,700 cal. and ΔH = −55,910 cal. in good agreement with the results of Parravano and Malquori (*C. A.* 22, 2081) and of Kelley (*C. A.* 32, 1850[4]) obtained by other methods. F. H. R.

Lab. Phys. Chem., Göttingen States U.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Affinity between cadmium and zinc, and sulfur. I. A. Malcolkin. *J. Phys. Chem.* (U. S. S. R.) 14, 429-31 (1940).—The e. m. f. of the cells Pt|H_2|0.01 *N* KCl|HgS|CdS and Pt|H_2|0.01 *N* KCl|H_2S|ZnS are 0.54754, 0.54452, 0.54149 v., and 0.84189, 0.83871 and 0.83554 v., at 15°, 25° and 35°, resp. From these values the free energy of the reaction solid Cd + rhombic S → solid CdS is calcd. to be −33970 cal. at 25°; the value for ZnS is −46650 cal.
B. C. P. A.

Chair Chemistry, Gorky State U.

MAKOLKIN, I. A.

"Application of isotopic method to investigation of the mechanism of chemical reactions. II. The mechanism of the reaction of alkaline fusion." (p. 359)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1942, Vol 12, No 7-8.

MAKOLKIN, I. A.

"Application of isotopic method to investigation of the mechanism of chemical reactions. IV. Reaction xanthogenation of mercerisation of cellulose and the structure of alkali-cellulose." (p. 367)

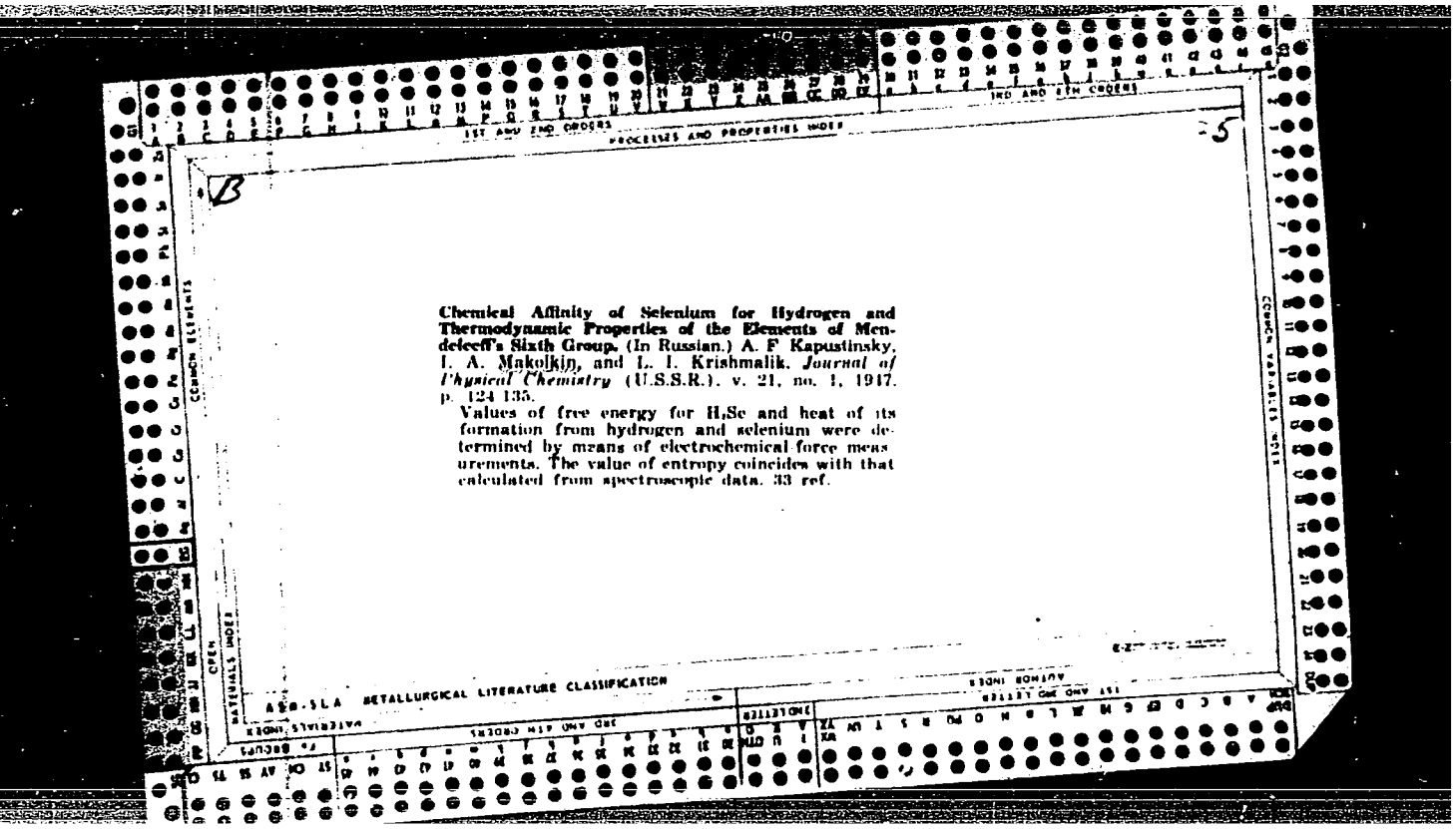
SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1942, Vol 12, No 7-8.

MAKOLKIN, I. A.

"Electrochemical Determination of the Thermodynamic Constants of Oxides of Certain Metals", Zhur. Fiz. Khim. 16, Nos. 1-2, 1942. Academy of Sciences Ukrainian USSR Institute of Physical Chemistry imeni L. V. Pisarzhevskiy, Department of the Chemistry Isotopes. Received 14 April 1941.

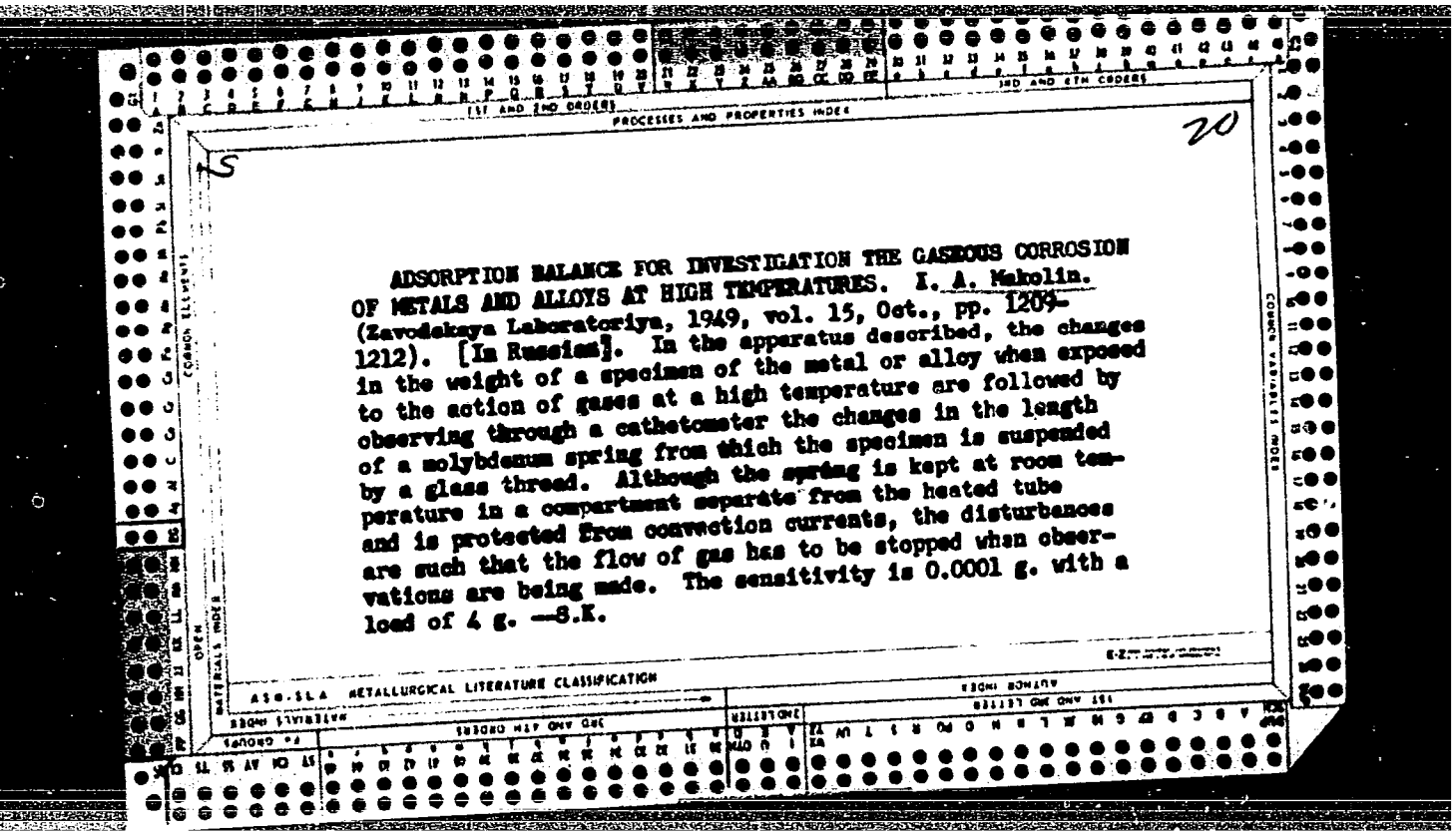
Report U-1523, 24 Oct. 1951.

Study of mechanism of alkali fusion reactions with the heavy oxygen isotope. I. Makolkin (*Acta Physicochim. U.R.S.S.*, 1942, **16**, 88–96). — Alkali fusions of $PhSO_3Na$, $C_{10}H_7{\cdot}SO_3Na$, and Na alizarinsulphonate (I) have been carried out with NaOH enriched in ^{18}O. The exchange phenomena accompanying the reactions show that NaOH mols. are first attached to the aromatic nucleus; $NaHSO_3$ mols are then eliminated, and react with more NaOH to give Na_2SO_3. With (I) oxidation of the second C atom occurs by attachment of ONa from the NaOH, and not by removal of O from the CO group or from the atm. Complete O exchange occurs between H_2O and Na_2SO_3 in 20 hr. at 170°; measurable exchange also occurs between NaOH and the Na phenoxides. A. J. R. W.



Chemical Affinity of Selenium for Hydrogen and Thermodynamic Properties of the Elements of Mendeleeff's Sixth Group. (In Russian.) A. F Kapustinsky, I. A. Makolkin, and L. I. Krishmalik. *Journal of Physical Chemistry* (U.S.S.R.). v. 21, no. 1, 1947. p. 124-135.

Values of free energy for H_2Se and heat of its formation from hydrogen and selenium were determined by means of electrochemical force measurements. The value of entropy coincides with that calculated from spectroscopic data. 33 ref.



PROCESSES AND PROPERTIES INDEX

20

ADSORPTION BALANCE FOR INVESTIGATION THE GASEOUS CORROSION OF METALS AND ALLOYS AT HIGH TEMPERATURES. I. A. Makolin. (Zavodskaya Laboratoriya, 1949, vol. 15, Oct., pp. 1209-1212). [In Russian]. In the apparatus described, the changes in the weight of a specimen of the metal or alloy when exposed to the action of gases at a high temperature are followed by observing through a cathetometer the changes in the length of a molybdenum spring from which the specimen is suspended by a glass thread. Although the spring is kept at room temperature in a compartment separate from the heated tube and is protected from convection currents, the disturbances are such that the flow of gas has to be stopped when observations are being made. The sensitivity is 0.0001 g. with a load of 4 g. —S.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MAKOLKIN, I. A.

USSR/Metals - Testing, Plating, Anodizing Dec 50

"Application of Optical-Mechanical and Interference-Contact Methods for Measuring the Thickness of Electroplating and Oxide Films," I. A. Makolkin

"Zavod Lab" No 12, pp 1433-1435

Examn of plating with Cu, Ni, and Cr proved possibility of using subject methods. Study of oxide films on Al and Mg alloys demonstrated applicability for measuring oxide films obtained by anodizing or thermal oxidation.

182T84

MAKOLKIN, I. A.

183T33

USSR/Chemistry - Magnesium Alloys May 51

"Oxidation of Mg and Mg Alloys at High Temperature," I. A. Makolkin, Sci Res Inst Production Tech and Organ

"Zhur Prik Khim" Vol XXIV, No 5, p 460

Studied oxidation processes of Mg, Al, Zn, and Mg-Al alloys in air, and of Mg alloys in N_2, CO_2, and SO_2 at high temp. Al and Zn in air, Mg alloys in N_2, CO_2, and SO_2 oxidize according to parabolic law, Mg and its alloys in air oxidize linearly. Increased Al content in Mg alloys increases oxidation speed in air, N_2, CO_2, and SO_2. Mech properties of Mg

183T33

USSR/Chemistry - Magnesium Alloys (Contd) May 51

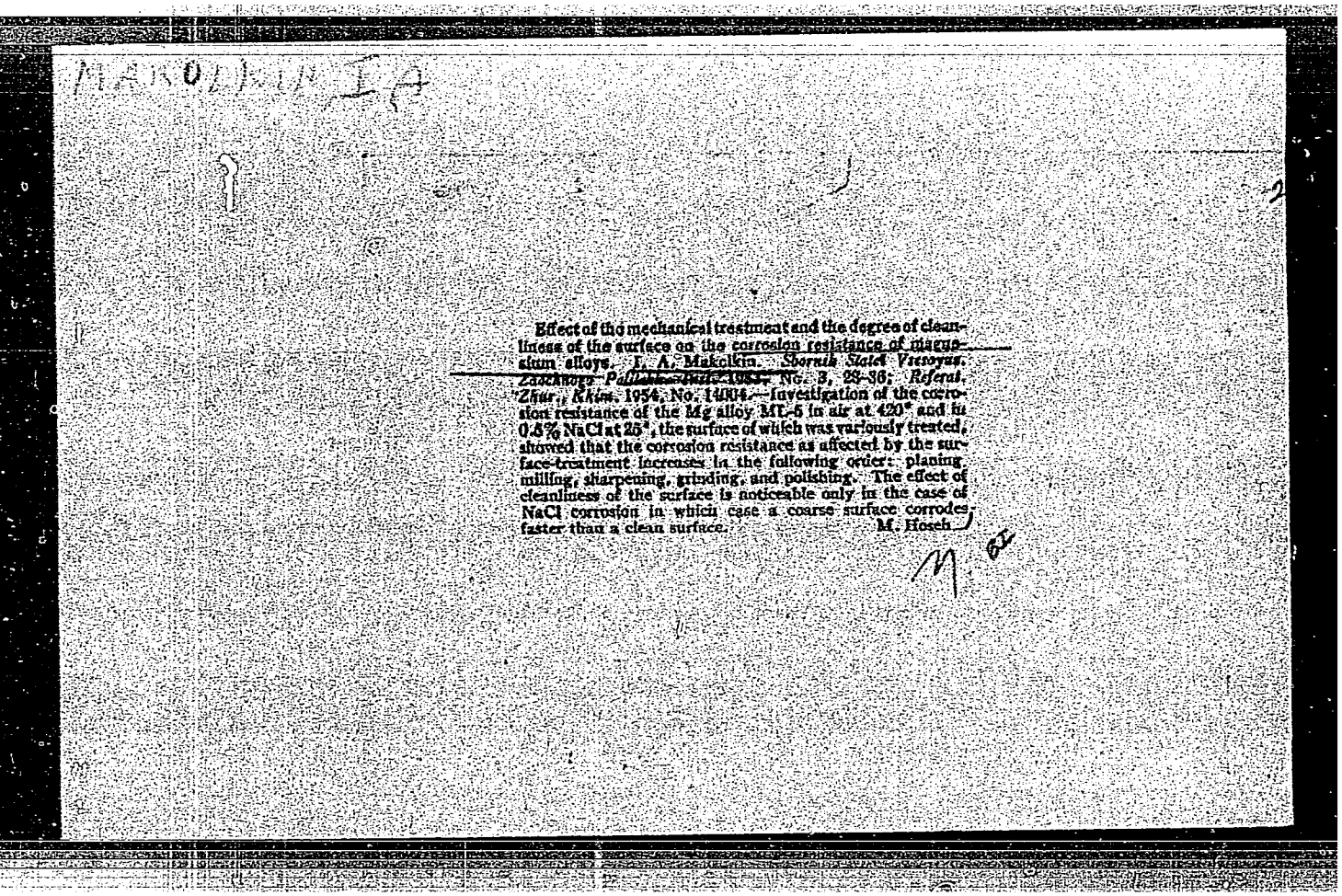
alloys are improved by protective carbonate or sulfate layers formed during treatment with CO_2 or SO_2. Mg alloys should thus be heat-treated in N_2, CO_2, or SO_2. Use of protective gas in heat-treatment prevents igniting of the material. Cites data on alloys ML-4 and ML-5.

183T33

MAKLENIN, I. A.

MAKLENIN, I. A. --"INVESTIGATION OF [illegible] OF MAGNETIC ALLOYS." [illegible]
MOSCOW ORDER OF LABOR RED BANNER HIGHER TECHNICAL SCHOOL IMENI BAUMAN. (DISS. FOR
FOR THE DEGREE OF DOCTOR IN TECHNICAL SCIENCES)

[illegible] : VECHERNAYA MOSKVA, JANUARY-[illegible]



Effect of the mechanical treatment and the degree of cleanliness of the surface on the corrosion resistance of magnesium alloys. I. A. Makolkin. *Sbornik Statei Vsesoyuz. Zaochnogo Politekhn. Inst.* 1953, No. 3, 28-36; *Referat. Zhur., Khim.* 1954, No. 14804.—Investigation of the corrosion resistance of the Mg alloy ML-5 in air at 420° and in 0.5% NaCl at 25°, the surface of which was variously treated, showed that the corrosion resistance as affected by the surface-treatment increases in the following order: planing, milling, sharpening, grinding, and polishing. The effect of cleanliness of the surface is noticeable only in the case of NaCl corrosion in which case a coarse surface corrodes faster than a clean surface. M. Hoseh

MAKOLKIN, I.A. and SHESTAKOV, S.N.

"Study of Dependence of Grain Growth and Mechanical Properties of Magnesium Alloy MA-1 on Temperature" Sb. Statey Vses. Zaoch. Politekhn. in-ta, No 8, 1954, 52-56

Mechanical properties and microstructure of standard sheet material MA-1 Specimens 1.5 mm thicj were tested by heating the specimens in CO_2 atmosphere. The initial grain starts growing after 30 minutes of heating at 450°. Strength and plasticity decline thereafter, but if heating time is shortened to 5 minutes the mechanical properties are improved. (RZhFiz, No 11, 1955)

MAKOLKIN, I. A.

AID - P-94

Subject : USSR/Chemistry

Card : 1/1

Authors : Makolkin, I. A., and Shestakov, S. N.

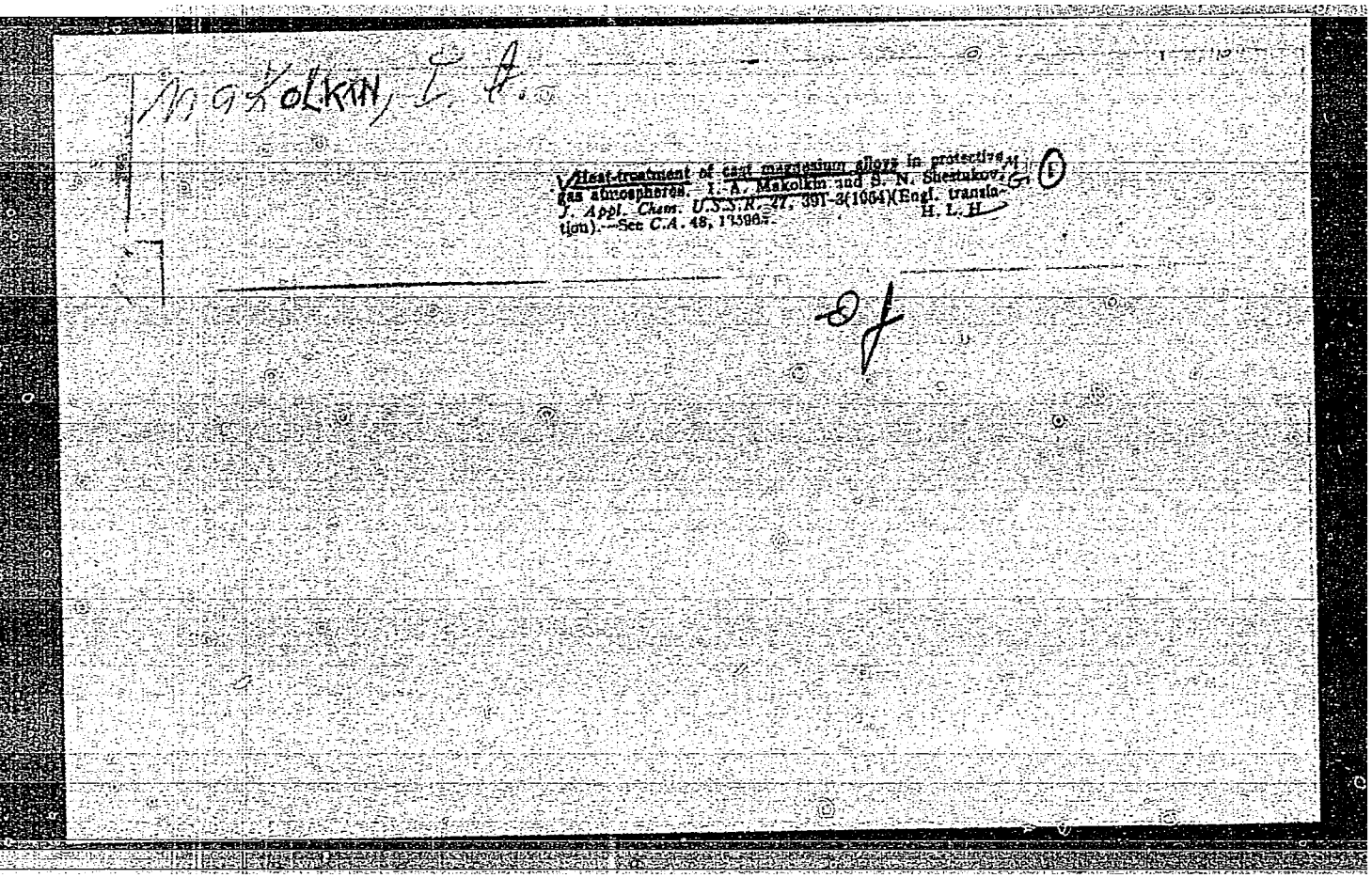
Title : Heat treatment of the magnesium cast alloy ML-5 in protective gases

Periodical : Zhur. Prikl. Khim. 27, no. 4, 421-424, 1954

Abstract : An ML-5 alloy with high mechanical properties is obtained by heat treatment of ML-5 in protective gases (CO_2 or SO_2) in vacuo. Eight references (five U.S.S.R.): 1913-1951. Three tables.

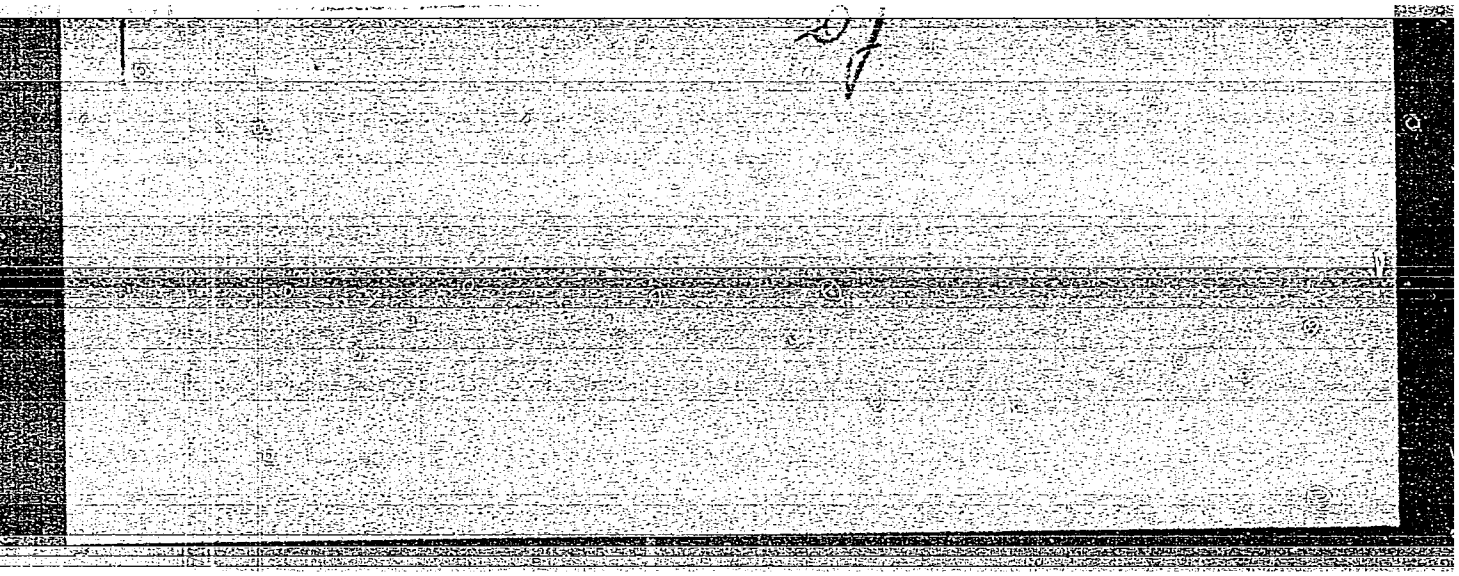
Institution : All-Union Polytechnic Correspondence Institute

Submitted : July 30, 1952



MAKOLKIN, I. A.

Heat-treatment of cast magnesium alloys in protective gas atmospheres. I. A. Makolkin and S. N. Shestukov. *J. Appl. Chem. U.S.S.R.* 27, 391-3(1954)(Engl. translation).—See *C.A.* 48, 11596i. H. L. H.



APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031610014-4"

MAKSIKIN, P. A.

Thermodynamics of gaseous corrosion of magnesium alloys. P. A. Maksikin (All-Union Polytech. Correspondence Course Inst., Moscow). *Vestnik Zaochnyi Politekh. Inst., Sbornik Statei* 1936, No. 13, 88–163.—The processing of Mg alloys contg. Al, Zn, and Mn is generally carried out in the temp. range 400–25°, and in a protective atm. of N_2, CO_2, or SO_2. At these temps. thin protective films of nitrides, carbonates, sulfates, and sulfides are formed on the surface. The thermodynamic properties are presented for all reactions likely to occur for the above conditions. Equations permitting the calcn. of ΔC_p, ΔH, and ΔF as a function of temp. are presented for the following reactions: $Mg(s) + \frac{1}{2}O_2(g) = MgO(s)$; $MgO(s) + CO_2(g) = MgCO_3$; (3) $MgO(s) + SO_2(g) + \frac{1}{2}O_2(g) = MgSO_4(s)$; $Mn(s) +$ $CO_2(g) + \frac{1}{2}O_2(g) = MnCO_3(s)$; $Zn(s) + \frac{1}{2}O_2(g) = ZnO(s)$; $ZnO(s) + CO_2(g) = ZnCO_3(s)$; $Zn(s) + CO_2(g) + \frac{1}{2}O_2 =$ $ZnCO_3(s)$; $3Mg(s) + N_2(g) = Mg_3N_2(s)$; $Al(s) + \frac{1}{2}N_2(g) = AlN(s)$; $3Mn(s) + N_2(g) = Mn_3N_2(s)$; $3Mn(s)$ + $N_2(g) = Mn_3N_2$(amorphous); $3Mn(s) + N_2(g) = Mn_3N_2$ (cryst.); $3Mn(l) + N_2(g) = Mn_3N_2$(soln. in liquid Mn); also, the formation of $MgSO_4$, $Al_2(SO_4)_3$, $MnSO_4$, Al_2C_3, Mn_3C_2. Calcd. values for ΔH and ΔF for each of the above reactions are presented for temps. of 673, 693, and 723°K. From the calcd. values for the free energy and enthalpy it follows that the formation of nitrides, carbonates, and sulfates of Mg, Al, Zn, and Mn proceeds spontaneously in the temp. interval examd.; these surface films are sufficiently stable for adequate protection from gaseous corrosion, and thus improve the mech. properties of the castings.

Alfred Schneider

SOV/137-58-7-15381

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7,p207(USSR)

AUTHOR: Makolkin, I.A.

TITLE. Investigation of the Structure of the Products of Gas Corrosion on Magnesium and its Alloys of the Type Mg-Al-Zn-Mn (Issledovaniye struktury produktov gazovoy korrozii na magnii i yego splavakh tipa Mg-Al-Zn-Mn)

PERIODICAL: Sb. nauchn. rabot. Mosk. in-t nar. kh-va, 1957, Nr 10, pp 242-249

ABSTRACT: By means of electron diffraction and X-ray analyses of the products of Mg and its alloys ML-5 in air in the 100-400°C range it was shown that the oxide films formed consist of MgO. On heating an ML-5 alloy at 425° the oxide film consists basically of size 10^{-6} cm grains of MgO and small quantities of the phase with a face-centered cubic crystal lattice. Heating at 900° during 2-3 hrs leads to the disappearance of this phase. On the basis of the difference in the constants of the lattices of MgO oxides and $MgO \cdot Al_2O_3$ spinels the author refutes the opinions expressed in the literature on the formation of spinel structures upon their oxidation in air up to 400°. The absence

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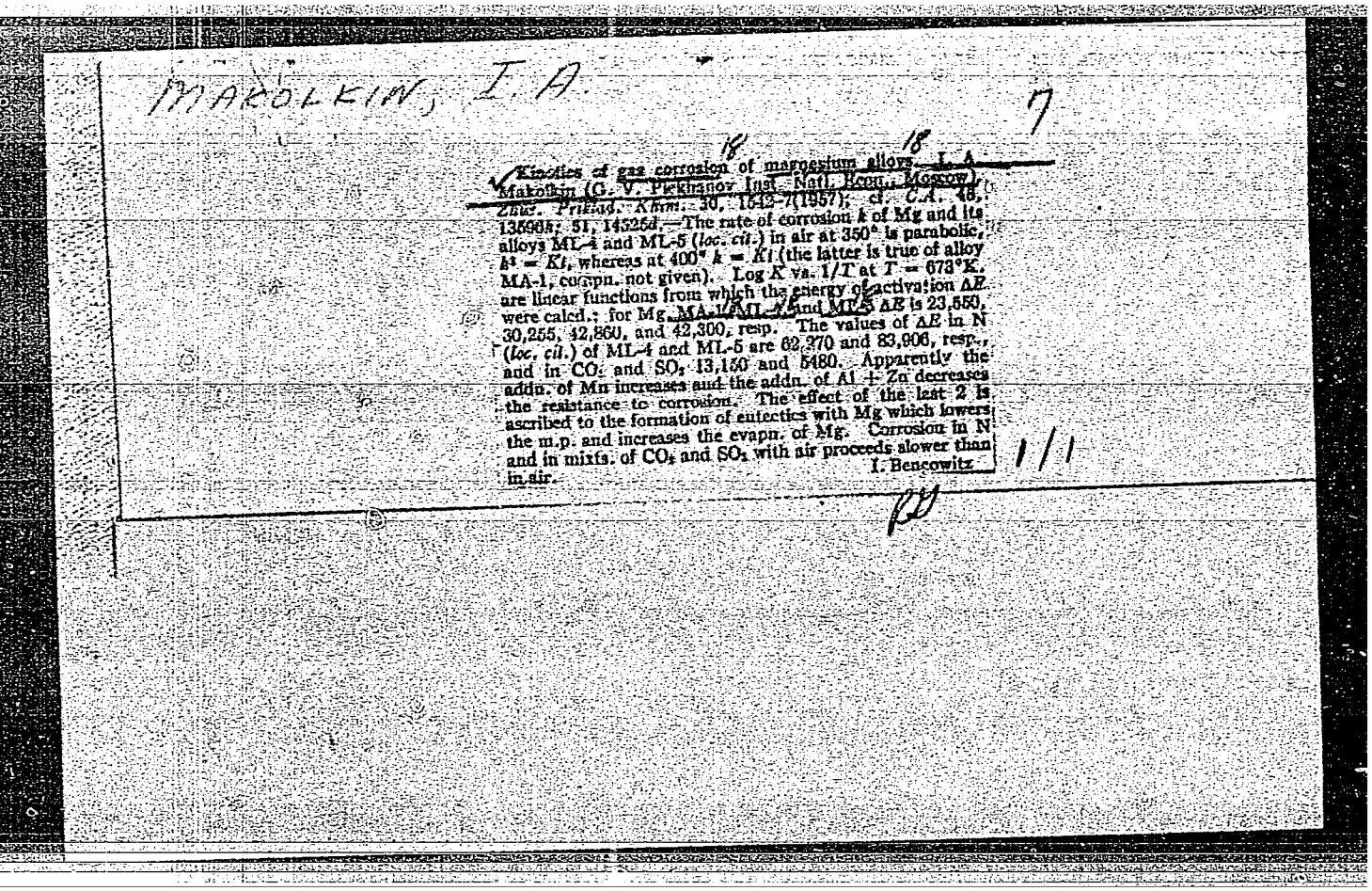
Investigation of the Structure of the Products of Gas Corrosion (Cont.)

of spinel structures is related to the difference in the rates of diffusion of Mg and Al atoms. The oxide film which forms on the alloy at 460° during a prolonged heating contains, in addition to MgO, also Al_2O_3, ZnO, and Mn_3O_4; however, in the oxide film the Al content is lower than in the alloy. This is evidence of the fact that in the ML-5 alloy the Al diffuses towards the phase border more slowly than Mg.

P S.

1. Magnesium--Corrosion 2. Magnesium alloys--Corrosion 3. Magnesium oxides --Determination 4. Corrosion--Temperature factors



MAKOLKIN, I. A.

Kinetics of gas corrosion of magnesium alloys. I. A. Makolkin (G. V. Plekhanov Inst. Natl. Econ., Moscow). *Zhur. Prikład. Khim.* 30, 1542-7(1957); cf. *C.A.* 48, 13698h; 51, 14525d.—The rate of corrosion k of Mg and its alloys ML-4 and ML-5 (*loc. cit.*) in air at 350° is parabolic, $k^2 = Kt$, whereas at 400° $k = Kt$ (the latter is true of alloy MA-1, compn. not given). Log K vs. $1/T$ at T = 673°K. are linear functions from which the energy of activation ΔE were calcd.; for Mg, MA-1, ML-4, and ML-5 ΔE is 23,650, 30,255, 42,860, and 42,300, resp. The values of ΔE in N (*loc. cit.*) of ML-4 and ML-5 are 62,270 and 83,906, resp., and in CO_2 and SO_2 13,150 and 5480. Apparently the addn. of Mn increases and the addn. of Al + Zn decreases the resistance to corrosion. The effect of the last 2 is ascribed to the formation of eutectics with Mg which lowers the m.p. and increases the evapn. of Mg. Corrosion in N and in mixts. of CO_2 and SO_2 with air proceeds slower than in air.

I. Bencowitz

MAKOLKIN, I.A.; PETROV, N.P.; FAYMAN, V.G.

Kinetics of the gaseous corrosion of the EI-473B alloy in air and in a nitrogen-hydrogen atmosphere. Zhur.prikl.khim. 31 no.11: 1678-1686 N '58. (MIRA 12:2)
(Corrosion and anticorrosives)
(Oxidation)
(Protective atmospheres)

KISELEVA, Ye.V.; KARETNIKOV, G.S.; KUDRYASHOV, I.V.; BOTVINKIN, O.K., doktor khim.nauk, retsenzent; MAKOLKIN, I.A., doktor tekhn.nauk, retsenzent; MISHCHENKO, K.P., doktor khim.nauk, retsenzent; GRYAZNOV, V.M., red.; REZUKHINA, T.N., red.; ZAZUL'SKAYA, V.F., tekhn.red.

[Collection of illustrated physical chemistry problems and exercises] Sbornik primerov i zadach po fizicheskoi khimii. Moskva, Gos. nauchno-tekhn.izd-vo khim.lit-ry, 1960. 264 p. (MIRA 13:7)
(Chemistry, Physical and theoretical--Problems, exercises, etc.)

80101
S/080/60/033/04/12/045

5.2100B

AUTHORS: Makolkin, I.A., Vernidub, I.I., Zhvanko, Yu.N., Karpov, V.T., Razumovskaya, G.S., Vol'khovskaya, A.A.

TITLE: The Kinetics of Oxidation of Fine Magnesium Powders at Raised Temperatures

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 824 - 831

TEXT: This is a continuation of the work in [Ref 1]. The kinetics of the oxidation of fine magnesium powders of the M-3 and M-4 type in an atmosphere of air, oxygen and nitrogen is investigated here. The oxidation was carried out in porcelain crucibles and drip pans which were placed into muffle furnaces. After heating the samples were subjected to roentgen-structural analysis. The temperature range for powders in an air atmosphere was 350 - 500°C, in oxygen 350 - 450°C and in nitrogen 400 - 500°C. It has been established that at temperatures of up to 450°C both powders interact with air, oxygen and nitrogen, the reactions being described by damping curves. This points to the fact that a film of magnesium oxides and nitrides has protective properties up to 450°C. Above this temperature the film loses its protective properties. M-4 powder is more reactive than M-3 powder, which is explained by the large specific surface of M-4 (3,500 cm^2/g) compared to that of M-3 (616 cm^2/g). This conclusion agrees with the values of the activation energies: these values for M-4 in air and

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The Kinetics of Oxidation of Fine Magnesium Powders at Raised Temperatures

nitrogen are lower andin oxygen higher than for M-3. It has been established that in the case of heating powders at 500°C in the air MgO and Mg_3N_2 are formed simultaneously. In this case a white, a gray and a yellow layer are formed in the reaction products. The first layer consists mainly of MgO and partly of Mg_3N_2, in the second and third layers more Mg_3N_2 and less MgO is contained, as well as an insignificant amount of $Mg(OH)_2$. The reaction product of both powders in nitrogen is Mg_3N_2. Thanks are expressed to Ye.S. Makarov from the Institut analiticheskoy khimii AN SSSR (Institute of Analytical Chemistry of the AS USSR).

There are: 5 graphs, 5 tables and 11 references, 2 of which are Soviet, 4 English, 1 American, 1 Rumanian, 1 French, 1 German and 1 Japanese.

ASSOCIATION: Moskovskiy ordena Trudovogo Krasnogo Znameni institut narodnogo khozyaystva imeni G.V. Plekhanova (Moscow Institute of National Economy imeni G.V. Plekhanov, Bearer of the Order of Labor Red Banner).

SUBMITTED: July 2, 1959

Card 2/2

S/080/60/033/007/011/020
A003/A001

18.1245; 18 8300

AUTHOR: Makolkin, I. A.

TITLE: The Problem of the Mechanism of Gas Corrosion in Magnesium Alloys of the Mg-Al-Zn-Mn Type

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 7, pp. 1572-1580

TEXT: The mechanism of gas corrosion in magnesium and its alloys is of great importance, since it is connected with the problems of heat-resistant alloying and the technology of thermal treatment of magnesium alloys. The mechanism of oxidation of complex alloys of the Mg-Al-Zn-Mn type was investigated. The structure of oxide films formed on samples of pure magnesium and its MA-5 (ML-5) alloy was studied by the method of electron diffraction in the D. V. Ignatov laboratory at 100-400°C. It was shown that at 400°C only magnesium oxide MgO was formed on ML-5. The qualitative spectral and quantitative chemical analysis of thick oxide layers obtained at 460°C on ML-5 showed the presence of the oxides of aluminum, zinc and manganese, in addition to MgO. The MgO film is a protective film. The process of gas corrosion in this case consists in the diffusion of magnesium through a film of corrosion products.

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S/080/60/033/007/011/020
A003/A001

The Problem of the Mechanism of Gas Corrosion in Magnesium Alloys of the Mg-Al-Zn-Mn Type

The reaction zone is located on the outer surface of the oxide film. Above 400°C the process consists in a two-sided diffusion of metals and oxygen, so that the reaction takes place on the boundary between the metal and the oxide film and in the bulk of the film. The presence of the alloying metals Al, Zn, Mn could lead to a decrease of the gas corrosion rate, if the oxidation process would be accompanied by the formation of protective films of the spinels $MgO \cdot Al_2O_3$, $ZnO \cdot Al_2O_3$ and $MnO \cdot Al_2O_3$, but roentgen-phase analysis has shown that in the case of oxidation of the alloy in the air the spinels are present in the oxidation products in a negligible amount. The protective properties are not increased, therefore. The oxides Al_2O_3, ZnO and Mn_3O_4 have a lower free energy of formation than MgO. The reduction of metal oxides by the formula $Mg + MeO = MgO + Me$ is always possible. Due to this fact, the oxides of the alloying elements cannot form a protective film on the surface of the alloy. The heating of the alloy in nitrogen and also in mixtures of air with CO_2 and SO_2 is accompanied by the formation of films on the alloy surface consisting of the mixtures $MeO + MeN$, $MeO + MeCO_3$ and $MeO + MeSO_4$ which protect the alloy

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S/080/60/033/007/011/020
A003/A001

The Problem of the Mechanism of Gas Corrosion in Magnesium Alloys of the Mg-Al-Zn-Mn Type

well against gas corrosion during thermal treatment at the temperature of 425°C. There are 3 tables and 25 references: 11 Soviet, 7 English, 3 German, 1 American, 1 Japanese, 1 French and 1 Rumanian.

ASSOCIATION: Moskovskiy institut narodnogo khozyaystva im. G. V. Plekhanova (Moscow Institute of National Economy imeni G. V. Plekhanov)

SUBMITTED: December 29, 1959

Card 3/3

6819
S/137/62/000/004/123/201
A060/A101

18.1245

AUTHORS: Makolkin, I. A., Karpov, V. T.

TITLE: Influence of heat-treatment upon the characteristics of articles made of magnesium alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 64, abstract 4I381 ("Sb. nauchn. rabot. Mosk. in-t nar. kh-va", 1961, no. 20, 113-123)

TEXT: An investigation was carried out as to the effect of temperature and soaking duration in the course of homogenizing upon the changes in the mechanical characteristics and the electrical resistance of the alloy M.1-5 (ML-5). The heat-treatment was conducted according to two schedules: 1) homogenizing at 415 ± 5°C and aging at 175 ± 5°C; 2) homogenizing at 425 ± 5°C and aging at 200 ± 5°C. It is indicated that the carrying out of the homogenization at the temperature of 425 ± 5°C instead of at 415 ± 5°C leads to a more intensive dissolution of the ν -phase which makes it possible to reduce the time of heat-treatment of the ML-5 alloy. When homogenizing at 415 ± 5°C the maximum mechanical characteristics (σ_b 25 - 26 kg/mm^2, $\sigma_{0.2}$ 11 - 12 kg/mm^2) are attained in 16 hours of soaking, whereas when homogenizing at 425 ± 5°C - in 8 hours,

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Analogously, the aging at 175 ± 5°C ensures the obtaining of σ_b 27 kg/mm^2 and $\sigma_{0.2}$ 17.1 kg/mm^2 in 16 hours of soaking, whereas aging at 200 ± 5°C yields the same results in 10 hours. A reduction of the soaking duration in the process of homogenizing may be attained both on account of reducing the grain size of the starting material, and on account of raising the homogenizing temperature, and both of these factors have a decisive influence in shortening the homogenizing schedule. When the temperature is increased from 415 to 525 ± 5°C the homogenizing time for the alloy with coarse grain may be shortened from 16 to 8-9 hours.

E. Nepomnyashchaya

[Abstracter's note: Complete translation]

S/123/62/000/014/013/020
A004/A101

AUTHORS: Karpov, V. T. Biryukova, Z. D., Makolkin, I. A.

TITLE: Methods of hardening steel parts

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1962, 33, abstract 14B188 ("Sb. nauchn. rabot. Mosk. in-t nar. kh-va", 1961, no. 20, 124 - 132)

TEXT: The authors present thermodynamic investigations of the possibility of a direct chemical reaction of metals includedin the steel composition with the prussic acid forming during gaseous cyaniding. It is shown that, in gaseous cyaniding of complex alloys and steels, a reaction is possible between the prussic acid and the metals, constituents of the steel, together with saturation processes with atomic nitrogen and carbon as a result of the thermal decomposition of CH_4, CO, NH_3 and HCN. The carbides and nitrides forming in the course of the reaction process between HCN and the metals harden the steel and increase its wear resistance.

E. Spivak

[Abstracter's note: Complete translation]

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MAKOLKIN, I.A.; DAVYDOVA, Zh.V.

Some chemical equilibria in the gas cyanidation of metals.
Zhur.prikl.khim. 35 no.7:1487-1496 Jl '62. (MIRA 15:8)

1. Moskovskiy institut narodnogo khozyaystva imeni G.V.Plekhanova.
(Cyanide process) (Chemical equilibrium)

MAKOLKIN, Ivan Afanas'yevich; SHMELEV, Boris Aleksandrovich;
IZMAYLOV, A.V., doktor khim. nauk, retsenzent;
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MISHCHENKO, K.P., doktor khim. nauk, retsenzent;
FEDOROVA, T.P., red.; BARANOV, Yu.V., tekhn. red.

[Collection of examples and problems in physical and colloid chemistry] Sbornik primerov i zadach po fizicheskoi i kolloidnoi khimii. Moskva, Rosvuzizdat, 1963. 181 p.
(MIRA 16:4)
(Chemistry, Physical--Problems, exercises, etc.)

KISELEVA, Yekaterina Vasil'yevna; KARETNIKOV, German Sergeyevich; KUDRYASHOV, Igor' Vladimirovich, BOTVINKIN, O.K., doktor khim. nauk, retsenzent; MAKOLKIN, I.A., doktor tekhn. nauk, retsenzent; MISHCHENKO, K.P., doktor khim. nauk, retsenzent; GOL'DENBERG, G.S., red.

[Problems and examples in physical chemistry] Sbornik zadach i primerov po fizicheskoi khimii. Moskva, Vysshaia shkola, 1965. 275 p. (MIRA 18:7)

MAKOLKIN, V.I.

Rhythm and conduction disorders in myocardial infraction. Terap. arkh. 29 no.3:66-70 Mr '57. (MLRA 10:8)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. V.N.Vinogradov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova

(HEART BLOCK, etiology and pathogenesis, myocardial infarct (Rus))
(HEART BLOCK, etiology and pathogenesis, conduction disord. in myocardial infarct (Rus))
(MYOCARDIAL INFARCTION, complications, arrhythmia & conduction disord. (Rus))

MAKOLKIN V.I

KYANDZHUNTSEVA, E.A.; MAKOLKIN, V.I.

Vectocardiogram in normal subjects and in myocardial infarct. Terap. arkh. 30 no.3:39-55 Mr '58. (MIRA 11:4)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir.-deystvitel'nyy chlen AMN SSSR prof. V.N. Vinogradov) 1-go Moskovskogo ordena Lenina med. instituta imeni I.M. Sechenova.
(VECTOCARDIOGRAPHY, in var. dis.
myocardial infarct, comparison with normal cond. (Rus)