

GOLUBEV, A.A. (Leningrad)

Peculiar relationship between concentrations of some volatile substances in the air and the development of emphysema. Gig.truda i prof.zab. no.4:46-50 JI-Ag '57. (MIRA 10:11)

1. Institut gigiyeny truda i profzabolevaniy.
(EMPHYSEMA, PULMONARY) (AIR-POLLUTION)

GOLUBEV, A. A.; LYUBLINA, Ye. I. (Leningrad)

Calculation method for establishing approximately the maximum permissible concentration of organic substances in the atmosphere of industrial premises. Gig. truda i prof. zab. no.4:26-32 '62.
(MIRA 15:4)

1. Institut gigiyeny truda i profzabolevaniy.

(INDUSTRIAL TOXICOLOGY)

LYUBLINA, Ye.I.; GOLUBEV, A.A.

Use of the method of correlative groups of isotopes
for discovering the relation between the physicochemical
properties of substances and their toxicity. Prim. mat.
metod. v biol. no.2:90-93 '63. (MIRA 16:11)

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LYUBINA, YE. I. and GOLUBEV, A.A.

"New Data on the possibility of Calculating Tentative Maximum Permissible Concentrations of Toxic Substances."

Report presented at the 2nd All-Union Scientific Conference on the Hygiene and Toxicology of Pesticides, Ministry of Health USSR Committee on the Study and Regulation of New Poisonous Chemicals of the Main State Sanitary Inspection USSR and Kiev Institute of Labor Hygiene and Occupational Diseases, Kiev 17-19 Oct. 1962.
(Gigiyena i Sanitariya, No. 3, 1963 p. 104-105.)

Kiev Institute of Labor Hygiene and Occupational Diseases.

ACC NR: AR6035077

SOURCE CODE: UR/0169/66/000/008/G006/G006

AUTHOR: Zhdanov, V. V.; Golubev, A. A.

TITLE: Petrophysical investigations related to the deep-seated structure of the Earth's crust

SOURCE: Ref. zh. Geofizika, Abs. 8G37

REF SOURCE: Sb. Materialy k Soveshchaniyu Obshchiye zakonomern. geol. yavleniy, 1966. Vyp. I. L., 1965, 331-335

TOPIC TAGS: earth crust, parameter, magnetite, petrophysical research

ABSTRACT: Petrophysical research includes study of physical properties of ¹²rocks and determination of a correlation dependency between physical parameters and the conditions of formation of magnetic and metamorphic rock. Direct dependences have been determined between the density and the basicity of igneous rocks, between the degree of magnetism and the magnetic content of the rock, and so on. This indicates great possibilities for petrophysical investigations during study of the deep-seated structure of the Earth's crust. [Translation of abstract]

SUB CODE: 08, 20/

Card 1/1

66

7

Method of determining the inorganic acidity of crude nitro products. I. M. KARYAKIN AND A. A. GOLBERG. *J. Chem. Ind. (Russia)* 6, 1201 (1929). The method is based on the fact that aniline forms with H_2SO_4 a sulfate which, on being dissolved in boiling water, can be titrated with 0.1 N alkali in presence of phenolphthalein. Sufficient aniline is poured with stirring into benzene or toluene to bind all the H_2SO_4 . The ppt. is filtered, washed with CaH_2 or H_2O and transferred together with the filter into a beaker, where it is dissolved in boiling H_2O and titrated after a short boiling to remove traces of CaH_2 or H_2O . Crude nitronaphthalene is dissolved in CaH_2 and the necessary quantity of aniline is introduced with rapid stirring, after which the ppt of aniline sulfate is titrated as above. Dinitrobenzene and dinitrotoluene are directly dissolved in aniline on being heated on a water bath, and aniline sulfate, which ppt. is filtered and titrated.

BERNARD NELSON

450-55.4 METALLURGICAL LITERATURE CLASSIFICATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 100 AND 4TH ORDERS

CA
GOLUBEV, A. 30

Compounding of benzine-resisting and oil-resisting rubber mixtures. V. Kartsev and A. Golubev. *J. Rubber Ind. (U. S. S. R.)* 10, 301-11(1933).—A study of the swelling of rubber in org. solvents and the effect of the compn. of the rubber on its resistance to swelling. Mixts. contg. different ingredients were immersed in benzine (for 24 hrs.) and in lubricating oils (for 48 hrs.); the extent of swelling was detd. and expressed as the percentage gain in wt. The ingredients tested included "GRT" black, "Maikop" black, kaolin, ZnO, CaO, MgCO₃, MgO, chalk, lithopone, talc, infusorial earth, S, horn dust, mica, graphite, animal glue, etc. The results of these tests are given in 48 diagrams and show that to prep. benzine- and oil-resisting rubber mixts. the S should not exceed 10-15%; the addn. of "GRT" black, Sc, "Neosone D" and "Aggrite" gives excellent results; and lime, lithopone, infusorial earth and horn dust are of no benefit.
James Sorrel

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

COLUBEV, A. A.

BU

B-I-8

Acetylene in air-compression and distillation plants. B. N. KARABOVSKI and A. A. COLUBEV (J. Chem. Ind. Russ., 1937, 24, 251-257).—Presence of C_2H_2 in liquid air or O_2 is due to contamination of the air or to use of unsuitable lubricants in the compression units. H. T.

ABB. ILL. METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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PROCESSED AND

GOLUBEV, A. A.

19

CA

Changing a section of the main vault of a tank furnace in the course of hot repairs. A. A. Golubev, A. A. Tyngulov, and I. K. Zyukin. *Nekol'snye Keram. Prom.* 1944, No. 7/8, p. 10; *Ceram. Abstracts* 1945, 101 (in *J. Am. Ceram. Soc.* 29, No. 6). The time of service of a tank furnace is detd. mostly by the wear of the main vault. Ordinarily, when the vault requires repair the furnace must be stopped and cooled before it can be repaired. At the

Casev glass plant, for the first time, a section of the vault was completely replaced without stopping the furnace. The length of the furnace is 27 m. and the width of its tank is 8 m. The damaged section was the fourth. The third, fourth, and fifth pairs of burners were turned off. The temp. of the furnace dropped to 700° to 800°. The temp. of the fourth pair of burners were taken down, and arched at the fourth pair of burners to cool the air was supplied therethrough into the furnace to cool the glass. Meanwhile, the temp. in the Fourcast channel was maintained at its normal level. While this section of the furnace was cooling, preps. were made for building the new section. When all the preparatory work was done and the temp. of the glass decreased to 700°, the damaged section was collapsed directly onto the glass. At that time the glass had cooled to such extent that the dropped beick did not stick to it. Asbestos sheets were then inserted to fence off the third and fifth sections. The temp. in the area of the collapsed section dropped to 140°. This permitted entry into the section to remove the debris and clean it out. Rebuilding the new fourth section required 8 hrs. During this time the temp. at the first and second pair of burners was kept at 700° and at the sixth and seventh pair at 800°. The temp. in the regenerators was kept at 300° for air and 340° for gas; the stack temp. was kept at 200°. Neg. pressure was maintained in the furnace throughout this work. When the rebuilding of the fourth section was finished the temp. underneath it was about 350°. Gradually the temp. of the rebuilt section was raised and equalized with that of the rest of the furnace. The entire furnace was then reheated by raising the temp. up to 900° at a rate of 10° per hr., and from 900° to 1420° at 20° per hr. The reheating of the furnace was accomplished in 50 hr. The entire work took 6 days. The details of the work are described. M. P. R.

METALLURGICAL LITERATURE CLASSIFICATION

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1944 07 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

GOLUBEV, A. A. 2 - (11) - 117

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Rapid repair of tank furnaces and Fourcault channels.
A. A. GOLUBEV AND D. I. PORTUGALOV. *Svetlo i Keram.* 9
1411-3 (1948). Semicold repairs of tank furnaces has been in practice in many glass plants in the Soviet Union since 1944. Practice has shown that the service period between cold repairs can be raised to 30 to 35 months, with two semicold and two or three hot repairs being made during this period. In making semicold repairs the freeling of gas into the worn section of the tank furnace is discontinued by covering the burners, and this section is separated from the undamaged sections by means of an asbestos sheet which is lowered into the furnace. The temperature in the section to be repaired drops rapidly to 30° to 60°, which is satisfactory for working. Semicold repairs are particularly advantageous when it is not necessary to repair the gas and smoke passages, air and gas valves, bottom of the tank furnace, and bridge structures in the Fourcault channel. With these it is necessary to stop the gas completely and stop the furnace and Fourcault channel for cold repairs. Examples are given of rapid starting up after repairs without destruction of refractories. B. Z. K.

METALLURGICAL LITERATURE CLASSIFICATION

ASH - 31.4 METALLURGICAL LITERATURE CLASSIFICATION

WATERGATE INDEX

ALUMINUM INDEX

GENERAL INDEX

INDEX

GOLUBEV, A.; LEONOV, K.

Methods of speedy repair of glass tank furnaces. Tr. from the Russian.

p. 203
Vol. 6, no. 9, Sept. 1955
SZKŁO I CERAMIKA
Warszawa

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 3
March 1956

GOLUBEV, A.A.; LEONOV, K.F.

There should be an improvement in the design of tank furnace throats.
Stek i ker. 12 no.11:10-15 N '55. (MIRA 9:1)

1.Soyuzsteklostroy.
(Glass manufacture) (Furnaces)

06214

80V/64-59-6-6/28

5(3)

AUTHORS:

Zabotin, K. P., Morozov, L. A., Kryukov, I. V., Frantinskiy, A. A., Golubev, A. A.

TITLE:

Continuous Method of the Copolymerization of Butyl Acrylate With Acrylonitrile in Emulsions

PERIODICAL:

Khimicheskaya promyshlennost', 1959, Nr. 6, pp 486 - 487 (USSR)

ABSTRACT:

The product obtained by the copolymerization mentioned in the title is used in the manufacture of artificial leather, in leather dyeing, etc. Publications mention a semi-continuous method (Ref 1) for this polymerization. Here, a continuous method is described, which has already been proposed for the copolymerization of divinyl with styrene (Ref 2). From the scheme given (Fig) it is seen that a tube reactor is used. The following composition in parts by weight is used as reaction mixture: butyl acrylate: 54, "sulfonol" (emulsifier): 2, ammonium persulfate (as initiator): 0.1, acrylonitrile: 16, water: 100. The reaction mixture was introduced into the reactor at a rate of 1.2 l/h and 1.8 l/h respectively, and the copolymerization was carried out at approximately 80°. In order to prevent

Card 1/2

GOLUBEV, A.A., red.; OVOD, M.Ye., red.; BORISOV, B.L., tekhn. red.

[Manual on the construction and repair of tank and pot glass furnaces] Rukovodstvo po stroitel'stvu i remontam steklovarnykh, vannykh i gorshkovykh pechei. Pod red. A.A.Golubeva. Moskva, Izd. PKB GISTekla, 1960. 77 p. (MIRA 15:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut stekla.
(Glass furnaces)

ABRAMOVA, Zh.I., kand. med. nauk; GADASKINA, I.D., prof.; GOLUBEV, A.A., kand. med. nauk; DANISHEVSKIY, S.L., prof.; ZIL'BER, Yu.D., kand. med. nauk; LAZAREV, L.N., kand. khim. nauk; LEVINA, E.N., doktor med. nauk; LOYT, A.O.; LYUBLINA, Ye.I., doktor biol. nauk; LYKHINA, Ye.T., kand. biol. nauk; MINKINA, N.A., kand. med. nauk; RUSIN, V.Ya., kand. med. nauk; SALIYAMON, L.S., kand. med. nauk; SPERANSKIY, S.V., TRAKHTENBERG, I.M., dots.; FILOV, V.A., kand. biol. nauk; TSIRK, K.G., kand. med. nauk; CHEKUNOVA, M.P., kand. med. nauk; GRIVA, Z.I., red.; LAZAREV, N.V., zasl.deyat.nauki, prof., red.; LEVIN, S.S., tekhn. red.; BASINA, M.Z., tekhn. red.

[Toxic industrial substances; handbook for chemists, engineers and physicians] Vrednye veshchestva v promyshlennosti; spravochnik dlia khimikov, inzhenerov i vrachei. Izd.4., perer.i dop. Leningrad, Goskhimizdat. Pt.2.[Inorganic and metallo-organic compounds] Neorganicheskie i elementorganicheskie soedineniia. 1963. 619 p. (MIRA 17:2)

ACC NR: AT7000309

N/)

SOURCE CODE: UR/0000/65/000/000/0515/0526

AUTHOR: Golubev, A. A.

ORG: None

TITLE: Experience and prospects for use of synthetic materials in marine structures, machinery and fishing equipment for ships of the commercial fishing fleet

SOURCE: Nauchno-tekhnicheskaya konferentsiya po razvitiyu flota rybnoy promyshlennosti stran-chlenov SEV. 2d, Leningrad, 1964. Rybolovnyy flot (Fishing fleet); sbornik trudov konferentsii, v. 1. Leningrad, Izd-vo Sudostroyeniye, 1965, 515-526

TOPIC TAGS: shipbuilding engineering, fishing ship, synthetic material, economic organization

ABSTRACT: Dissatisfaction with demonstrated performance characteristics of materials traditionally used in shipbuilding, such as steel and light alloys, has prompted the introduction of synthetic materials in the commercial fishing shipbuilding industry. The properties of certain of these synthetics are listed and their advantages are discussed. Specific examples are given of the proposed uses of synthetic materials. The scientific and industrial tasks facing the member nations of the Council of Mutual Economic Assistance in connection with the exploitation of synthetics in shipbuilding are given special attention. Orig. art. has: 9 figures and 3 tables.

SUB CODE: 13,11/SUBM DATE: 15Oct65

Card 1/1

GOLUBEV, A.A.

Variation of the physical properties of basic and ultrabasic
rocks with depth. Trudy VSEGEI 104:152-157 '64.

(MIRA 18:1)

GOLUBEV, A.A., inzh.

Heat and fire resistance of plastics. Sudostroenie 30 no.8:33-36

Ag '64.

(MIRA 18:7)

GOLUBEV, A.A.; ZINKEVICH, O.S.; MINCHENKOV, Yu.P.

Develop a state standard for tubular springs. Standartizatsia 29
no.11:56-57 N '65 (MIRA 19:1)

ZARINSKIY, V.A.; FROLKINA, V.A.; GOLUBEV, A.D.

Measurement of the p^H by means of electrodes made of lithium glass. Zav.lab. 27 no.2:223-225 '61. (MIRA 14:3)

1. Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskogo AN SSSR.
(Hydrogen-ion concentration)

GOLUBEV, A.D.; SHATS, S.Ya.

Regularities in the characteristics of tubes with secondary emission. Izv. vys. ucheb. zav. i prib. 6 no.5:11-19 '63.

(MIRA 16:11)

1. Rekomendovana Leningradskoy ~~nauchno~~-inzhenernoy krasnoznamennoy akademiyey imeni A.F. Mozhayskogo.

GOLUBEV, A.D.; SHATS, S.Ya.

Design of amplifiers using a secondary emission tube. Izv.vys.
ucheb.zav.; prib. 6 no.6:3-9 '63. (MIRA 17:3)

1. Rekomendovana Leningradskoy Krasnoznamennoy voyenno-vozdushnoy
inzhenernoy akademiye imeni A.F.Mozhayskogo.

GOLUBEV, A.F., inzh.; LOGINOV, I.G., traktorist.

Automatic driving of the S-80 tractor. Mekh. i elek. sets.
sel'khoz. 17 no.1:46-48 '59. (MIRA 12:1)

1. Pavlodarskoye oblastnoye upravleniye sel'skogo khozyaystva
(for Golubev) 2. Sevkhaz "Irtyskiy," Pavlodarskoy oblasti
(for Loginov).

(Tractors)

GOLUBEV, A.G.; STEPANOVA, V.N.; YURGENEV, L.S.

Gas-heated, single-retort gas generator. Avt. prom. 27 no. 4:42
Ap '61. (MIRA 14:4)

1. Nauchno-issledovatel'skiy tekhnologicheskii institut
avtomobil'noy promyshlennosti.
(Gas producers)

GOLUBEV, A. I.

"New Method of Guiding Large Ships through Locks," Rech. transp., 12, No.4, 1952

GOLUBEV, A-1.

3-58-2-25/33

AUTHORS: Gorokhov, V.M., Professor, and Rozhdestvenskiy, B.P. Dotsent

TITLE: A Conference of Instructors in Pedagogics and Psychology
(Sovechchaniye prepodavateley pedagogiki i psikhologii)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, # 2, page 78 (USSR)

ABSTRACT: From 17 to 19 October 1957, a scientific-practical conference of instructors of the chairs of pedagogics and psychology of the universities and pedagogical institutes in the Middle Volga and the Urals region was held in Kazan'. Representatives of 3 universities and 9 pedagogical institutes, directors and chiefs of the teaching sections of secondary schools, collaborators of the Tatarskiy institut usovershenstvovaniya uchiteley (Tatar Institute for the Development of Teachers), and others participated in the conference work.

At the plenary sessions and meetings of the 3 sections - pedagogical, psychological and history of pedagogics - 25 reports on various questions of development of the Soviet school were heard. M.F. Shabayeva, Senior Scientific Collaborator of the APN RSFSR, submitted a report on the theme "The Soviet School and Pedagogics Over the 40 Years of Soviet Power". Candidates of Pedagogical Sciences N.A. Polovnikova

Card 1/2

A Conference of Instructors in Pedagogics and Psychology 3-58-2-25/33

and A.I. Golubev reported on the organization of polytechnical education in the Tatar and Mordvinian Autonomous Republics. Candidate of Pedagogical Sciences B.P. Rozhdestvenskiy and G.A. Petrova spoke of the organization of aesthetic education in the schools of the Tatar Autonomous Republic; Candidate of Pedagogical Sciences A.A. Vanshteyn discussed the mutual relation between theory and practice in teaching pedagogics. The Kazan' conference decided to establish a permanent organizational bureau for preparing and conducting conferences.

ASSOCIATION: Kazanskiy pedagogicheskiy institut (Kazan' Pedagogical Institute);
Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova (Lenina)
(Kazan' State University im.V.I.Ul'yanov (Lenin))

AVAILABLE: Library of Congress

Card 2/2

GOLUBEV, Aleksey Ivanovich; RUDNEV, S.S., kand. tekhn. nauk, retsenzent; KARGANOV, V.G., inzh.red.; DOBRITSYNA, R.I., tekhn.red.; GORDEYEVA, L.P., tekhn.red.

[Labyrinth pumps for the chemical industry] Labirintnye nasosy dlia khimicheskoi promyshlennosti. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 72 p. (MIRA 14:8)
(Pumping machinery)

~~GOLUBEV, A.I.~~

Main trends for the development of public health in 1959-1965. Zdrav.
Ros.Feder. 2 no.2:3-9 P '58. (MIRA 11:3)

1. Nachal'nik Planovo-financovogo upravleniya Ministerstva zdravo-
okhraneniya SSSR.
(PUBLIC HEALTH)

PLATE I BOOK CITATION 507/5055
Vasosygnnaya konferentsiya po temy "Izmena v zashchitakh" 34,
1958.

Oldrochnanicheskaya teoriya zhashki. Oport skol'zheniya. Sazha
sliznitsy i teoriya gidrodinamicheskoy teorii (Lubrication,
Kluzhenie i teoriya gidrodinamicheskoy teorii) Moskva,
Izd-vo AN SSSR, 1958. 122 s. Karta sliznitsy. 3,800 copies
printed. (Series: Izv. Akad. Nauk SSSR, Ser. Tekhn. Nauk, v. 5)

Sponsoring Agency: Akademiya nauk SSSR, Institut mashinovedeniya,
Resp. Eds. for the Section "Hydrodynamic Theory of Lubrication
and Slip Bearings": Ye. M. Out'yar, Professor, Doctor of Tech-
nical Sciences; and A. K. Dyachkov, Professor, Doctor of Tech-
nical Sciences; Resp. Ed. for the Section "Lubrication and
Lubricant Materials": G. V. Vinogradov, Professor, Doctor of
Chemical Sciences; Ed. of Publishing House: M. Ya. Klebanov;
Tech. Ed.: O. K. Ous'vova.

NOTE: This collection of articles is intended for practicing
engineers and research scientists.

COVERAGE: The collection, published by the Institut mashino-
vedeniya (Institute of Science of Machines, Academy
of Sciences USSR) contains papers presented at the III
Vasosygnnaya konferentsiya (Third All-Union Conference on
Lubrication and Lubricant Materials) which was held April 9-15, 1958. Problems discussed within
5 main areas: 1) Hydrodynamic Theory of Lubrication and
Friction Bearings (Chairman: Ye. M. Out'yar, Doctor of Tech-
nical Sciences; and A. K. Dyachkov, Doctor of Technical
Sciences); 2) Lubrication and Lubricant Materials (Chairman:
G. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and
Boundary Friction (Chairman: B. V. Deryagin, Corresponding
Member of the Academy of Sciences USSR); and 4) V. Kravtsov,
Doctor of Technical Sciences, Professor, and I. V. Kravtsov,
Chairman; N. M. Krushchov, Doctor of Technical Sciences; and
5) V. Kravtsov, Doctor of Technical Sciences; and
I. V. Kravtsov, Doctor of Technical Sciences). Chairman of
the general assembly (on the first and last day of the con-
ference) was Academician A. A. Blagonravov. L. Yu. Pruzhanskiy,
Candidate of Technical Sciences, was scientific secretary.
Transactions of the conference were published in 3 volumes of
which the present is the third. This volume contains articles
concerned with the hydrodynamic theory of lubrication, sliding
bearings, and lubrication materials. Among the topics covered
are: modern developments in the hydrodynamic theory of lubri-
cation; modern methods for investigating the performance
of bearings under various conditions; the mechanics of lubri-
cation under various conditions; the design of bearings for dif-
ferent applications; the theory and practical applications of
lubricating materials; inclusion of grease-paste lubricants,
electric generators and other heavy machinery bearings; data
on the lubricating characteristics of many different lubricant
materials; the effects of additives; operating and environmental
conditions; corrosion; and accelerated wear testing. Many special
analyses are mentioned in the text. References accompany most
of the articles.

Dulovskiy, N. N. Investigation of Friction Processes in
Heavily Loaded Sliding Bearings of Rolling Mills 17
Yuzov, B. P. On the Unsteady Motion of a Viscous Incom-
pressible Fluid Between Closely Located Moving Surfaces 25
Golubev, I. I. On the Motion of a Viscous Incompressible
Fluid in Short Bearing Gaps in the Laminar and Turbulent
Flow Regimes 30
Golubev, I. I.

GOLUBEV, I. I.

Golubev, A.I.

28(5) PHASE I BOOK EXPLOITATION SOV/2632

Academy of Sciences USSR. Institut mashinovedeniya
Twentye i imoz v mashinakh; sbornik XII (Friction and Wear
in Machines; Collection 12) Moscow, Izd-vo AN SSSR, 1958.
334 p. Errata slip inserted. 4,000 copies printed.
Ed.: M.M. Khrushchov, Professor; Ed. of Publishing House
M.A. Babichev, Tech. Ed.; Ye.V. Zelenkov, Ed. of
Board; Ye.M. Out'yar, Professor, A.K. Dyachenko, Professor,
I.V. Kravtsov, Professor, A.D. Murzin, Candidate of Technical
Sciences, L.R. Prudnikov, Candidate of Technical
Sciences, and M.M. Khrushchov, Professor.
PURPOSE: This book is intended for scientists, engineers, and
technicians in the field of machine manufacture and operation,
and for instructors in schools of higher education (unives).

COVERAGE: This collection of articles presents the results
of new investigations in the field of wear, friction, and
lubrication. The subjects discussed include structural
changes in the surface layer of metals in friction, the
development of friction-brake materials, and theoretical
investigations in the field of dry friction. Friction
with boundary and complete friction. For the abstract of
each article see the table of contents. A bibliography of
Soviet and non-Soviet material on friction, wear and lubri-
cation, 1949-55 prepared by Ye.O. Vildt is included.

Golubev, A.I. Effect of Heat on Fluid Friction in the Non-
loaded Lubricating Film 181

The author presents the results of an experiment
to determine the lubricating film-boundary temperature
in a coaxially arranged shaft and bushing at various
clearances and using two types of lubricating oil.
These results are compared with theory allowing for
the relationship of temperature and viscosity.

Golubev, A.I. Plane Steady Flow of a Viscous Incompressible
Fluid with Variable Coefficient of Viscosity in a Bearing
The author presents a hydrodynamic theory of the
lubrication of infinitely long bearings taking into
account the hyperbolic relationship between temperature
and viscosity. 205

Parlin, D.P. Calculating Temperature Distribution Through-
out the Thrust Bearing Plate of a Hydrogenerator 224
The author presents a method for calculating
temperature distribution throughout the thrust-bearing
plate. According to the author, this method is
based on a method which makes it possible to determine quickly
calculation of temperature distribution in bodies of intricate shape
and with complex boundary conditions. The method insures
a sufficient degree of accuracy.

Korochinskiy M.V. Possible Boundary Conditions of
Hydrodynamic Friction in a Four-ball Lubricant Testing
Machine. The author presents results of theoretical inves-
tigations of hydrodynamic lubrication regimes. 242

Korochinskiy M.V. Corrections for the Article "Stability
of the Equilibrium Position of a Pin on Lubricating Film"
(Published in the Issue XI of "Treniye i iznos v mashinakh",
pp. 264-323) 266

Matveyevskiy R.M. Friction Conditions in Testing Oils
in a Four-ball Machine 263
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conducted to determine the lubricating conditions
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Iyubarskiy, I.N., A.P. Iyubchenko, and Ye.O. Westaranko. On
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GOLUBEV, A.I.

Effect of the heat on the lubricating film-boundary temperature in a coaxially arranged shaft and bushing at various clearances and using two types of lubricating oil. (MIRA 11:8)

lubricant layers, Tren. i izn. mash. no. 12:181-204 '58. (MIRA 11:8)
(Lubrication and lubricants--Testing)

~~GOLUBEV, A.I.~~

Plane steady flow in bearings of viscous noncompressible fluids
having variable coefficient of viscosity. Tren. i izn. mash.
no. 12:205-223 '58. (MIRA 11:8)

(Bearings(Machinery))
(Lubrication and lubricants)

KOROVCHINSKIY, Mikhail Viktorovich; KHRUSHCHOV, M.M., prof., doktor
tekhn.nauk, retsenzent; GOLIBEL, A.I., kand.tekhn.nauk, red.;
TAIROVA, A.L., red.izd-vá; SOKOLOVA, T.F., tekhn.red.

[Theoretical basis of sliding bearing performance] Teoreticheskie osnovy raboty podshipnikov skol'zheniia. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 402 p. (MIRA 12:12)

(Bearings (Machinery))

GOLUBEV, A.I.; PAVLOV, B.V., inzh., retsenzent; KARGANOV, V.G.,
inzh., red.; MAKAROVA, L.A., tekhn. red.

[Modern seals for rotating shafts] Sovremennye uplotne-
niia vrashchaiushchikhsia valov. Moskva, Mashgiz, 1963.
214 p. (MIRA 17:2)

GOLUBEV, A. I.

"Development of Flow and Thermal Effect During Liquid Friction." Cand Phys-Math Sci, Moscow State U, Moscow, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

32(3)

SOV/112-59-3-5115

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 3, p 117 (USSR)

AUTHOR: Golubev, A. I.

TITLE: Modernization of VAB-2-2000/30 (Modernizatsiya VAB-2-2000/30)

PERIODICAL: Elektr. i teplovozn. tyaga, 1957, Nr 12, pp 7-10

ABSTRACT: A new construction, a supply scheme, and a control scheme of the VAB-2-2000/30 high-speed circuit breaker were developed at the "Uraklektroapparat" plant. The time of current drop from full load to zero is 0.003-0.007 sec for railroad-type converter installations. The minimum time from the moment of tripping pulse to opening of the VAB-2-2000/30 contacts was 0.002 sec for the new construction.

K.V.A.

Card 1/1

GOLUBEV, A.I., kand.fiz.-mat.nauk

Butt sealing. Trudy VIGM no.24:102-124 '59. (MIRA 12:8)
(Sealing (Technology))

23116
S/184/61/000/002/001/008
A110/A033

5-1180

AUTHORS: Golubev, A. I., Candidate of Physics and Mathematics; Freydisman,
O. M., Engineer

TITLE: Labyrinth pumps for corrosives

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 2, 1961, 9 - 12

TEXT: The article deals with low capacity and high pressure labyrinth pumps designed and tested at the VIGM (All-Union Institute of Hydraulic Machinery), by A. I. Golubev (author's certificate No. 126748, June 16, 1958). The pumps are based on a multiple thread screw which rotates inside a bush with reversed multiple threading. Labyrinth pumps are similar to pumps working on the spiral self-lubricant endless screws principle, the only difference being that screw and bush are multiple threaded. Their operation is analogous to vortex and labyrinth packing and they operate in low viscosity fluids. Experiments proved that the threaded bush operating in water increases the pressure 7 - 10 times. The efficiency of labyrinth pumps is similar to that of vortex pumps and superior to single stage centrifugal pumps operating in underload conditions. A further common feature between labyrinth and vortex pumps is the marked dependence of their performance

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23146
S/184/61/000/002/001/008
A110/A033

Labyrinth pumps for corrosives

on their radial and end clearances respectively. The advantages of labyrinth pumps are: simple shape of all metal and non-metal components; absence of mechanical friction between screw and bushing; flexibility of construction apparent in the proportionality between pressure and the length of flow-area, and higher suction power. Labyrinth pumps were included in the nomenclature of "Wing Pumps for the Chemical Industry. Standard Series". In accordance with this nomenclature the Tsentral'noye konstruktorskoye byuro gidromashinostroyeniya, TsKB GM (Central Design Office of Hydraulic Machinery) developed about ten labyrinth pump models for test purposes. Some of these have already passed tests and were sent to production plants. Beside the TsKB GM, the following organizations have participated in the project: Shchelkovskiy nasosnyy zavod (Shchelkov Pump Plant); UkrNIIKhIMMASH and the VIGM. Figure 1 shows a 1.5K-2P (1.5Kh-2P) labyrinth pump made of faolite "A" plastics and intended for the handling of corrosives, the pump works at a pressure of 65 m liquid column and 1.8 l/sec. capacity. Screw (2) and bush (3) have two symmetric threadings which results in a dual suction and relieves the rotor from the axial force, apart from ensuring satisfactory performance of the gland under the suction pressure. Figure 2 shows the performance of such a pump with a screw diameter of 100 mm. The 1KП-3-B (1KhP-3-B) labyrinth type immersion pump

Card 2/8

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S/184/61/000/002/001/008
A110/A033

Labyrinth pumps for corrosives

used for hydrofluoric acids works at a pressure of 10m of liquid column and 1 m³/h cap. and is shown in Figure 3. Suction pipe (1), screw (2) and bushing (3) are made of Monel metal. The pump has graphite bearing bushings (5) operating on acid lubrication and stuffing box (7) for the sealing liquid. Figure 4 shows a 1.5X-2A-2 (1.5Kh-2A-2) labyrinth pump used for hydrocarbons with resin admixtures at 180 - 200°C operating at a pressure of 65 m liquid column and 1.8 l/sec. capacity. The screw has two symmetrical threads and relieves the rotor from axial stresses. The male and female threads of the screw operate jointly with static threads of suction pipe (1), gland body (7) and bushings (3 and 5). The main parts are made of carbon steel. As the pumped liquid tends to crystallize at normal temperature, the pump casing is equipped with pre-heating jacket (4). The escape of poisonous gases is prevented by stuffing boxes (8 and 11) and hermetical connector (9). All three pumps have been designed by the Central Designing Office of Hydraulic Machinery. Figure 5 shows a 1.5X-2И (1.5Kh-2И) labyrinth pump made of acidproof ЭИ629 (EI629) steel and designed at the Shchelkov Pump Plant for operation with corrosive hydrocarbons. The pump operates at a pressure of 100 m liquid column and a capacity of 3 m³/h. Contrary to pumps above described bearing bush (2) relieves the rotor from axial stresses. The intake is radial, the pressure axial and the pressure pipe is near the outlet. Due to the

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S/184/61/000/002/001/008'
A110/A033

X

Labyrinth pumps for corrosives

described layout of suction and pressure pockets the gland takes up the intake pressure only. 1.5Kh-2I labyrinth pump replaces three-stage centrifugal pumps. Its characteristics are the following: the maximum efficiency is 26% while the reference point efficiency is 22%. In view of the low delivery, these two types of pumps are similar in efficiency, but labyrinth pumps have a higher efficiency. Besides, vortex pumps cannot be made entirely of EI629 steel, whose toughness during friction in the face clearances leads to galling and breaking of the operating organs. Experimental tests on 1.5Kh-2I pumps are nearly completed after which the pump will be sent to a plant. Several pilot models of 1KhP-3B and 1.5Kh-2A-2 pumps are still under construction; one passed tests and is now used in the phenolacetone production. The 1.5Kh-2P pump is undergoing service tests with 20% hydrochloric acid. The above mentioned designs do not exhaust all possibilities; analogous operating principles can be applied in the design of dynamic rotary shaft packings, e.g., for pumps delivering butadiene rubber. These so-called labyrinth impellers would prove particularly efficient at high velocities of the rotary shaft, as the pressure drop transmitted to them is proportional to the circumferential velocity square. There are 5 figures.

Card 4/8

GOLUBEV, Aleksandr Ignat'yevich; 'STIK, I.V., red.

[High-speed automatic switches] Bystodeistvuushchie
avtomaticheskie vykliuchateli. 2., perer. izd. Moskva,
Energija, 1964. 239 p. (MIR: 17:10)

GOLUBEV, Aleksandr Ignat'yevich; ZHDANOV, G.B., redaktor; LARIONOV,
G. I^o., tekhnicheskii redaktor.

[High-speed automatic switches] Bystrodeistvuiushchie avtomati-
cheskie vykliuchateli. Moskva, Gos.energ.izd-vo, 1955. 191 p.
(Electric switchgear) (MLRA 8:9)

ASTAKHOV, A.G.; VLASOV, V.W.; GOLUBEV, A.I.; GRISSENKO, P.I.;
FEDOROVSKIY, N.W.

A system for the automatic control of fuel proportioning
processes in sintering plants. Met. i gornorud. prom. no.4:
12-13 JI-ag '65. (MIRA 18:10)

PROCESSES AND PROPERTIES INDEX

M

***Increasing the Chemical Stability of Copper by Passivation in Solutions of Chromates.** G. V. Akimov and A. I. Golubov (*Zhur. Priklad. Khimii* [*J. Applied Chem.*], 1930, **12**, 1620-1629 (in Russian); *C. Ab.*, 1940, **34**, 6189).-- [In Russian.] The best passivating solutions are: (i) 0.5N-K₂Cr₂O₇ + 0.125N-CrO₃, exposure 1 hr.; and (ii) N-K₂Cr₂O₇ + 0.01N-CrO₃, exposure 1 hr. The corrosion of copper after such passivation decreases sharply in air containing sulphur dioxide, and in solutions of 3% NaCl, 3% NaCl + 0.01N-NaOH, 3% NaCl + 0.01N-HCl, and 0.1N-H₂SO₄. The chemical stability of brass improves also after the above treatment, particularly after treatment with N-K₂Cr₂O₇ + 0.01N-CrO₃. The stability of aluminum bronze increases after treatment with a passivating solution of 0.5N-K₂Cr₂O₇ + 0.125N-CrO₃.

METALLURGICAL LITERATURE CLASSIFICATION

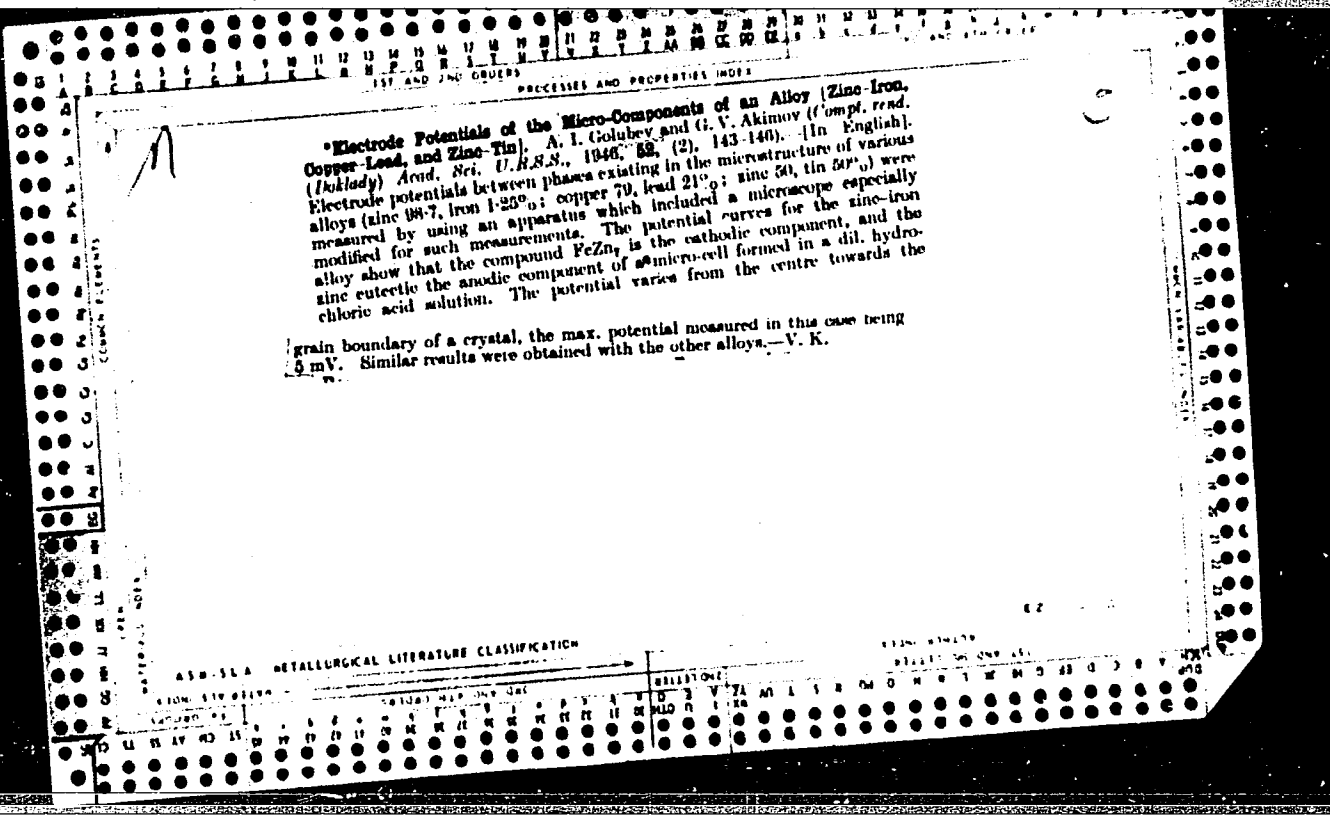
E-2

GOLUBEV, A. I.

Moscow Inst. Non-ferrous Metals and Gold, Lab. Corrosion and Electrochemistry, (-1946-)

"A Study of the Corrosion Processes on a Model Local Element. I."

Zhur. Fiz. Khim., No. 3, 1946.



GOLUBEV, A. I.

May 1947

USSR/Chemistry - Zinc, Corrosion of
Chemistry - Electric Charges

"Microgalvanic Elements on the Surface of Corroding Zinc," G. V. Akimov, Corr Mem,
Inst Phys Chem, Acad Sci USSR; A. I. Golubev, All-Union Sci Res Inst Aviation Materials,
3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVI, No 6

Describes experiments which give full confirmation of hypothesis made by De La Rive in
1830 on action of microelements.

PA 58T5

GOLUBEV, A. I.

PA 00174

May 1948

USSR/Metals
Aluminum Alloys
Corrosion

"Intercrystalline Corrosion of Aluminum Alloys," A. I. Golubev, All-Union Inst Avn Materials, Moscow, 11 pp

"Zhur Fiz Khim" Vol XIII, No 5 - pp. 591-601

Corrosion resistance of compound $CuAl_2$, produced during the aging of aluminum, was investigated and shown to be considerably lower than that of pure aluminum. Results obtained enable mechanism of intercrystalline corrosion of duralumin to be looked on as dissolving of aluminum from intermetallic compound; copper remains and acts as an anode. Article is illustrated with microphotographs and thermal equilibrium diagrams. Submitted 14 Aug 1947. ~~599~~ 68794

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PROCESSES AND PROPERTIES INDEX

14

B

INTERCRYSTALLINE CORROSION OF ALUMINUM ALLOYS.
2. Alloys of the System Al-Zn-Mg. (In Russian) A. I. Golubev, *Zhurnal Fizicheskoi Khimii* (Journal of Physical Chemistry), v. 23, Sept. 1949, p. 1110-1126.

Corrosion resistance of the intermetallic compound MgZn, precipitating along the grain boundaries in alloys of the above system was investigated. On the basis of the results, which are tabulated and charted, a theory of corrosion cracking of these alloys is developed.

COMMON ELEMENTS

COMMON VARIABLES INDEX

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

ALPHABETIC INDEX

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GOLUBEV, A. I.

"Investigation of Galvanic Microcells on the Surface of Corroding Alloys." Thesis for degree of Dr. Technical Sci. Sub 5 Jun 50, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin.

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering IN Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

GOLUBEV, A.I.

Season Cracking of Aluminum Alloys.

"Research in Corrosion of Metals (Issledovaniya Po Korrosii Metallov)".
Published by--Inst. of Physical Chemistry, (USSR Academy of Sciences, Moscow-1951.
Translation---ATIC-79062-D
F-TS-0030.-A/V.

A. I. GOLUBEV, A. I.

RUSSIA. MINISTERSTVO AVIATSIONNOY PROMYSHLENNOSTI.
KORROZIONNYE PROTSESSY NA REAL'NYKH MIKROELEMENTAkh (CORROSION PROCESSES
ON REAL MICRO ELEMENTS, BY) A. I. GOLUBEV. MOSKVA, OBERONIZ, 1953.
121 P. ILLUS., DIAGRS., TABLES
"LITERATURA": P. 121 - (122)

SO: H/5
615.8
.R91

GOLUBEV, A. I.
USSR/Solid State Physics - Phase Transformations in Solids, E-5

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34744

Author: Golubev, A. I.

Institution: None

Title: Intercrystallite Corrosion and Corrosive Cracking of Aluminum Alloys

Original Periodical: Korroziya metallov i metody bor'by s ney, Moscow, Oborongiz,
1955, 257-270

Abstract: None

/ of /

- 1 -

GOLUBEV, A. I.: TUMANOV, A. N.: FILIPPOVA, A. P.,

"Behavior of Structural Components of Aluminum Alloys in the Process of Chemical Oxidation and Anodizing in Sulfuric Acid," and with MAKAROV, N. A., SAMOKHVALOV, L. N. :

"Filling the Pores of Oxide Films Obtained by Anodic Oxidation of Aluminum and Its Alloys, " Korroziya i azshchita metallov (Corrosion and Protection of Metals), Moscow, Oborongiz, 1957. 366 p.

PURPOSE: This book is intended for engineering, technical, and scientific personnel, at industrial plants, research institutes, and design offices working in the field of corrosion-protection of stainless steel, high-strength structural steel, and light alloys.

GOLUBEV, A. I.; CHEBOTAREVA, I. I.;

"Investigation of the Processes of Anodizing Aluminum Alloys in Oxalic Acid,"
Korroziya i azshchita metallov (Corrosion and Protection of Metals), Moscow,
Oborongiz, 1957. 366 p.

PURPOSE: This book is intended for engineering, technical, and scientific personnel, at industrial plants, research institutes, and design offices working in the field of corrosion-protection of stainless steel, high-strength structural steel, and light alloys.

SOV/137-58-11-23151

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 188 (USSR)

AUTHORS: Golubev, A. I., Tumanov, A. N., Filippova, A. P.

TITLE: Behavior of the Structural Components of Aluminum Alloys During the Process of Chemical and Anodic Staining in Sulfuric Acid (Povedeniye strukturnykh sostavlyayushchikh alyuminiyevykh splavov v protsesse khimicheskogo oksidirovaniya i anodirovaniya v sernoy kislote)

PERIODICAL: V sb. : Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 328-341

ABSTRACT: The behavior of various structural components of cast Al alloys during anodic (A) and chemical (C) staining was investigated. A was continued for 40 min in H_2SO_4 of 200 g/liter concentration at $18^\circ C$ and a cathode cd of $0.6-1 \text{ amp/dm}^2$. It was found that alloys cast under pressure are anodized at a higher voltage than chill-cast alloys. C was conducted in a solution containing (in g/liter): CrO_3 3 and Na_2SiF_6 3 at $18-20^\circ$ during 10 min. Before the C and A a part of the surface of the alloy was etched in a 0.5% HF solution. Successive metallographic analysis of the specimens after etching.

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Behavior of the Structural Components of Aluminum Alloys (cont.) SOV/137-58-11-23151

C, and A made it possible to establish that in case of a greater Cu content (4.15%) the alloy consists of a solid solution and the chemical compound CuAl_2 . During A a film forms only on the surface of the solid solution. The chemical compound is etched away. Upon investigation of alloys containing an appreciable amount of Si it was established that the anodic film is then also formed on the surface of the solid solution only. The surface of Si crystals remains unchanged. Upon either chemical or electrochemical treatment of alloys no discernible oxide film could be discovered on the surface of the Si crystals. Addition of up to 10.46 Zn to Si alloys shows no appreciable effect on the behavior of the alloy during A and C. Alloys containing Mg have, along with the solid solution, an Mg_2Si component which is completely dissolved during the A of the alloy.

Yu. P.

Card 2/2

SOV/137-58-10-21376

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 132 (USSR)

AUTHORS: Chebotareva, I. I., Golubev, A. I.

TITLE: Investigation of the Processes of Anodizing of Aluminum Alloys in Oxalic Acid (Issledovaniye protsessov anodirovaniya alyuminiyevykh splavov v shchhavelevoy kislote)

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 342-353

ABSTRACT: In the process of anodizing of Al and its alloys (AMg, AMts, and D16) in 3% oxalic acid a decrease in anode cd is observed. For example, during the anodizing of Al and AlMg for one hour, the cathode cd decreases from 5 to 1.4 amp/dm²; in the course of anodizing of D16, it decreases from 5 to 2.8 amp/dm²; the thinnest films (F) form on the D16 alloy, and the thickest ones on the AMg alloy. The porosity of the anodic films was determined by the gravimetric method, i. e., by filling of the pores with oil. The greatest porosity was observed on D16 alloy and the least on Al. The rate of dissolution was established for the dissolution of oxide F in 3% oxalic acid proceeding simultaneously with its growth. The highest rate of

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SOV/137-58-10-21376

Investigation of the Processes of Anodizing of Aluminum (cont.)

dissolution of anodic F was observed for D16, the lowest for Al; this is explained by the different porosity and development of the surface of the F. The electrical insulating properties of the F can be considerably improved by filling the pores with 1154-grade (TUMKhP 1013-43) glyphthalic-oil lacquer.

1. Aluminum alloys--Processing
2. Oxide films--Decomposition
3. Thin films--Porosity
4. Oxalic acid--Performance

L. A.

Card 2/2

SOV/137-58-9-19601

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 210 (USSR)

AUTHORS: Golubev, A.I., Makarov, N.A., Samokhvalov, L.N.

TITLE: ~~The Building Up~~ of Oxide Films Obtained by the Anodic Oxidation of Aluminum and its Alloys (Napolneniye okisnykh plenok, poluchayemykh anodnym oksidirovaniyem alyuminiya i yego splavov)

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 354-367

ABSTRACT: The causes of the appearance of "white spots", which form upon the building up of an anode oxide film (F) in tap water at 90-95° were investigated. It is assumed that the process of building up of F in water acidulated with H₂SO₄ should be regarded as the chemical reaction of the solution with the oxide F. The "whiteness" (W) may appear as a result of insufficient time for building up the F or as a result of its treatment in water at low pH (2.8-3.9). In the latter case, probably, the oxide F reacts not only with water but also with the SO₄²⁻ forming on the walls of the pores of the Al₂(SO₄)₃ and other S-containing compounds which contribute to a stronger

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SOV/137-58-9-19601

The Building Up of Oxide Films (cont.)

adsorption of water or lacquer solvent during the building up and subsequent coloring. This causes the appearance of W. The local distribution of W might be the result of an unevenness in the thickness and porosity of F. W does not appear upon the building up in water at pH 4. W appearing earlier disappears upon the second building up at pH 4.5. A new method for colorless building up anode F on plated material in a solution containing 10 g/l NH_4NO_3 and 0.05 g/l $(\text{NH}_4)_2\text{HPO}_4$ was developed.

V.G.

1. Aluminum--Oxidation
2. Oxide films--Development
3. Electrolytes--Properties
4. Sulfuric acid--Applications
5. Water--Performance

Card 2/2

PHASE I BOOK EXPLOITATION

80V/4535

Vsesoyuznyy sovets nauchno-tekhnicheskikh obshchestv

Mezhkristallitnaya korroziya i korroziya metallov v napryazhennom sostoyanii
(Intercrystalline and Stress Corrosion of Metals) Moscow, Mashgiz, 1960.
358 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House:
I.I. Lesnichenko, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for
Literature on Metalworking and Instrument Making (Mashgiz): V.V. Rzhavinskiy,
Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences
(Chairman), V.P. Batrakov, Candidate of Technical Sciences, V.M. Nikiforova,
Candidate of Technical Sciences, and A.V. Turkovskaya, Candidate of Technical
Sciences.

PURPOSE: This collection of articles is intended for technical personnel concerned
with problems of corrosion of metals.

COVERAGE: The collection contains discussions of intercrystalline corrosion of
stainless steels and stress corrosion of carbon steels, low-alloy and stainless
steels, and light-weight and nonferrous alloys. The tendency of steels of

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Intercrystalline and Stress Corrosion of Metals

SOV/4535

various composition and systems to corrode under certain conditions is discussed and the nature of corrosion and corrosion cracking is analyzed. No personalities are mentioned. Most of the articles are accompanied by bibliographic references, the majority of which are Soviet.

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I. GENERAL PROBLEMS

Arkharov, V.I., Doctor of Technical Sciences, Professor. Intercrystalline Internal Adsorption of Dissolved Admixtures and Its Significance for Intercrystalline Corrosion Problems 3

Golubev, A.I. The Role of Intermetallic Compounds in Selective Corrosion Processes 15

II. INTERCRYSTALLINE CORROSION OF STAINLESS STEELS

Cheskis, Kh. I., Candidate of Technical Sciences, S.I. Vol'fson, and Yu. S. Medvedev, Engineer. Effect of Slow Heating on the Tendency of 1Kh18N9T Steel Toward Intercrystalline Corrosion 27

Card 2/9

ROZENFEL'D, Iosif L'vovich; GOLUBEV, A.I., doktor tekhn.nauk, otv.red.,
retsensent; IOFA, Z.A., prof., doktor khim.nauk, retsensent;
VEDENKIN, S.G., prof., retsensent; BANKVITSER, A.L., red.izd-va;
MAKUNI, Ye.V., tekhn.red.

[Atmospheric corrosion of metals] Atmosfernaia korroziiia metallov.
Moskva, Izd-vo Akad.nauk SSSR, 1960. 371 p.

(MIRA 14:1)

(Corrosion and anticorrosives)

PHASE I BOOK EXPLOITATION SOV/5749

Golubev, Andrey Iovich

Anodnoye okisleniye alyuminiyevykh splavov (Anodic Oxidation of Aluminum Alloys) Moscow, Izd-vo AN SSSR, 1961. 198 p. Errata slip inserted. 2800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fizicheskoy khimii.

Resp. Ed.: I. L. Rozenfel'd, Doctor of Chemical Sciences; Ed. of Publishing House: A. L. Bankvitser; Tech. Ed.: G. N. Romanov.

PURPOSE : This book is intended for electrochemists and metallurgists, and for technicians and specialists concerned with anodic treatment of parts made from aluminum and its alloys.

COVERAGE: The book has been designed to fill the need for a systematized survey and summing up of the voluminous literature

~~Card 1/6~~

Anodic Oxidation of Aluminum (Cont.)

SOV/5749

on the various chemical and electrochemical methods for treating and finishing the surfaces of aluminum and its alloys. It serves also to report on the laboratory investigations of the author and his colleagues who, throughout their experiments, used the same alloys under rigidly determined experimental conditions (volume of solution, electrolyte temperature, mixing efficiency, etc.). Particular attention is given to the process of anodizing aluminum alloys and to the physicochemical properties of anodic films. Problems of the corrosion of aluminum alloys and methods of preparing a surface for anodizing are also considered. The present work is based for the most part on studies made by the author in collaboration with A. N. Tumanov, N. A. Makarov, and workers at [unidentified] factory laboratories I. I. Chebotareva and A. I. Utyanskaya. A. N. Tumanov and N. A. Makarov assisted in Chs. 2, 7, 8, and 9; I. I. Chebotareva, in Ch. 6; and A. I. Utyanskaya, in Ch. 4. The author thanks I. L. Rozenfel'd, Doctor of Chemical Sciences, P. A. Akol'zin, Doctor of Technical Sciences, A. V. Belobzheskiy, Candidate of Chemical Sciences, A. P. Filippova, A. N. Samokhvalov, P. V. Strekalov,

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Anodic Oxidation of Aluminum (Cont.)

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and M. N. Ronzhin. There are 112 references: 48 Soviet, 41 English, 22 German, and 1 French.

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GOLUBEV, A.I.; BELOBZHESKIY, A.V.; MIKHAYLOVSKIY, Yu.M.

"Theory of corrosion and metal protection" by N.D. Tomashov.
Reviewed by A.I. Golubev, A.V. Belobzheskii, IU.N. Mikhailovskii.
Zhur.fiz.khim. 35 no.12:2825-2826 D '61. (MIRA 14:12)
(Metals--Corrosion)
(Tomashov, N.D.)

TOMASHOV, N.D., doktor khim. nauk, prof., otv. red.; GOLUBEV, A.I.,
doktor tekhn. nauk, otv. red.; PALEOLOG, Ye.N., kand. khim.
nauk, red.; AL'TOVSKIY, R.M., kand. khim. nauk, red.;
MIROLYUBOV, Ye.N., kand. khim. nauk, red.; ARKHANGEL'SKAYA,
M.S., red.; ISLENT'YEVA, P.G., tekhn. red.

[Corrosion of metals and alloys] Korroziia metallov i splavov;
sbornik. Moskva, Metallurgizdat, 1963. 382 p. (MIRA 16:5)
(Corrosion and anticorrosives)

ACCESSION NR: AT4013988

S/3070/63/000/000/0193/0195

AUTHOR: Golubev, A. I.; Strekalov, P. V.

TITLE: Semiautomatic installation for measurement of potential on the surface of alloy microcomponents

SOURCE: Novy*ye mashiny*i pribory* dlya ispy*taniya metallov. Sbornik statey. Moscow, Metallurgizdat, 1963, 193-195

TOPIC TAGS: alloy surface, potential distribution, surface potential measurement, microgalvanic couple, corrosion, aluminum alloy, aluminum corrosion, nickel aluminum alloy, nickel alloy

ABSTRACT: The corrosion rate of alloys frequently depends on the presence and effectiveness of microgalvanic couples on the metal surface. An installation has been constructed by the authors which is capable of determining and recording potential differences between alloy-structure components several decades of microns large, with a precision up to fractions of a millivolt. The installation is illustrated in Fig. 1 of the Enclosure. Electrogalvanic

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ACCESSION NR: AT4013988

potentials between the structure components of an alloy are measured, using the compensation method, by a cathode voltmeter having an input resistance of approximately 150 megohms and provided with a high-resistance potentiometer PPTV-1. The cathode voltmeter represents a simple electrometric amplifier, fed from a battery. The test specimen, having a smoothly ground surface, is mounted in a bath filled with electrolyte, underneath a microscope on a micromanipulation table, permitting observation of a desired region on the specimen surface. A capillary is fastened to a micromanipulation column and is filled with electrolyte. The tip of this capillary can be located at a close distance over the spot investigated on the surface of the specimen. For electrochemical measurements, the internal diameter of the capillary must be several times smaller than the dimension across the crystallite investigated. At its other end the capillary is enlarged and is connected to a calomel half-cell. The body of the specimen is connected to the negative pole of the input side of the cathode voltmeter by an insulated conductor. The positive pole of the cathode voltmeter input side is connected to the negative pole of the potentiometer PPTV-1, the positive pole of which is connected to the calomel half-cell, closing the galvanic chain. The high-resistance potentiometer, together with the cathode voltmeter, permits compensating the

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ACCESSION NR: AT4013988

major part of the potential difference between the calomel half-cell and the metallic electrode on the specimen surface. The remaining smaller part of the potential difference is amplified in the cathode voltmeter and can be measured on its output side by a microammeter or galvanometer with a luminescent scale. When used together with the microammeter M-95, the obtainable sensitivity of the cathode voltmeter is from 100 mV to 0.2 mV per division. The potential of each investigated point of the specimen is determined by reading the decades off the potentiometer, and the units on the scale of the microammeter. A photographic device is focused on the luminescent scale of the microammeter and records the uncompensated potential changes on the surface of the specimen, while the specimen is moved horizontally underneath the stationary capillary tip by operating, at certain intervals, a selsyn coupled to the micromanipulation table. At the same time, the selsyn actuates a drive in the photographic recorder, causing a movement of the recording roll-film, synchronous with the horizontal dislocation of the specimen underneath the capillary tip. For example, Fig. 2 of the Enclosure shows curves of potential distribution of the surface of a specimen of aluminum-base alloy with 8% nickel in 0.1N NaOH at room temperature, obtained with the above described installation. The structure of the alloy consisted of the eutectic $Al+NiAl_3$.

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ACCESSION NR: AT4013988

Different size crystals of the intermetallic NiAl_3 were scattered on the background of the eutectic. In the investigated alloy, the intermetallic phase represents the cathode, and a potential difference of 12 mV has been measured between the anodic background and the intermetallic phase. It has been found that this potential difference decreased with time (see Fig. 2 of the Enclosure). Orig. art. has: 3 figures.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 00

DATE ACQ: 20Feb64

ENCL: 02

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card 4/84

ACCESSION NR: AT4043074

S/0000/64/000/000/0204/0221

AUTHOR: Gracheva, M. P., Golubev, A. I., Ginberg, A. M.

TITLE: Structure of opaque oxide films on aluminum as indicated by electron microscope studies

SOURCE: Mezhevuzovskaya konferentsiya po anodnoy zashchite metallov ot korrozii. 1st, Kazan, 1961. Anodnaya zashchita metallov (Anodic protection of metals); doklady* konferentsii. Moscow, Izd-vo Mashinostroyeniye, 1964, 204-221

TOPIC TAGS: anodized aluminum, anodized aluminum alloy, anodic oxide film, anodic film structure, electron microscope structural analysis, carbon colloid replica method, metal hydroxide penetration, film filling effect, current density, anodic film pore, film pore dimension, aluminum AV000, aluminum A00, aluminum AD-1, aluminum alloy AMts, aluminum alloy AMg, aluminum alloy D-1, aluminum alloy D-16, aluminum oxide film, aluminum corrosion

ABSTRACT: The mechanism of formation and structure of opaque oxide films was studied on samples of aluminum AV000, A00, AD1 and aluminum alloys D1, D16,

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ACCESSION NR: AT4043074

AMts and AMg (compositions given). Samples were prepared by chemical degreasing and bleaching (30% HNO₃), then anodized in various baths under different conditions of temperature, voltage, duration and pH. Structural analyses of the films obtained utilized the carbon-colloid replica method and a magnification of 22000:1 on an electron microscope EM-3. It was established that opacity is not governed by sample composition, nor can it result from penetration of metal hydroxides into the film pores or the filling of films, but probably depends on film structure and the corresponding quantity and dimensions of the pores. Stepwise modification of the current density facilitates formation of an opaque film. The presence of pores and a cellular structure was confirmed. The latter is rearranged as the current density increases by stages; the oxide cell dimensions increase in the cell formation area and the number of cells per unit of surface decreases correspondingly. Pore diameters in the surface layers of films vary little during oxidation. A sharp discrepancy develops between the number of cells on the metal surface and the number of pores on the external surface of films. The number of pores becomes greater than the number of cells when the current density is increased by stages.

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ACCESSION NR: AT4043074

"The electron photomicrographs were prepared under the direction of F. P. Zalivalov."
Orig. art. has: 7 tables, 2 graphs, 2 illustrations and 15 photomicrographs.

ASSOCIATION: none.

SUBMITTED: 13Mar64

ENCL: 00

SUB CODE: MM

NO REF SOV: 011

OTHER: 006

Card 3/3

L 28105-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WB/GD

ACC NR: AT6013788

(A)

SOURCE CODE: UR/0000/65/000/000/0059/0079

59
31
841

AUTHOR: Golubev, A. I.; Ronzhin, M. N.

ORG: none

TITLE: Electrochemical and corrosion behavior of aluminum-base binary alloys and intermetallic compounds

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2. Moscow, Izd-vo Metallurgiya, 1965, 59-79

TOPIC TAGS: aluminum base alloy, binary alloy, electrochemistry, corrosion, intermetallic compound

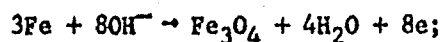
ABSTRACT: The binary Al-base alloys investigated contain components which are alloy additives (Fe, Ni, Ti, Cr, Mn, Sb) and their principal phases are Al-base solid solutions and the corresponding intermetallic compounds (IMC) ($FeAl_3$, $NiAl_3$, $CuAl_2$, Mg_2Al_3 , $TiAl_3$, $AlSb$). Special experiments established that the potential-time dependence for isolated IMC crystals in a real binary Al alloy virtually coincides with the potential-time dependence for the corresponding synthesized homogeneous IMC. Standard electrochemical and corrosion tests along with the plotting of polarization curves showed that IMC (except Mg_2Al_3) are cathodic phases while Al is the anodic phase. The Al-IMC Al_xB_y pairs in the alkali medium are more active than Al in pair with the B component of the corresponding IMC (B is the cathodic component). IMC

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ACC NR: AT6013788

potentials occupy intermediate values with respect to the potentials of the components of binary Al-base alloys. The corrosion behavior of IMC may be markedly affected by the component remaining at the surface in the process of the selective dissolution of the compound. E.g. during the dissolution of FeAl_3 in 0.1N NaOH during the first 40-50 min its potential becomes somewhat displaced in the positive direction while the corrosion rate increases at the same time. This is a consequence of the increase in the cathodic surface area of Fe in the process of the selective dissolution of the IMC. After the potential $E = -0.890-0.920$ v is reached -- which corresponds to the passivation potential of FeAl_3 on polarization curve 2 in Fig. 1 -- there occurs a sharp increase in the potential and decrease in the corrosion rate of this IMC. The anodic reaction with the most negative potential in these conditions is the magnetite-formation reaction:



$$E_{\text{calc.}}^0 = -0.847 \text{ v.}$$

Hence it may be assumed that the passivity of FeAl_3 is due to the formation of Fe_3O_4 at the surface of the fine-disperse iron remaining after the selective dissolution of Al from this IMC. Hydrogen overvoltage for IMC of the Al_xB_y type in alkali (NaOH) and neutral (NaCl) media is lower than for the cathodic component of the corresponding compounds when $b_{\text{Al}_x\text{B}_y} = b_{\text{B}}$ in the region of Tafel curves. An analysis of the

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ACC NR: AT6013788

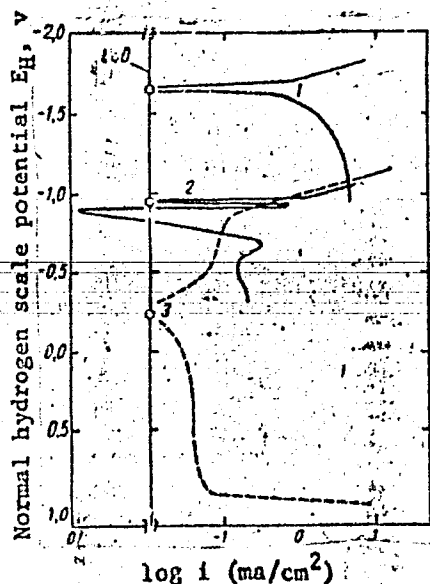


Fig. 1. Polarization curves for:
1 - aluminum; 2 - FeAl₃; 3 - iron --
in 0.1N solution of NaOH at 25°C

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ACC NR: AT6013788

2
anodic behavior of IMC shows that, from the electrochemical standpoint, the dissolution of such compounds as $CuAl_2$ or $NIAl_2$ in the presence of their self-dissolution potentials cannot involve the simultaneous passage of both components into the solution. These findings should contribute to the formulation of a unified theory of the corrosion of alloys which takes into account the special features of the corrosion of solid solutions, eutectics and IMC and their combinations which enter in the structure of any alloy. Orig. art. has: 12 figures and 6 tables.

SUB CODE: 07, 11/ SUBM DATE: 19Jul65/ ORIG REF: 020/ OTH REF: 013

Card

4/4 IC

ACC NR: AT6013808

(N)

SOURCE CODE: UR/0000/65/000/000/0351/0358

AUTHOR: Golubev, A. I.; Ulanovskiy, I. B.; Korovin, Yu. M.

ORG: none

TITLE: Corrosion of aluminum and titanium in clearance gaps

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2.
Moscow, Izd-vo Metallurgiya, 1965, 351-358

TOPIC TAGS: aluminum alloy, titanium base alloy, copper containing alloy, sea water corrosion, oxygen, shipbuilding engineering/AV00 aluminum, AMg-5 Al alloy, D16 Al alloy, VT-1D Ti-Cu alloy

ABSTRACT: The article deals with the processes of the decrease in O₂ concentration in clearance gaps, the effect of O₂ and pH value on electrode potentials, and the work of macro-corrosion pairs, as investigated by a previously described method (Ulanovskiy, I. B., Korovin, Yu. M. ZhPKh, 1962, 35, 8, 1753). On Al and Ti alloys exposed to sea water the O₂ concentration in the clearance gaps sharply decreases to an insignificant level owing to the intense rate of consumption of O₂ for passivation processes in narrow gaps; in the case of Al, if this level falls below 0.5 mg O₂ per liter, the potential gets displaced by 500 mv in the negative direction, and this leads to the formation of differential-aeration pairs; the attendant hydrolysis of the anodic

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ACC NR: AT6013808

3

products of corrosion causes the pH value in the clearance gaps to diminish from 8.0 (normal value) to 3.2-3.4. This, in its turn, leads to an increase in current intensity owing to the decrease in anodic polarizability. Thus, for pure aluminum AV00, in the presence of an O_2 concentration of 0.1 mg/liter the current intensity of the differential-aeration pair is 10 μ a; if, however, given the same O_2 concentration, the pH value decreases to 4.0, the current intensity of the pair increases to 18 μ a. A similar pattern is observed for the Al alloys AMg-5 and D16. As for Ti, it was found that, while it did corrode to a slight extent in narrow clearance gaps, it remains as highly corrosion resistant in sea water as it is under other conditions; the reason is that during anodic polarization pH value does not decrease in the clearance gaps of Ti. Cu-treated Ti is somewhat more corrosion resistant, specimens of a Ti-Cu alloy (VT-1D) were tested for 18 months in sea water and it was found that, while some characteristic corrosion arose on the barnacle-encrusted areas, the depth of this corrosion was insignificant -- of the order of 0.01 mm; even this slight corrosion, however, can be eliminated if the use of Ti to protect the underwater part of ship's hulls against barnacles is combined with the application of ultrasonic vibrations. Orig. art. has: 5 figures and 1 table.

SUB CODE: 111, 07, 20/ SUBM DATE: 19Jul65/ ORIG REF: 008, OTH REF: 003

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CC

L 28543-66 ENI(m)/I/EWA(d)/EWP(t)/EII IJP(c) JD/WR/GD

ACC NR: AT6013810

(N)

SOURCE CODE: UR/0000/65/000/000/0366/0378

AUTHOR: Golubev, A. I.; Ulanovskiy, I. B.; Korovin, Yu. M.; Sevast'yanov, V. F.

ORG: none

TITLE: Effect of hydrogen sulfide on the corrosion of stainless and carbon steels

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2, Moscow, Izd-vo Metallurgiya, 1965, 366-378

TOPIC TAGS: stainless steel, carbon steel, sea water corrosion, hydrogen sulfide, hydrogen ion / 1Kh18N9T stainless steel, 1Kh13 steel, St. 3 carbon steel

ABSTRACT: H_2S in the sea is produced by sulfate-reducing bacteria which proliferate on barnacle-encrusted ship hulls and subsurface structures. In this connection, for stainless steel the effect of H_2S on electrode potential was investigated as a criterion of corrosion resistance of the steel. For carbon steel, the effect of H_2S on both the electrode potential and the self-dissolution processes was investigated. The experiments were performed in the presence of O_2 concentrations of < 0.1 and 9.0 mg/liter, variation in pH value from 8 to 2 and variation in H_2S concentration from 0 to 100 mg/liter. O_2 was removed by blowdown with N_2 extracted from air. The air, flowing via flow meter 1 (Fig. 1) and safety flask 2, entered cylinders 3-5 containing an alkali solution of pyrogallol in which it was relieved of most of its O_2 . The

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ACC NR: AT6013810

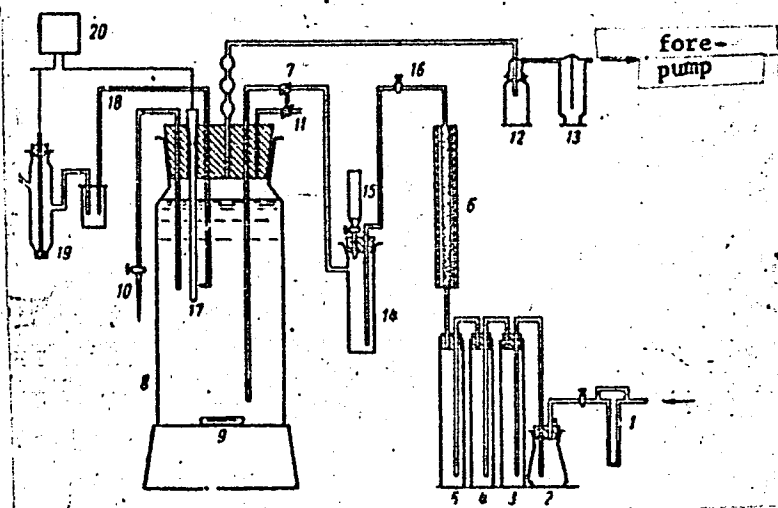


Fig. 1. Diagram of setup for investigating the effect of hydrogen sulfide on the electrode potential in the absence of oxygen:
 1- flow meter; 2 - safety flask; 3, 4, 5 - absorption cylinders; 6 - tubular furnace; 7, 11 - three way valve; 8 - test vessel; 9 - magnetic stirrer; 10 - sampler; 12, 13 - safety flasks; 14 - vessel for producing H₂S; 15 - separatory funnel; 16 - two-way valve; 17 - test specimen; 18 - electrolyte; 19 - calomel electrode; 20 - potentiometer

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ACC NR: AT6013810

2

remaining O_2 was absorbed in tubular furnace 6 containing copper chips heated to $600^\circ C$. The passage of air was facilitated by rarefaction produced with the aid of a fore-pump, with the rate of air inflow being determined by flow meter 1. Pure N_2 entered vessel 8 via three way valve 7. To accelerate the process of O_2 removal, the solution was stirred with magnetic stirrer 9. The samples were collected via tube 10. H_2S was produced by reacting HCl with a titrated Na_2S solution. The electrode potentials were measured by means of the P-4 potentiometer and anodic polarization curves were plotted by the potentiostatic method on using cylindrical specimens of 1Kh18N9T, 1Kh13 and St. 3 steels. The experiments were performed in Black Sea water ($pH = \sim 8.0$). Findings: H_2S and the intermediate products of its oxidation definitely affect the electrode potentials and corrosion of stainless and carbon steels. Thus, as the H_2S concentration of sea water increases the electrode potential is displaced in the minus direction owing to the sharp decrease in O_2 concentration stemming from the consumption of O_2 for the oxidation of H_2S . When the pH of sea water is < 5.0 , the corrosion rate in the presence of H_2S gets intensified owing to the facilitation of the process of hydrogen depolarization. The presence of H_2S in sea water markedly affects the anodic passivity of stainless steel (Fig. 2). Thus, in H_2S -free water (curve 4) passive state sets in at a current density of $\sim 3 \mu A/cm^2$, whereas in water with 35 mg $H_2S/liter$ the current density required to attain anodic passivity is 3 times as high; in water with 60 mg $H_2S/liter$, 9-10 times as high (curve 2); and in water with 80 mg $H_2S/liter$ no passivity is observed (curve 1). Hence the higher the H_2S concen-

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ACC NR: AT6013810

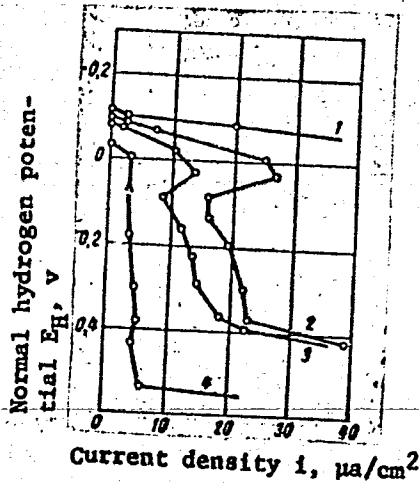


Fig. 2. Anodic polarization curves of 1Kh18N9T steel in sea water in the presence of hydrogen sulfide:
 1 - 80 mg/liter H_2S ; 2 - 60 mg/liter H_2S ; 3 - 35 mg/liter H_2S ; 4 - control experiment without H_2S

tration of sea water is -- in the absence of O_2 -- the faster the corrosion rate of steel becomes. If O_2 is present in the solution, the corrosion of carbon steel with increasing H_2S concentration initially decreases owing to the decrease in O_2 content, but later it increases. Orig. art. has: 7 figures, 1 table.

SUB CODE: 13.117.07.11 / SUBM DATE: 19Jul65/ ORIG REF: 018/ OTH REF: 001

Card 4/4 CC

BYUYRIN, A.I.; GOLUBEV, A.I.; NEKRASOV, V.P.; GULIY, V.M.; OL'KHOV, I.N.;
KOLKHODZHAYEV, A.V.

Making boreholes with smaller diameter at the "skeli Mine. Gor.zhur.
no.8:27-30 Ag '65. (MIRA 18:10)

L 2623-66 EWT(m)/EPF(c)/ETC/EWG(m)/T/EWP(t)/EWP(z)/EMP(b) IJP(c) DS/JD/HW/WB
ACCESSION NR: AP5011364

UR/0365/65/001/002/0199/0206
620.196

AUTHOR: Golubev, A. I.; Ronzhin, M. N.
44.55

80
76
B

TITLE: Electrochemical and corrosion properties of intermetallic compounds based on aluminum
44.55 27 *44.55, 14*

SOURCE: Zashchita metallov, v. 1, no. 2, 1965, 199-206

TOPIC TAGS: corrosion resistance, electrochemistry, electrode potential, intermetallic compound, aluminum, nickel, copper, titanium, magnesium, chromium, manganese
27 *27* *27* *27* *27* *27* *27*

ABSTRACT: Electrochemical and corrosion properties of intermetallic compounds (FeAl₃, NiAl₃, CuAl₂, TiAl₃, AlSb, Mg₂Sb₃, CrAl₇, MnAl₆) and pure metals were studied in two solutions: 3% NaCl and 0.1-normal NaOH. The ratio of electrolyte volume to sample surface area in a cell varied within 200-250 ml/cm². A saturated calomel half-cell served as a reference electrode. Generally, in alkaline and neutral solutions, the hydrogen overvoltage on intermetallic electrodes is lower than on the corresponding pure metal electrodes. In 0.1-normal NaOH solution, the maximum potential difference between the pure components of the intermetallic compounds
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ACCESSION NR: AP5011364

was 1-15 mV. The electrode potentials of intermetallic compounds have values intermediate between the electrode potentials of the pure metals. The kinetics of dissolution of the intermetallic compounds is a function of the electrochemical properties (anodic and cathodic behavior) of the pure metal constituents. In the region between the self-dissolving potential of the intermetallic compound and the steady-state potential of the cathode component, the anode behavior of the intermetallic compound is a function of the properties of the anodic component. The cathodic properties of the anodic component show up first at very high potential values. As a result of selective dissolving, the corrosion of the intermetallic compound is largely determined by that component which concentrates on the electrode surface. The hydrogen overvoltage, ($-E$ in reference to a normal hydrogen electrode) on the intermetallic compounds and pure metals vs. logarithm of current density, i , is shown in fig. 1 of the Enclosure. The dependence of the electrode potential and the rate of corrosion of FeAl₃ in 0.1-normal NaOH at 25°C upon time is shown in fig. 2 of the Enclosure. Orig. art. has: 4 tables, 3 figures.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskoy khimii (Academy of Sciences, SSSR, Institute of Physical Chemistry)

SUBMITTED: 06Oct64

ENCL: 02

SUB CODE: HM, GC

NO REF SOV: 003

OTHER: 007

Card 2/4

L 2623-66

ACCESSION NR: AP5011364

ENCLOSURE: 01

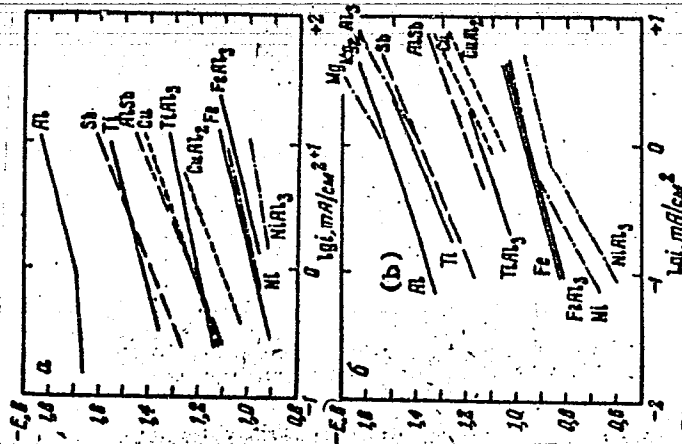


Fig. 1. a--0.1 normal NaOH; b--3% NaCl.

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ACCESSION NR: AP5011364

ENCLOSURE 02

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Fig. 2. a--FeAl₃ potential;
b--rate of corrosion of FeAl₃; 1--
FeAl₃; 2--99.99% Al.

Card 4/4 DP

TOPIC TAGS

4

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APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000515910007-3"

GOLUBEV, A.I.; IGNATOV, N.N.

Studying the process of anodizing aluminum alloys in a mixture of
sulfuric and oxalic acids. Zashch. cat. 1 no. 4: 445-447 JI-Ag '65.
(MIRA 19:8)

1. Institut fizicheskoy khimii AN SSSR.

L 14443-66 EWT(1)/EPF(n)-2/T-2/ETC(m)-6 WW/DJ
ACC NR: AP6002970 SOURCE CODE: UR/0286/65/000/024/0144/0144

INVENTOR: Golubev, A. I.

ORG: none

TITLE: A labyrinth pump. Class 59, No. 177284

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 144

TOPIC TAGS: vacuum pump, pump

ABSTRACT: This Author's Certificate introduces a labyrinth pump based on Author's Certificate No. 126748. The device is designed for use as a vacuum pump. Expansion tanks are mounted in the space to be exhausted at the inlet and outlet of the pump. A recirculation tube connects the expansion tank at the outlet with the working cavity of the pump.

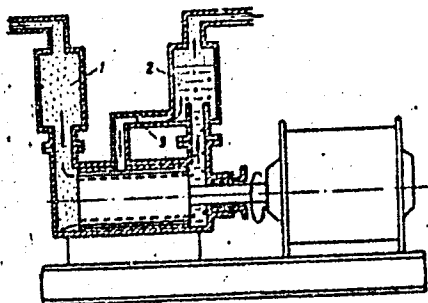
Card 1/2

UDC: 621.521 621.665.2

L 14443-66

ACC NR: AP6002970

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1 and 2 - expansion tanks; 3 - recirculation tube.

SUB CODE: 13/

SUBM DATE: 20 May 64

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Card 2/2

L 28397-66 ENT(m)/ENP(t)/ETI IJP(c) JD/HW/JB/GD

ACC NR: AT6013796

SOURCE CODE: UR/0000/65/000/000/0166/0179

AUTHOR: Ronzhin, M. N.; Golubev, A. I. 61
B+

ORG: none

TITLE: Studies of the passivity of iron, nickel and copper in an alkali medium

SOURCE: Korroziya metallov i splavov (Corrosion of metals and alloys), no. 2. Moscow, Izd-vo Metallurgiya, 1965, 166-179

TOPIC TAGS: corrosion, electrochemistry, iron, nickel, copper, electric potential, sodium hydroxide

ABSTRACT: This investigation, performed with the aid of potentiostatic and galvanostatic methods, deals with the anodic behavior of Fe, Ni and Cu in 0.1N and 1N NaOH at 25°C, and was carried out with the aim of elucidating the mechanism of dissolution of the intermetallic compounds FeAl₃, NiAl₃ and CuAl₂ (cf. p 59 of this issue). The change in the potential with time was recorded by means of an SI-19 oscillograph. Findings: Three potential delays were observed on the E-τ (potential-time) curve of the reduction of the oxidation products of Fe forming under the thin, drying film of 1N NaOH solution. The values of these delay potentials are in satisfactory agreement with the values of the equilibrium potentials of the reactions: the first delay E¹ = -0.790 to -0.810 v -- Fe(OH)₃ + 3e⁻ Fe + 3OH⁻; the second delay E² = -0.890 v -- Fe(OH)₂ + 2e⁻ Fe + 2OH⁻; and the third delay E³ = -0.950 to

Card 1/2