

TITLE:

27-5-18/25
Improve the Training of Construction Workers (Uluchshit' podgotovku stroiteley)

and other complicated articles. In conclusion he suggests that the directors be given the right to effect the proper classification of the graduates according to the results, since presently all graduates are being classified grade 4.

INSTITUTION: None

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress

Card 2/2

TITOV, Vasily

In the kingdom of beavers. IUn.nat.no.1:14-15 Ja '58. (MIRA 10:12)
(Voronezh Province--Beavers)

KAZAKOV, N.; TITOV, V.; SAKHONENKO, Ye., tekhn. red.

[Intensive production on each farm] Kazhdomu khoziaistvu -
intensivnoe proizvodstvo. Smolensk, Smolenskoe knizhnoe izd-
vo, 1962. 55 p. (MIRA 16:11)
(Smolensk Province--Agriculture)

TITOV, V. A.

MOSCOW INST OF NONFERROUS METALS AND GOLD IMENI N. I. KALININ

TITOV, V. A. -- "INVESTIGATION OF CORROSION OF STEEL CABLE WIRE WHICH STRESSED." DUD 5 JUN 52,
MOSCOW INST OF NONFERROUS METALS AND GOLD IMENI N. I. KALININ (DISSERTATION FOR THE DEGREE
OF CANDIDATE IN TECHNICAL SCIENCES)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1952

TITOV, V.A.

27-27
Hydrogen into Iron and
[faded text]

45-2

[faded text]

for [signature]

TITOV, V.A.

B-12

USSR/Physical Chemistry - Electrochemistry

Abs Jour : Referat Zhur. Khimiya, No 2, 1957, 3954

Author : Freyman L.I., Titov V.A.

Title : Inhibition of Electro-Diffusion of Hydrogen Into Iron and Steel by Surface Films of Some Metals

Orig Pub : Zh. fiz. Khimii, 1956, 30, No 4, 882-888

Abstract : Investigation of the effect of galvanic deposits of Cu, Ni, Sn and Pb (0.1-7 μ) deposited upon the polarization [MeFe] and diffusion [FeMe] sides of the Armco-Fe membrane or 65G steel membrane, on the electro-diffusion of hydrogen (EDH) in a solution of 10% H₂SO₄ + 2.4 · 10⁻⁵M Na₂SO₂ at i = 50 mA/cm² and 210°. Fe and steel were 3.5 st annealed at 700°. In the case of MeFe deposits of Cu, Ni, Sn and Pb have little effect on EDH. With MeFe deposits of Cu and Ni inhibit EDH the more so with increasing thickness. Thin deposits of Sn and Pb accelerate EDH, thick deposits inhibit it. The

Card 1/2

- 198 -

TITOV, V.A., KOMAR, E.G., MONOSZON, N.A., STOLOV, A.M., SHEKTER, V.M.

"Experimental Ring-Shaped 200-650 MeV Stong-Focusing Proton
Accelerator," paper presented at CERN Symposium, 1956, appearing in
Nuclear Instruments, No. 1, pp. 21-30, 1957

18.8300

31963
S/081/61/000/023/021/061
B117/B147

AUTHORS: Titov, V. A., Agapov, G. I., Tomashov, N. D.

TITLE: Corrosion of tantalum, niobium, and their alloys in sulfuric acid at elevated temperatures

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 283, abstract 23I215 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz, 1961, 187 - 195)

TEXT: It was found that in 90% H₂SO₄ at 250°C a more than 30-fold reduction of the corrosion rate (from 15.1 to 0.5 g/m²hr) and a strong change of the potential in positive direction (from 0.25 to 0.77 v) are observed in Ta-Nb alloy (on transition from an alloy with a content of 34 at% Ta to one with 49.4 at%). It was also shown that for Ta-Nb alloy (96.2 at% Ta) at 250°C, 70% H₂SO₄ is the most aggressive medium as compared to its solutions of different concentrations. [Abstracter's note. Complete translation.]

X

Card 1/1

31966
S/081/61/000/023/031/061
B138/B101

18.8310

AUTHORS:

Titov, V. A., Balandin, I. M., Tomashov, N. D.

TITLE:

Investigation of the efficiency of different methods of protecting metals in solutions of sulfuric and phosphoric acids at elevated temperatures

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 23, 1961, 290, abstract 231276 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz, 1961, 200 - 214)

TEXT: The effect of cathodic (As and Bi ions) and anodic (Cu, Ag, and Au ions) corrosion inhibitors has been investigated, as also electrolytic protection by anodic polarization using Cu, Ag, and Au depositions and Ag and Au contact, on the rate of corrosion of stainless steels 1X18N9T (1Kh18N9T) and X23H28M3D3T (Kh23N28M3D3T) and the alloy 3M461 (E1461) in 10% solutions of H₂SO₄ and H₃PO₄ at a temperature of 250°C. The cathodic corrosion inhibitor, Bi, has been found to have the greatest inhibiting effect for stainless steels in H₂SO₄. Corrosion of the Ni

Card 1/2

31966
S/081/61/000/023/31/061
B138/B101

Investigation of the efficiency...

alloy is more effectively reduced if it has a Cu coating. In H_3PO_4 an addition of Ag ions to the acid solution is the most efficient way of reducing corrosion of the stainless steel and the Ni alloy. [Abstracter's note: Complete translation.] X

Card 2/2

S/081/61/000/021/033/094
B101/B147

18.8310

AUTHORS: Titov, V. A., Korovin, Yu. M.

TITLE: Effect of hydrogen absorption on the strength of steel

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 254, abstract 211105 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov", M., Mashgiz, 1961, 223 - 229)

TEXT: The authors studied the effect of the pH of the solution and the current density on the H₂ amount absorbed by U9A (U9A) steel wire samples under tension. They also studied the effect of the concentration of H₂SO₄ and that of 4M (4M) or KC (KS) corrosion inhibitors on the resistance of corrosion fatigue of steel 50 wire samples in cathodic polarization and without it. In 1% H₂SO₄, saturation with H₂ of U9A steel under static tension occurs at $D = 2a/dm^2$. With concentrations of H₂SO₄ between 0.1 and 15%, the strength of steel 50 decreases rapidly; it rises, however (in 1% H₂SO₄), with addition of 4M and KS corrosion inhibitors due to inhibition

Card 1/2

✓C

Effect of hydrogen absorption...

S/081/61/000/021/033/094
B101/B147

VC

of hydrogen absorption by the steel. 4M proved to be more efficient than
KS. [Abstracter's note: Complete translation.]

Card 2/2

S/137/61/000/012/137/149
A006/A101

AUTHORS: Mil'vidskiy, M. G., Ignatova, Z. I., Vedeneyeva, M. A., Titov, V. A.,
Kikut, A. V.

TITLE: The use of urotropine to inhibit corrosion of steel equipment in
ammonium chloride production

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1961, 53-54, abstract
12I400 (V sb. "Korroziya i zashchita konstruks, metallich. materia-
lov", Moscow, Mashgiz, 1961, 245-253)

TEXT: The authors studied corrosion behavior of 1X18H9T (1Kh18N9T), X17
(Kh17), 1X13 (1Kh13) steel grades and Armco-Fe in a $\text{NH}_4\text{Cl} + \text{Na}_2\text{SO}_4$ solution. The
possibility is shown of using 1Kh18N9T, Kh17 and Kh13 steels under the given
conditions as sufficiently corrosion-resistant construction materials for the
equipment. The use of urotropine as a corrosion inhibitor in the given media
(at pH 6-8) is not effective for stainless steels. When large amounts of uro-
tropine are added (up to 1%) the corrosion rate of the steels investigated drops
by not over 2.5 times. The addition of urotropine in an insufficient amount may
on the other hand entail a corrosion rate increase for Kh17, 1Kh13, and 1Kh18N9T

Card 1/2

S/137/61/000/012/137/149
A006/A101

The use of urotropine to inhibit corrosion ...

steel. The corrosion process proceeds with mixed cathode-anode control for stainless steels when using an evaporating apparatus, and with cathode control for grade 3 steel. The nature of the dependence of the corrosion rate on urotropine concentration and the effect of urotropine admixtures on electrode potentials and kinetics of electrode processes, lead to the assumption that urotropine is a mixed corrosion inhibitor under service conditions of an evaporation apparatus. There are 7 references. ✓

Ye. Layner

[Abstracter's note: Complete translation]

Card 2/2

TITOV, V.A.; ZOTOV, V.L.; MEDVEDEVA, S.F.

Corrosion and protection of the equipment of chemical plants.
Khim.prom. no.4:286-288 Ap '61. (MIRA 14:4)

1. Moskovskiy institut stali imeni I.V.Stalina.

(Chemical engineering - Equipment and supplies)
(Corrosion and anticorrosives)

S/081/61/000/022/031/076
B110/B101

AUTHORS: Titov, V. A., Markovich, L. A., Prosvirin, A. V.
TITLE: Study of corrosion resistance of metals and alloys under conditions of hexachlorane production
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 258, abstract 22I169 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz, 1961, 254 - 259)

TEXT: A study of the corrosion resistance (CR) of nonferrous and black metals and alloys in media used for hexachlorane production showed that the Ni - Mo alloy type ЭИ461 (EI461), Pb and Cr-Ni steels types 1X18N9T (1Kh18N9T) and ЭИ654 (EI654) were unstable under the conditions mentioned. It was found that Ta had absolute CR and therefore can be used as plating material. CR of Ti in the gaseous phase was satisfactory under conditions of benzene distillation $\leq 120^{\circ}\text{C}$. [Abstracter's note: Complete translation.]

Card 1/1

TITOV, V.A.

RUSSIAN BOOK EXPLANATION 807/5534

Tomashev, M. D., Doctor of Chemical Sciences, Professor, ed.
 Korvostya i zaschita konstruktivnykh metallicheskikh materialov; sbornik statey (Corrosion and Protection of Constructional Metals); Collection of Articles) Moscow, Mashin, 1961. 258 p. Irregularly bound. 10,000 copies printed.

Ed. of Publishing House: M.P. Yevstaf'yev; Tech. Ed.: O.V. Smirnova; Managing Ed. for Literature on Chemical and Textile Machine Building: V.I. Rybakova, Engineer.

PURPOSE: This collection of articles is intended for scientific and technical personnel concerned with the corrosion and protection of metals.

CONTENTS: The collection deals with problems of the corrosion of constructional metals in various environments and conditions. Articles discuss new methods for the investigation and testing of corrosion, and give results of recent research conducted on the corrosion and protection of metal constructions. The corrosion of some new alloys is also considered. The collection includes articles generalizing the results of research conducted during the last 2-3 years in the Department for Corrosion of Metals of the Moscow Institute of Steel (Moscow Steel Institute). Some of the articles were written in cooperation with the laboratory staffs of the "Serp i Molot" Plant and Elektrosilovskiy zavod. M. I. Kalinina (Chemical Plant Inst. M.I.Kalinin) and others are based on investigations conducted at these plants. In personalities mentioned, there are 219 references, Soviet and non-Soviet. References accompany each article.

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Kuznetsov, G. G. [Engineer], M. P. Zhuk, and B. E. Lyubimovskiy [Candidate of Technical Sciences]. Electrolytic Pickling of High-Alloy Metals	53
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Card 3/7

AVAILABLE: Library of Congress (TA662.r64)

Corrosion and Protection (Cont.)

807/5544

CORROSION RESISTANCE OF CHROMIUM-NICKEL STEELS

Vedenevna, M. A., and M. D. Tomashov. Corrosion of 18L199 Steel in SULFURIC-ACID Solution of CuSO₄. 108

Vedenevna, M. A., and M. D. Tomashov. Effect of Deformation on the Intergranular Disintegration of Chromium-Nickel Steel. 116

CORROSION RESISTANCE OF TITANIUM AND ITS ALLOYS

Tomashov, M. D., and L. A. Andreyev [Engineer]. High-Temperature Oxidation of Titanium. 127

Tomashov, M. D., and M. G. Milvidskiy [Engineer]. Pickling of Titanium in Acid Solutions and in Alkaline Melts. 133

Tomashov, M. D., R. M. Al'corvich [Engineer], A. V. Prosvirin [Engineer], and M. D. Shazgumova [Candidate of Chemical Sciences]. Corrosion of Titanium and Its Alloys in Sulfuric Acid. 151

Tomashov, M. D., R. M. Al'corvich, and V. B. Vladimirov [Engineer]. Investigation of Corrosion of Titanium and Its Alloys in Bromine Solutions in Methyl Alcohol. 164

Tomashov, M. D., R. M. Al'corvich, G. E. Chernyaya [Candidate of Chemical Sciences], and A. D. Arzyev [Engineer]. Corrosion Resistance of Titanium Alloyed With Molybdenum, Chromium, and Palladium. 173

CORROSION AND PROTECTION OF SOME METALS AND ALLOYS IN ACIDS AT ELEVATED TEMPERATURES

Titov, V. A. [Candidate of Technical Sciences], G. I. Arzyev [Engineer], and M. D. Tomashov. The Corrosion of Titanium, Niobium, and Their Alloys in Sulfuric Acid at Elevated Temperatures. 187

Tomashov, M. D., and P. V. Strubalov [Engineer]. Investigating the Corrosion Rate of Iron-Carbon Alloys in Acids at Elevated Temperatures. 196

Titov, V. A., I. M. Balandin [Engineer], and M. D. Tomashov. Investigating the Kinetics of Various Metal-Protection Methods in Solutions of Sulfuric and Phosphoric Acids at Elevated Temperatures. 200

CORROSION ENDURANCE OF STEEL

Titov, V. A., and M. D. Tomashov. Investigating the Endurance of Card Wire. 213

Titov, V. A., and Yu. M. Korovin [Engineer]. The Effect of Hydrogenation on the Endurance of Steel. 223

Titov, V. A., and V. V. Belousova [Engineer]. Corrosion of Steel in Contact With Copper. 230

CORROSION AND PROTECTION IN CERTAIN BRANCHES OF THE CEREAL INDUSTRY

Milvidskiy, M. G., S. I. Ignatova [Engineer], M. A. Fedoseyeva, V. A. Titov, and V. A. Kilit [Engineer]. The Use of Urotropine to Retard Corrosion of the Steel Apparatus Used in the Production of Ammonium Chloride. 243

Titov, V. A., L. A. Markovich [Engineer], and A. V. Prosvirin. Investigating the Corrosion Resistance of Certain Metals and Alloys in Sulfachloran Production. 254

AVAILABLE: Library of Cor Res (12A62,70A)

TITOV, V.A.; RYZHIKOVA, S.M.; SEMUSHKINA, T.I.

The ARMS-N coding device. Trudy NIIGMP no.14:133-139 '65.
(MIRA 18:9)

1 88120160 /WWT(m)/EWT(a)/EWT(b)/EWA(c) IJP(a) RDW/JD
ACCESSION No: AF5-19-1

AUTHOR: Lange, V. N.; Titov, Y. A.

TITLE: Density and coefficient of thermal expansion of selenium containing small indium impurities

SOURCE: AN AzerbSSR. Izvestiya. Seriya fiziko-tekhnicheskikh i matematicheskikh nauk, no. 1, 1965, 59-62

TOPIC TAGS: selenium, crystal impurity, indium, crystal imperfection, specific density, thermal expansion

ABSTRACT: To check on some peculiarities in the variation of the physical properties of selenium following the addition of impurities, with special emphasis on the change in the density, the density and coefficient of thermal expansion were investigated the variation of the density of selenium to which various amounts of indium were added. The investigated polycrystalline samples were prepared by direct melting of the components in ampoules of molybdenum glass evacuated to 10^{-3} mm Hg. The samples were kept in the molten state near 300 for 4 hours, during which the oven was vibrated to ensure thorough mixing. The quartz was then slowly cooled for approximately 10 hours. The density of the samples was measured by the Archimedes method, and α were tested. The results are presented in a table. The density of pure selenium was found to be $(2.2-3) \times 10^{-3}$ g/cm³. Inasmuch as the density of pure selenium was found to be

Card 1/3

L 65196-65

ACCESSION NR: AP5013430

4.54 g/cm³ as against the theoretical (x-ray diffraction) value of 4.82 g/cm³, a check was made on the variation of the coefficient of linear thermal expansion with the impurity contents. All the results are shown in fig. 1 of the Enclosure. The coefficient of thermal expansion α measured in the interval from 70 to 120°C with a DKM dilatometer. The results show that the anomaly in the density correlates with peculiarities in other properties of selenium (the maximum of the linear coefficient coincides with the minimum of the density). Tentative explanations of the results are attempted, but it is emphasized that further research is necessary. "The author is indebted to A. V. ZERDEL and S. I. KALASHNIKOV for a discussion of the results and for interest in the work." Orig. and transl. in Russian.

ASSOCIATION: none

SUBMITTED: 22May64

ENCL: 01

SUB CODE: 88

NR REF SCV: 016

OTHER: 000

Card 2/3

L 50196 48

ACCESSION NO: APS01343C

ENCLOSURE: 01

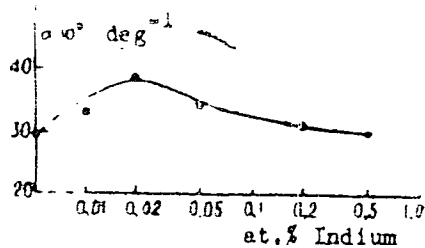
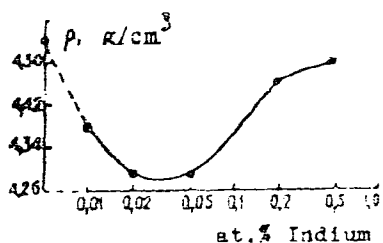


Fig. 1. Effect of indium impurity. Left - dependence of pycnometric density on the composition of a silver-indium system at +200. Right - linear expansion coefficient of the same system at +200.

Card 3/3

ACCESSION NR: AT5014140

AUTHOR: Titov, V. A.

TITLE: A method for the coding of meteorological parameters

SOURCE: Leningrad. Nauchno issledovatel'skiy institut gidrometeorologicheskogo priborostroyeniya. Trudy, no. 13, 1965, 155-159

TOPIC TAGS: meteorological coding, digital-Morse code transformation, telemetry, radiosonde

ABSTRACT: At present, most meteorological data from automatic radiotelemetry stations appears in digital form. The coding is then carried out by double independent parallel channels: parallel Morse code, parallel or consecutive Morse code. The proposed coding method is based on the principle of coding of digital data into the Morse code. The experimental realization of the distribution device to one channel. The experimental realization, principle is explained.

Card 1/2

E-60437-65

1

ACCESSION NR: AT5014146

ASSOCIATION Nauchno-issledovatel'skiy institut gidrometeorologicheskogo
Vostok (Scientific Research Institute for Hydrometeorologi-
cal Research, Far East)

SECRET

NO REF

ACC NR: AT7001818 SOURCE CODE: UR/2778/66/000/015/0129/0137

AUTHOR: Zlatin, A. L. ; Titov, V. A.

ORG: none

TITLE: Methods of diminishing the energy consumption by discrete-action elements (review)

SOURCE: Leningrad. Nauchno-issledovatel'skiy institut gidrometeorologicheskogo priborostroyeniya. Trudy, no. 15, 1966, 129-137

TOPIC TAGS: hydrometeorology, measuring instrument, discrete action electronic device, discrete action device, hydrometeorological instrument, energy consumption

ABSTRACT: The authors examine the conditions surrounding the operation of discrete-action electronic devices used in hydrometeorological instruments. The basic requirements for the elements in these devices are outlined. Methods of decreasing the energy consumption of these discrete-action devices are reviewed. Orig. art. has: 6 figures. [Translation of abstract] [SP]

SUB CODE: 08, 09/SUBM DATE: none/ORIG REF: 011/OTH REF: 003/

Card 1/1

L 05907-67 INT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6017479

SOURCE CODE: UR/0137/66/000/001/A008/A008

AUTHOR: Lange, V. N.; Lange, T. I.; Titov, V. A.; Chizhevskaya, S. N.

TITLE: Effect of indium impurities on the physical and chemical properties of selenium

SOURCE: Ref. zh. Metallurgiya, Abs. 1A53

REF SOURCE: Sb. Materialy dokl. 1-y Nauchno-tekhn. konferentsii Kishinevsk. politekhn. in-ta, Kishinev, 1967, 70

TOPIC TAGS: indium, selenium, indium containing alloy, selenium base alloy

ABSTRACT: The density and coefficient of thermal expansion of alloys in the Se-In system are measured, as well as the viscosity of the corresponding melts to determine whether grouping of impurity atoms in selenium actually takes place. It is found that these characteristics change in a complex manner as the indium concentration is increased. The authors feel that the resultant data confirm the hypothesis of grouping of indium atoms and also indicate that the indium atoms (complexes) are incorporated in chains made up of selenium atoms rather than being distributed among them. (From RZh Fiz.) [Translation of abstract]

SUB CODE: 11, 20

Card 1/1

KH

UDC: 669.776:872-154:541.6

VASIL'YEV, V.G.; GRACHEV, G.I.; NEVOLIN, N.V.; OZERSKAYA, M.L.; PODCBA,
N.V. Prinimali uchastiye: ALEKSEYCHIK, S.N.; GUSHKOVICH, S.N.;
DIKENSHTSEYH, G.Kh.; DEVKLAYA, M.F.; DRABZH, I.Ye.; IVANOVA,
M.N.; KAZARINOV, V.P.; KALININA, V.V.; KOZLENKO, S.P.; MEDVEDEV,
V.Ya.; PUSTIL'NIKOV, M.R.; ROSTOVTSSEV, N.N.; SKOBLIKOVA, G.I.;
STEPANOV, P.P.; TITOV, V.A.; FOTIADI, E.E.; CHIRVINSKAYA, M.V.;
SHMAROVA, V.P. GRATSIAKOVA, O.P., red.; BEKMAN, Yu.K., vedushchiy
red.; MUKHINA, E.A., tekhn.red.

[Manual for geophysicists in four volumes] Spravochnik geofizika
v chetyrekh tomakh. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-
toplivnoi lit-ry. Vol.1. [Stratigraphy, lithology, tectonics,
and physical properties of rocks] Stratigrafiya, litologiya,
tektonika i fizicheskie svoystva gornyykh porod. Pod red. O.P.
Gratsianovoi. 1960. 636 p. (MIRA 14:1)
(Petroleum geology) (Gas, Natural---Geology)

TITOV, V. A.; GOMZYAKOVA, S. I.

Corrosion resistance of steel oxidized in water vapors.
Stan. i instr. 33 no.10:35-38 0 '62. (MIRA 15:10)

(Steel-Corrosion)

BELOVA, M.B.; VASIL'YEV, V.G.; VLASOV, G.M.; GRYAZNOV, L.P.; DRABKIN,
I.Ye.; ZHEGALOV, Yu.V.; KARBIVNICHIIY, I.N.; KLENOV, Ye.P.; KRY-
LOV, V.V.; ~~TITOV, V.A.~~; ZARETSKAYA, A.I.; vedushchiy red.; FE-
DOTOVA, I.G., tekhn. red.

[Geology and oil and gas potentials of Kamchatka] Geologicheskoe
stroenie i perspektivy neftegazonosnosti Kamchatki. Moskva, Gos.
nauchno-tekhn. izd-vo nef. i gorno-toplivnoi lit-ry, 1961. 343 p.
(MIRA 14:9)

(Kamchatka--Petroleum geology)
(Kamchatka--Gas, Natural--Geology)

TOMASHOV, Nikon Danilovich; ZHUK, Nikolay Platonovich; TITOV, Vasiliy
Aleksseyevich; VEDENEYEVA, Mariya Aleksandrovana; EL'KIND, L.M.,
red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Laboratory work on the protection of metals from corrosion] Labo-
ratornye raboty po korrozii i zashchite metallov. Moskva, Gos.
nauchno-tekhn. izd-vo lit-ry po cherno i tsvetnoi metallurgii,
1961. 239 p. (MIRA 14:7)
(Metals--Corrosion)

TITOV, Vasilii Alekseyevich, kand. tekhn. nauk; YAKUBENKO, Arnol'd Romanovich, inzh.; SHOBIK, L.Ye., inzh., ved. red.; SHREYDER, A.V., kand. tekhn. nauk, red.; SOROKINA, T.M., tekhn. red.

[Effectiveness of steel protection against corrosion by various methods of oxidation] ~~Effektivnost'~~ zashchity stali ot korrozii razlichnymi metodami oksidirovaniia. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 14 p. (Peredovdi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 13. No.M-58-108/11) (MIRA 16:3)

(Steel--Corrosion) (Metallic films)

21783

S/064/61/000/004/003/003
B110/B207

188300

1138 1208 1454

AUTHORS:

Titov, V. A., Zotov, V. L., Medvedeva, S. F.

TITLE:

Corrosion and the protection of the equipment of chemical factories

PERIODICAL:

Khimicheskaya promyshlennost', no. 4, 1961, 64-66

TEXT: Subject of the present study is the selection of a corrosion-proof metal for reaction vessels of melamine production at 250°C and 120 atm, and the rectification columns for the separation of hydrochloric acid and methanol (15.3% HCl; 22.8% H₂O and 61.9% CH₃OH). Cr-3 (St-3) vessels must be replaced after 1.5-2 months, since in melamine production their upper parts are affected by corrosion-active water-, ammonia- and hydrogen sulfide vapors. Zinc U-2 (Ts-2), cadmium (99.78% Cd), aluminum A-0 (A-0), Cr-3 (St-3), steel 1X18H9T (1Kh18N9T) samples as well as of the nickel alloy ЭИ-461 (EI-461) castalloy, of the type "B" ("γ") were suspended on fluoroplast threads in the circular space between the body of the reaction vessel and the melamine cartridge. Zinc showed the least

Card 1/6

21783

S/064/61/000/004/003/003
B110/B207

Corrosion and the protection ...

stability, followed by cadmium with a corrosion of 127 g/m^2 in 107 hr, (Fig.). Aluminum was very stable (approximately 5 g/m^2 in 207 hr, depth index 0.09 mm/year), its stability is due to the good protective properties of its oxide layer, stainless steel 1Kh18N9T (depth index in 207 hr = 0.2 mm/year). ЭИ-461 (EI-461) were less stable (depth index in 207 hr = 0.87/year and St-3, 70 g/m^2 in 100 hr. It is suggested to line the St-3 reaction vessel with a ≤ 3 mm thick layer of 1Kh18N9T stainless steel. The following alloys were tested with respect to their suitability for rectification columns: the titanium alloys: BT-1 (VT-1); BT-3 (VT-3); BT-5 (VT-5); BT-10 (VT-10); the following titanium- and niobium alloys: TH-3 (TN-3), TH-27 (TN-27), TH-50 (TN-50), TH-75 (TN-75); sheet lead, the alloys ЭИ-461 (EI-461) and ЭИ-943 (EI-943). Tantalum and niobium as well as their above alloys showed only a weight increase of 0.001 g after a 100 hr test in the boiling mixture of hydrochloric acid and methanol. The protective films were closely connected with the metal surface. Tantalum develops probably a Ta_2O_5 protective film. After rolling cold hardened tantalum corrodes at a

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Corrosion and the protection ...

rate of $0.062 \text{ g/m}^2 \cdot \text{hr}$; 1.25 hr in vacuum of 10^{-4} mm Hg at 1200°C , tempered tantalum corroded at a rate of $0.010 \text{ g/m}^2 \cdot \text{hr}$. Corrosion (100 hr) was increased from $0.033 \text{ g/m}^2 \cdot \text{hr}$ to $0.040 \text{ g/m}^2 \cdot \text{hr}$ owing to inhomogeneities at the welding points. With respect to corrosion stability, the following order is maintained (Fig. 2): titanium alloy BT-1A (VT-1D), (corrosion rate: $4.2 \text{ g/m}^2 \cdot \text{hr}$). A reduction of corrosion after some time could be hardly noticed. Since boiling, chemically aggressive media do not only electrochemically dissolve the metal, but destroy it due to erosion, there must be added a special protective substance to the metal with the exception of Ta, Nb and their alloys. 0.01; 0.02; 0.03, and 0.04 mole $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ were added per 1 l as protective agent since the addition of semi-noble metals leads to the precipitation of metal islands, microvapor formation, and anodic surface passivation. An addition of 0.02 mole/l reduced the corrosion rate of BT-1A (VT-1D) titanium alloy by the 17-fold to $0.247 \text{ g/m}^2 \cdot \text{hr}$. The electroprotecting method is therefore also convenient for other metals. TN-75 can be recommended for

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Corrosion and the protection ...

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B110/B207

column lining as the cheapest among the extremely stable niobium- and tantalum alloys: TN-3, TN-27, TN-50, TN-75. There are 3 figures and 1 table.

ASSOCIATION: Moskovskiy institut stali im. I. V. Stalina (Moscow Steel Institute im. I. V. Stalin)

Legend to the Table:

- a) Titanium alloy;
- b) chemical composition in %.

a) Сплав титана	b) Химический состав, %									
	Ti	C	Si	Cr	Fe	Al	H ₂	N ₂	O ₂	W
BT-1	99,671	—	0,03	—	0,12	—	0,015	0,024	0,14	—
BT-3	92,49	0,03	0,09	2,54	0,2	4,6	0,01	0,02	0,02	—
BT-5	93,58	0,05	—	—	0,17	5,0	—	—	—	1,2
BT-10	97,795	0,005	—	—	0,5	—	—	0,02	0,08	1,6

Card 4/6

TITOV, V.A., AGAPOV, G.I.

Measurement of the potentials of a metal in corrosive media
at high temperatures. Zav.lab. 26 no.7:839-842 '60.
(MIRA 13:7)

1. Moskovskiy institut stali im. I.V. Stalina.
(Metals--Corrosion) (Electromotive force)

TITOY, V. A.

RUSSIAN BOOK EXPLANATION 907/533

Teorēticheskii aspekt naučno-tekhnicheskikh obshchestv

Metallurgicheskii aspekt naučno-tekhnicheskikh obshchestv
(Intermetallics and Stress Corrosion of Metals) Moscow, Nauka, 1960.
398 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House:
I.I. Ivanchenko, Engineer; Tech. Ed.: V.D. Rykova; Managing Ed. for
Literature on Metallurgy and Instrument Making (Mashin): V.V. Babitskiy,
Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences
(Chairman), V.F. Bakstov, Candidate of Technical Sciences, V.M. Mikolov,
Candidate of Technical Sciences, and A.V. Narynskiy, Candidate of Technical
Sciences.

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

CONTENTS: The collection contains discussions of intermetallic corrosion of
stainless steels and stress corrosion of carbon steels, low-alloy and stainless
steels, and light-weight and non-ferrous alloys. The tendency of steels of
various composition and types to corrode under certain conditions is discussed
and the nature of corrosion and corrosion cracking is analyzed. The personalities
are mentioned. Most of the articles are reprinted by VINITI-SciTech references,
the majority of which are Soviet.

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Polakov, O.G., Engineer, S.I. Volgin, Ch. I. Cherkas, Candidates
of Technical Sciences, and L.D. Galaktionov, Engineer, Cracking of
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Card 4/9

TOMASHOV, N.D., prof., doktor khimich.nauk; SHREYDER, A.V., dotsent,
kand.tekhn.nauk; TITOV, V.A., kand.tekhn.nauk

Investigation of the corrosion resistance of metals in
solutions of sulfuric and phosphoric acids at high
temperatures. Khim.mash. no.4:20-24 J1-Ag '60.
(MIRA 13:7)

(Metal--Corrosion)

TITOV, V. A.

TOMASHOV, Nikon Danilovich. Prinimali uchastiye: TYUKINA, M.N.; PALEOLOG, Ye.N.; CHERNOVA, G.P.; MIKHAYLOVSKIY, Yu.N.; LUNEV, A.F.; TIMONOVA, M.A.; MODESTOVA, V.H.; MATVEYEVA, T.V.; BYALOBZHESKIY, A.V.; ZHUK, N.P.; SHREYDER, A.V.; TITOV, V.A.; VEDENEYEVA, M.A.; LOKO-
TILOV, A.A.; BERUKSHTIS, G.K.; DERYAGINA, O.G.; FEDOTOVA, A.Z.;
FOKIN, M.N.; MIROLYUBOV, Ye.N.; ISAYEV, N.I.; AL'TOVSKIY, R.M.;
SHCHIGOLEV, P.V.. YEGOROV, N.G., red.izd-va; KUZ'MIN, I.F.,
tekhn.red.

[Theory of the corrosion and the protection of metals] Teoriia
korrozii i zashchity metallov. Moskva, Izd-vo Akad.nauk SSSR,
1959. 591 p. (MIRA 13:1)

(Corrosion and anticorrosives)

PLANE I BOOK EXPLANATION 80V/5133

18(7): 25(1)

Korrozija i zabochita staley (Corrosion and Protection of Steel: Collection of Articles) Moscow, Mashiz, 1959. 233 p. 7,000 copies printed.

Ed.: N.D. Tomashev, Doctor of Chemical Sciences, Professor; Reviewers: A.A. Zhubovitskiy, Doctor of Chemical Sciences, Professor; M.I. Kozlov, K.S. Ponomareva, Doctor of Publishing House; Ya.G. Aleksandrov, Tech. Ed.; S.M. Popov, Managing Ed. for Literature on Machine and Instrument Construction; N.V. Pokrovskiy, Engineer.

PURPOSE: This book is intended for scientific and technical personnel concerned with questions of the corrosion and protection of metals.

COVERAGE: The articles in this collection deal with the corrosion of steels in corrosive environments, investigations of the effect of various factors on corrosion, and methods of protecting steels from gas and electrochemical corrosion. Special attention is given to new methods of investigation. A number of the articles give the results of studies made under operating conditions. New data, obtained by the Department of Metal Corrosion,

Moscow Institute of Steel (Moscow Institute of Steel) are published here for the first time. Four articles are the result of work conducted jointly at the laboratories of the Kozlovskiy and Kharkovskiy zavod "Serp i Molot" (Moscow Metallurgical Plant "Serp i Molot") and the Dneprozhetskiy zavod (M.I. Kalitina (Chemical Plant Lead); M.I. Kalitina). Most of the articles contain practical recommendations on the protection of steels from corrosion. No personalities are mentioned. References follow each article.

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ZHAMBYDA, A.I.; LITMAN, R.E.; MIKHAYLOV, A.F.; TITOV, V.A.

Age of siliceous igneous formations in the Koryak upland based
on Radiolaria study data. Trudy VNIIGI 80:75-103 '63
(MIRA 1737)

18.8300

33842

S/137/62/000/001/185/237
A006/A101

AUTHORS: Titov, V.A., Agapov, G.I., Tomashov, N.D.

TITLE: Corrosion of tantalum, niobium and their alloys in sulfuric acid at high temperatures

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 82, abstract 11581 ("Korroziya i zashchita konstrukts. metallich. materialov", Moscow, Mashgiz, 1961, 187 - 195)

TEXT: The authors studied the behavior of Ta, Nb and their alloys, containing 21.6; 34.0; 49.4; 67.3 at. % Ta, in H₂SO₄ at high temperature. In 90% H₂SO₄, at 250°C, during the transition from an alloy containing 34.0 at. % Ta to an alloy containing 49.4 at. % Ta, an over 30-fold decrease of the corrosion rate was observed (from 15.1 to 0.5 g/m².hour) and also an abrupt change of the potential toward the positive side (from 0.25 to 0.77 v, i.e. more than by 0.5 v). The abrupt changes in the anti-corrosion properties of the alloy correspond to the first threshold of stability in the Ta and Nb correlation, equal to 4/8 atomic fraction. Extended tests (120 hours) of Ta-Nb alloys under experimental conditions, do not shift the threshold of stability towards the rate of other Ta-Nb

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33842

S/137/62/000/001/185/237

A006/A101

Corrosion of tantalum

correlations in the alloy. In 10% H_2SO_4 at boiling temperature of the solution (102°C), the internal stresses (cold hardness) shift the electrode potential of the alloys to the negative side, by 0.05 v on the average, but both cold hardness and stress applied do not reduce the corrosion resistance nor cause corrosion cracking of the alloys. Tests with the Ta-Nb alloy containing 96.2 at.% Ta in various H_2SO_4 solutions at 250°C, have shown that 70% H_2SO_4 is the most aggressive medium as compared with its solutions of other concentrations. There are 11 references. X

The author's summary

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/001/201/237
A154/A101

AUTHORS: Titov, V. A., Tomashov, N. D.

TITLE: A study of the endurance of card wire

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 87, abstract 11616
(Sb. "Korroziya i zashchita konstruks. metallich. materialov".
Moscow, Mashgiz, 1961, 215-222)

TEXT: Steel brands 55, 50T (50G), 50TC (50GS), 50T1 and 60 were studied. Steel 55 has the best fatigue and corrosion-fatigue indices. For wire made of this steel $\sigma_w = 25 \text{ kg/mm}^2$ was obtained in air. When high stresses are applied, wire made of steel 55 has a fatigue resistance over 50 to 90 times higher than wire of steel 50T1 and 60 respectively. At comparatively low stresses, the fatigue-resistance indices of wire made of steels 55, 50T1 and 60 become close to each other. The endurance of wire made of the test brands of steel in tap water decreases to such a degree that even for the best wire made of steel 55, at the lowest stress tested by us (25 kg/mm^2), the conditional ultimate corrosion fatigue was not reached. Wire made of steels 55 and 60 has the highest indices of corrosion-fatigue resistance in tap water, and wire of steels 50G, 50GS and

Card 1/2

S/137/62/000/001/201/237
A154/A101

A study of the endurance of card wire

50Ti have the lowest indices. The emulsions used in fiber-combing are less aggressive media than tap water. A conditional ultimate corrosion fatigue of 55 kg/mm² was established for wire of steels 55 and 50G in emulsion of the Krasnokholmskaya fabrika (Krasnyy Kholm factory), while for wire of steels 60, 50GS and 50Ti this limit was reached at a stress of 35 kg/mm² in these conditions. The emulsion of the Kupavinskaya fabrika (Kupava factory) is less aggressive than the emulsion of the Krasnyy Kholm factory. In the former emulsion a conditional corrosion-fatigue limit of 55 kg/mm² was established even for wire of the worst steel - 50 Ti. Card wire of steel 55 made of polished wire rod has higher endurance indices in tap water than wire of the same steel, but made of unpolished wire rod. Preliminary grinding of the wire rod before the latter is drawn into wire may be considered as one of the methods for prolonging the service life of card clothing.

Authors' summary

[Abstracter's note: Complete translation]

Card 2/2

33841

S/137/62/000/001/183/237

A006/A101

18.8380

AUTHORS: Titov, V.A., Belousova, V.V.

TITLE: Corrosion of steel in contact with copper

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 81, abstract 11574
(V sb. "Korroziya i zashchita konstrukts. metallich. materialov",
Moscow, Mashgiz, 1961, 230 - 244)

TEXT: The authors investigated the effect of a Cu-content on corrosion of "08"-grade-steel folded tubes and grade "40"-steel-wire, and on the corrosion fatigue resistance of "40" grade steel and bimetallic wire in various corrosion media. In tap water and 3% NaCl, folded steel tubes corrode, if the Cu-layer is partially destroyed, at a rate which is correspondingly equal to 0.12 and 0.26 g/m².hour, i.e. by 1.3 to 2.0 times more than steel not exposed to a contact. In automobile lubricating oil, gasoline and diesel fuel, the Cu-contact with steel does not increase corrosion of the latter, since the media investigated are not electroconductive. Copper-plated specimens corroded more than specimens exposed to contact with Cu, and the latter more than those, without a Cu-contact. This is explained by the lesser resistance of Cu to these media as compared with steel.

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33841

S/137/62/000/001/183/237
A006/A101

Corrosion of steel in contact with copper

The effect of the Cu-contact on corrosion of unstrained 40 grade steel appeared to a higher degree in tests with continuous immersion in the corrosion media, than in alternating immersion, since in the former case the Cu-Fe pair operated continuously. In distilled and tap water, and in 3% NaCl, the corrosion rate of steel with a macrocontact is almost always higher than in microcontacts, and higher than without a Cu-contact. This is explained by the strength of the current, regenerated during corrosion. In distilled and tap water and in 3% NaCl, grade 40 steel with a macrocontact shows a relatively low durability. On the other hand steel with microcontacts shows relatively high durability. Steel without a contact shows intermediate durability values. The mechanical fatigue limit of bimetallic Cu-Fe wire (d 1.0 mm) is as high as 22 kg/mm². Its reference values of corrosion fatigue in distilled and tap water and in 3% NaCl are equal to 21.0, 18.5 and 16.5 kg/mm² respectively. There are 11 references.

The authors' summary

[Abstracter's note: Complete translation]

Card 2/2

TITOV, V. A.

1

S/081/61/000/022/035/076
B110/B101

AUTHORS: Mil'vidskiy, M. G., Ignatova, E. I., Vedenevaya, M. A.,
Titov, V. A., Kikut, V. A.

TITLE: Application of urotropine to inhibit corrosion of a steel
apparatus in ammonium chloride production

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 261 - 262,
abstract 22I205 (Sb. "Korroziya i zashchita konstrukts.
metallich. materialov". M., Mashgiz, 1961, 245 - 253)

TEXT: The use of 1X18W9T (1Kh18W9T), X17 (Kh17), and 1X13 (1Kh13) steels
in $\text{NH}_4\text{Cl} + \text{Na}_2\text{SO}_4$ solution as satisfactory corrosion-resistant construction
materials for apparatus was shown. The corrosion rate (CR) of the examined
steels was found to be reduced to ~40% by urotropine additions $\leq 1\%$. CR
was increased by urotropine additions of 0.05%. It is suggested that
urotropine be used as mixed (cathodic - anodic) corrosion inhibitor under
the working conditions of an evaporator. [Abstracter's note: Complete
translation.]

✓

Card 1/1

S/137/62/000/001/174/237
A006/A101

AUTHORS: Titov, V.A., Markovich, L.A., Prosvirin, A.V.

TITLE: Investigating corrosion resistance of some metals and alloys under conditions of hexachlorane production

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 79-80; abstract 1I560 (V sb. "Korroziya i zashchita konstrukts. metallich. materialov", Moscow, Mashgiz, 1961, 254 - 259)

TEXT: The authors investigated corrosion behavior of a number of non-ferrous and ferrous metals and alloys under conditions of hexachlorane production. Ni-Mo-alloy 3M 461 (EI461), Pb and Cr-Ni steel 1X18H9T (1Kh18N9T) and 3M 654 (EI654) are not stable under the aforementioned conditions. Ta is absolutely stable in the same media. It can be employed as cladding material for individual heat-exchanger components, containers, and other apparatus. Technically pure Ti showed satisfactory corrosion resistance in benzene, chlorinated at 50 - 70°C (0.2 - 0.3 mm/year). Ti proved to be a stable material in the gaseous phase of a benzene-distillating apparatus at up to 120°C. To extend service life and to replace Pb, Ti is recommended for the manufacture of chlorinator heat-exchangers

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S/137/62/000/001/174/237
A006/A101

Investigating corrosion resistance ...

used in hexachlorane production. Additional costs for the assimilation of Ti instead of Pb actually used, will be compensated within 1 - 1.5 years operation. There are 10 references. ✓

Authors' summary

[Abstracter's note: Complete translation]

Card 2/2

BABKIN, Yu.A.; TOMASHOV, N.D.; TITOV, V.A.; KONSTANTINOV, V.I.

Corrosion resistance of tantalum-niobium alloys in sulfuric acid.
Izv. vys. ucheb. zav.; tsvet. met. 3 no.4:153-156 '60; (MIRA 13:9)

1. Moskovskiy institut stali. Kafedra korrozii i zashchity metallov.
(Tantalum-niobium alloys--Corrosion) (Sulfuric acid)

S/184/60/000/004/007/021
A109/A029

AUTHORS: Tomashov, N.D., Professor, Doctor of Chemistry; Shreyder, A.V.,
Docent, Candidate of Technical Sciences; Titov, V.A., Candidate of
Technical Sciences

TITLE: Investigation of Corrosion Resistance of Metals in Solutions of Sul-
furic and Phosphoric Acids at High Temperatures

PERIODICAL: Khimicheskoye Mashinostroyeniye, 1960, No. 4, pp. 20 - 24

TEXT: This article was worked out in cooperation with I.M. Balandin, V.M.
Dobrov, L.Ya. Suvorov, Doctor of Chemistry A.I. Krasil'shchikov, and Candidates
of Technical Sciences A.A. Babakov, A.Ye. Gopius and V.I. Konstantinov and gives
results of tests on machine building materials. The resistance in diluted sul-
furic and phosphoric acids, the technological and physical properties of the fol-
lowing metals and alloys were investigated: OX18H9T (OKh18N9T), 1X18H9T (KKh18N9T),
X28 (Kh28), X34 (Kh34), ЭИ380 (EI380), ЭИ530 (EI530), ЭИ432 (EI432), ЭИ533 (EI-
533), ЭИ628 (EI628), ЭИ629 (EI629), ЭИ349 (EI349), Бр. АН 7-8 (Br. AN 7-8), Бр.
АМ4, 9-2 (Br. AMts. 9-2), Бр. АЖС 9-4 (Br. AZh 9-4) alloys, platinum plate, zir-
conium, tantalum, niobium and other materials. Tests were carried out in sealed

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S/184/60/000/004/007/021
A109/A029

Investigation of Corrosion Resistance of Metals in Solutions of Sulfuric and Phosphoric Acids at High Temperatures

pyrex glass and ampoules placed in an autoclave of 1Kh18N9T steel. Temperatures varied from 250 - 300°C and the heating time from 24 - 1,501 h. Complications arose during tests of materials with low corrosion resistance as nascent hydrogen caused inner pressure, occasionally resulting in bursting of the ampoule. A detailed description of the test methods and conditions is given. The corrosion depth in mm/year after a 72-h test demonstrates clearly the effect of temperature on the corrosion of alloys. The 72-h corrosion depth logarithm depends on the reciprocal value of the absolute temperature. At corrosion in 10%-H₃PO₄ the phosphate layers observed on the surface of EI461 and EI629 alloys had a decisive protective character. Corrosion tests in sulfuric and phosphoric acids established a high resistance of platinum and an adequate resistance of tantalum, Niobium and its binary alloys with tantalum retain their resistance only in sulfuric acid. A low-resistance protective layer is formed on the surface of acid-proof austenitic nickel-chromium-molybdenum steel and nickel-based EI461 alloy in phosphoric acid at high temperatures. Protective coatings are formed on the surface of niobium and niobium-tantalum alloys in sulfuric and phosphoric acids. Their presence on niobium-tantalum alloys in phosphoric acid prevents the solu-

Card 2/3

S/184/60/000/004/007/021
A109/A029

Investigation of Corrosion Resistance of Metals in Solutions of Sulfuric and Phosphoric Acids at High Temperatures

tion of metal, but cannot prevent brittle cracking caused by the adsorption of nascent hydrogen. Acidproof iron, nickel and copper-based metals are not suitable for building of machines operating in 3 - 10% sulfuric and phosphoric acid solutions at 250 - 300°C. The crack formation in molybdenum and zirconium is slow. Tantalum, niobium and their binary alloys can be used for machines operating in weak sulfuric acid solutions at 250 - 300°C, tantalum is recommended for operation in phosphoric acid. There are 3 figures, 2 tables and 13 references: 2 English, 5 German and 6 Soviet.

Card 3/3

18.8300

77049
SOV, 87-33-2-24/52

AUTHOR: Titov, V. A.

TITLE: Corrosion of Strained Steel in Nitric Acid

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, No 2, pp 402-408 (USSR)

ABSTRACT: Extent of corrosion and change of electrode potential of strained steel wire (characteristics of the wire (manufactured at the "Serp i Molot" Plant): diameter, 1.0 (Abstracter's note: No unit given in the article, probably 1.0 mm); composition (in %)--C, 0.45, Mn 0.57, Si 0.23, S 0.026, P 0.023; tensile strength, 164.0 kg/mm²; relative elongation, 1.5%; number of bends (on 180°) before breaking, 52; number of twists (on 360°), 58) were measured at various (from 1 to 60%) concentrations of nitric acid. The alternating strain in the wire, $\pm \sigma_w$, was produced by bending it into an arc with a simultaneous twisting of the wire around the longitudinal axis. The level of strain sample was 95 kg/mm² at the frequency of reversing

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Corrosion of Strained Steel in Nitric
Acid

stress of 7,500 cycles per min. The concentration of solutions fluctuated between 17 and 23%. The strain was calculated by the formula:

$$\epsilon = \frac{E \cdot d}{C} \cdot \sin \beta,$$

where C is the chord, i.e., distance between the guiding bearings (mm); d, diam. of wire (mm); β , angle of inclination of the guiding bearings; E, elasticity modulus (kg/mm^2). Measurements of potential were performed in the cell: strained steel/K% HNO_3 /0.01N

HNO_3 /sat KCl/sat KCl, $\text{Hg}_2\text{Cl}_2/\text{Hg}$. Potential values were corrected for the diffusion potential. Figure 2 illustrates the effect of nitric acid concentration upon corrosion of the wire.

Card 2/7

Corrosion of Strained Steel in Nitric Acid

77649

SOV/50-33-2-24/52

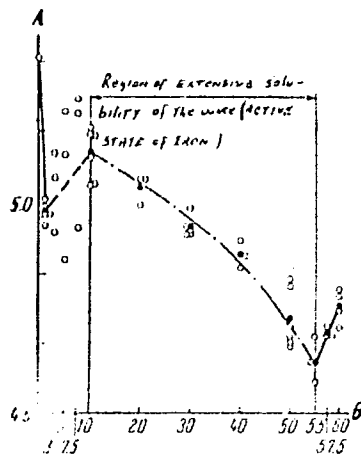


FIG. 2. Effect of nitric acid concentration upon endurance of the cable wire. (A) Number of cycles to moment of collapse of the wire (log); (B) concentration of HNO₃ (in %).

Card 3/7

Corrosion of Strained Steel in Nitric
Acid

7704
SOV/ 61-33-2-24/52

At low acidity (1-10% HNO_3) the metal is corroded by joint action of mechanical and chemical factors. At higher concentration of the acid (10-55%) the chemical factor predominates. Above 55% the metal decomposes from corrosion fatigue. Rotational motions of the wire afford intensive stirring and aeration of the acid. As a result, metal passivation occurs at a somewhat lower concentration (57.5% HNO_3) than for the same sample passivated without stirring and aeration (60% HNO_3). Figure 6 shows the effect of acid concentration upon the electrode potential of the wire.

Card 4/7

Corrosion of Structural Steel in Dilute
Acid

Handwritten notes:
Fig. 10
10/17/57

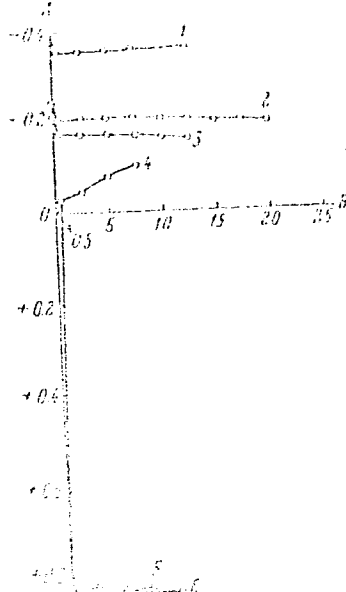


Chart 5/7

Fig. 10. Corrosion of Structural Steel in Dilute Acid

Corrosion of Stranded Lead in Nitric Acid

Page 6 of 7

(caption to Fig. 6)
 Fig. 6. Effect of nitric acid concentration upon rate of change of electrode potential for the strained cable-wire. Lead in all tests was 99.999% pure, at 7,000 cycles per min. (1) 1% HNO₃, (2) 5%, (3) 10%, (4) 20%, (5) 30%, (6) 40%, (7) 50%, (8) 60% (breaking after 57,000 cycles). Concentration HNO₃ (wt %): (1) 1 (breaking after 93,000 cycles); (2) 5 (dissolution within 130,000 cycles); (3) 10 (dissolution within 25,000 cycles); (4) 20 (dissolution within 54,000 cycles); (5) 30 (breaking after 49,000 cycles); (6) 40 (breaking after 57,000 cycles).

Curve 6 (for 40% acid) shows a positive potential during application of tensile force; the potential becomes negative and becomes positive on the actual separation of the terminal motion (acceptable passivation). The results of the studies show that with an increase in acid concentration,

Card 6/7

Corrosion of Strained Steel in Nitric
Acid

77649
SOV/80-33-2-24/52

10-55% the corroded fissures have the form of a stretched rhomb, at higher concentration (at the passive state of the metal) only one, not eroded, crack develops, due to localization of corrosion. There are 1 table; 6 figures; and 4 references, 3 Soviet, 1 U.K. The U.K. reference is: M. G. Fentana, Corrosion Technology, 4, 12, 423 (1957).

ASSOCIATION: Moscow I. V. Stalin Institute of Steel (Moskovskiy institut stali imeni I. V. Stalina)

SUBMITTED: April 30, 1959

Card 7/7

41116
S/121/62/000/010/003/005
DO40/D112

18.8310

AUTHORS: Titov, V.A., and Gomzyakova, S.I.

TITLE: The corrosion resistance of steel oxidized in steam

PERIODICAL: Stanki i instrument, no. 10, 1962, 35-38

TEXT: Experiments were made to find the optimum conditions for the ferrox process. Specimens of hot-rolled carbon steel were oxidized in a reactor by steam with a temperature of up to 700°C. The oxide films were subjected to metallographic, electrochemical and X-ray analysis. At steam temperatures of 400-700°C, the oxidation kinetics obeyed a parabolic law. There was an exponential dependence of the film depth on the temperature. Films formed at below 550-570°C consisted of Fe₃O₄ only; in those formed at a higher steam temperature the Fe₃O₄ was accompanied with FeO. The corrosion resistance of the treated steel depended on the temperature and time of treatment, and on the structure of the oxides. The following procedure is recommended for low-carbon and medium-carbon steel: preheating the re-

Card 1/2

The corrosion resistance of steel ...

S/121/62/000/010/003/005
D040/D112

actor to 360-380°C, charging the parts into the reactor and holding them for 5-8 min at this temperature; blowing superheated steam three times through the reactor; heating the reactor with the parts to 550°C; holding the parts at this temperature in steam (at 0.3-0.5 gage atmospheres) for 90 min; cooling the reactor with the parts down to 100-150°C without steam feed and without admission of air; additional corrosion protection of the parts by immersing them in oil. The oxide film obtained by this treatment was 7-8 μ deep and consisted of Fe₃O₄. It was black and had no pores. It is considered a dependable indoor and outdoor protective means for steel in a temperate climate. There are 4 figures. ✓

Card 2/2

L 04735-67 EWT(m)/ERP(v)/EWP(s)/EWP(k) IJP(c) JD/WW/IN/PA

ACC NR: AP6027013

SOURCE CODE: UR/0080/66/039/005/1200/1203

AUTHOR: Petukhov, G. G.; Titov, V. A.

ORG: none

47
B

TITLE: Use of organometallic compounds as flux activators for soldering printed mounting plates with low-melting solders

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 5, 1966, 1200-1203

TOPIC TAGS: radio engineering, solder, metal soldering, organometallic compound, organosilicon compound, organobismuth compound, organotin compound, organogermanium compound, polyester plastic

ABSTRACT: The possibility of improving fluxes for low-melting solders by incorporating activators into the natural or polyester resins used in radio technology was investigated. Stable organometallic compounds of metals found in the composition of the solders to be used were added to the flux. Organosilicon hydrides, e.g. triphenyl-, tricyclohexyl-, triethyl-, or ethyldipropylsilane, in combination with organic amines, act as activators for resin or polyester resins for soldering with solders melting at 80-150°. Activation is attributed to formation of a monomolecular layer of silicon on the metal surface to lower its surface

Card 1/2

UDC: 621.791.35

L. 0473-87

ACC NR: AP6027013

energy. Bismuth and antimony organic compounds also promote the flow of the solder, but there is a danger of contaminating the solder with finely dispersed metal due to their decomposition. Addition of organotin and organogermanium compounds, e.g. tetrabutyltin and tricyclohexylgermane, to the rosin fluxes causes intense beading of very low temperature solders, but these compounds can be used as activators of the fluxes when used with solders melting at 200-320°. Orig. art. has: 1 table and 2 figures.

SUB CODE: 07, 11, 13/ SUBM DATE: 12Jul65/ ORIG REF: 005/
OTH REF: 002

Card 2/2

eqh

L 00633-67 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) RDW/JD

ACC NR: AR6017810

SOURCE CODE: UR/0058/66/000/001/EO43/EO43

18
E

AUTHORS: Lange, V. N.; Lange, T. I.; Titov, V. A.; Chizhevskaya, S. H.

TITLE: Influence of slight indium impurities on the physicochemical properties of selenium

16

SOURCE: Ref. zh. Fizika, Abs. 1E328

REF SOURCE: Sb. Materialy dokl. 1-y Nauchno-tekhn. konferentsii Kishinevsk. politekhn. in-ta. Kishinev, 1965, 70

TOPIC TAGS: selenium, indium, thermal expansion, solid solution, crystal impurity, impurity center, physical chemistry property

ABSTRACT: To clarify the question whether the impurity atoms in Se are actually grouped together, measurements were made of the density, and coefficient of thermal expansion of alloys of the Se-In system, and also the viscosity of the corresponding melts. It is established that the variation of these properties with increasing In concentration is a complicated one. The data obtained, in the opinion of the authors, confirm the hypothesis that groups of In atoms are formed, and also indicate that the atoms (complexes) of In arrange themselves in chains made up of selenium atoms, and do not dispose themselves between them. [Translation of abstract]

SUB CODE: 20, 11

Card 1/1 pb

TITOV V. A.

ANIKEYEV, N.P., glavnyy red.; BISKE, S.F., red.; BOBYLEVSKIY, V.I., red.;
VAS'KOVSKIY, A.P., red.; VERESHCHAGIN, V.N., red.; DRABKIN, I.Ye.,
red.; YEVANGULOV, B.B., red.; YEFIMOVA, A.F., red.; ZIMKIN, A.V.,
red.; LARIN, N.I., red.; LIKHAREV, B.K., red.; MENNER, V.V., red.;
MIKHAYLOV, A.F., red.; NIKOLAYEV, A.A., red.; POPOV, G.G., red.;
POPOV, Yu.N., red.; SAKS, V.H., red.; SEMEYKIN, A.I., red.;
SIMAKOV, A.S., red.; TITOV, V.A., red.; SHILO, N.A., red.; EL'YANOV,
M.D., red.; YAKUSHEV, I.R., red.: V redaktirovani primami uchast-
tiye: ANDREYEVA, O.N., red.; BAYKOVSKAYA, T.N., red.; BOLKHOVITINA,
N.A., red.; BORSUK, M.O., red.; VASIL'YEV, I.V., red.; VASILEVSKAYA,
N.D., red.; VOYEVODOVA, Ye.M., red.; YEVSEYEV, K.P., red.; KIPARI-
SOVA, L.D., red.; KRASNYY, L.I., red.; KRISHTOFOVICH, L.V., red.;
KULIKOV, M.V., red.; LIBROVICH, L.S., red.; MARKOV, F.G., red.;
MODZALEVSKAYA, Ye.A., red.; NIKIFOROVA, O.I., red.; OBUT, A.M.,
red.; PCHELINTSEVA, G.T., red.; RZHONSNITSKAYA, M.A., red.; SEDOVA,
M.A., red.; STEPANOV, D.L., red.; TIMOFEYEV, B.V., red.; KHUDDOLEY,
K.M., red.; CHEMEKOV, Yu.F., red.; CHERNYSHEVA, N.Ye., red..
DERZHAVINA, N.G., red.izd-va; GYROVA, O.A., tekhn.red.

(Continued on next card)

ANIKEYEV, N.P.---(continued) Card 2.

[Decisions of the Interdepartmental Conference on the Unified Stratigraphic Columns of the Northeastern Part of the U.S.S.R.]
Reshenia Mezhdostvennogo soveshchaniia po razrabotke unifitsirovannykh stratigraficheskikh skhem dlia Severo-Vostoka SSSR, Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane neдр, 1959. 65 p. (MIRA 13:2)

1. Mezhdostvennoye soveshchaniye po razrabotke unifitsirovannykh stratigraficheskikh skhem dlia Severo-Vostoka SSSR, Magadan, 1957. (Soviet Far East--Geology, Stratigraphic)

TOMASHOV, N.D., professor, doktor; TITOV, V.A., kandidat tekhnicheskikh nauk.

Corrosion fatigue of metal. Sbor.Inst.stali no.32:331-345 '54.
(MLRA 10:5)

1.Kafedra korrozii.

(Steel--Corrosion)

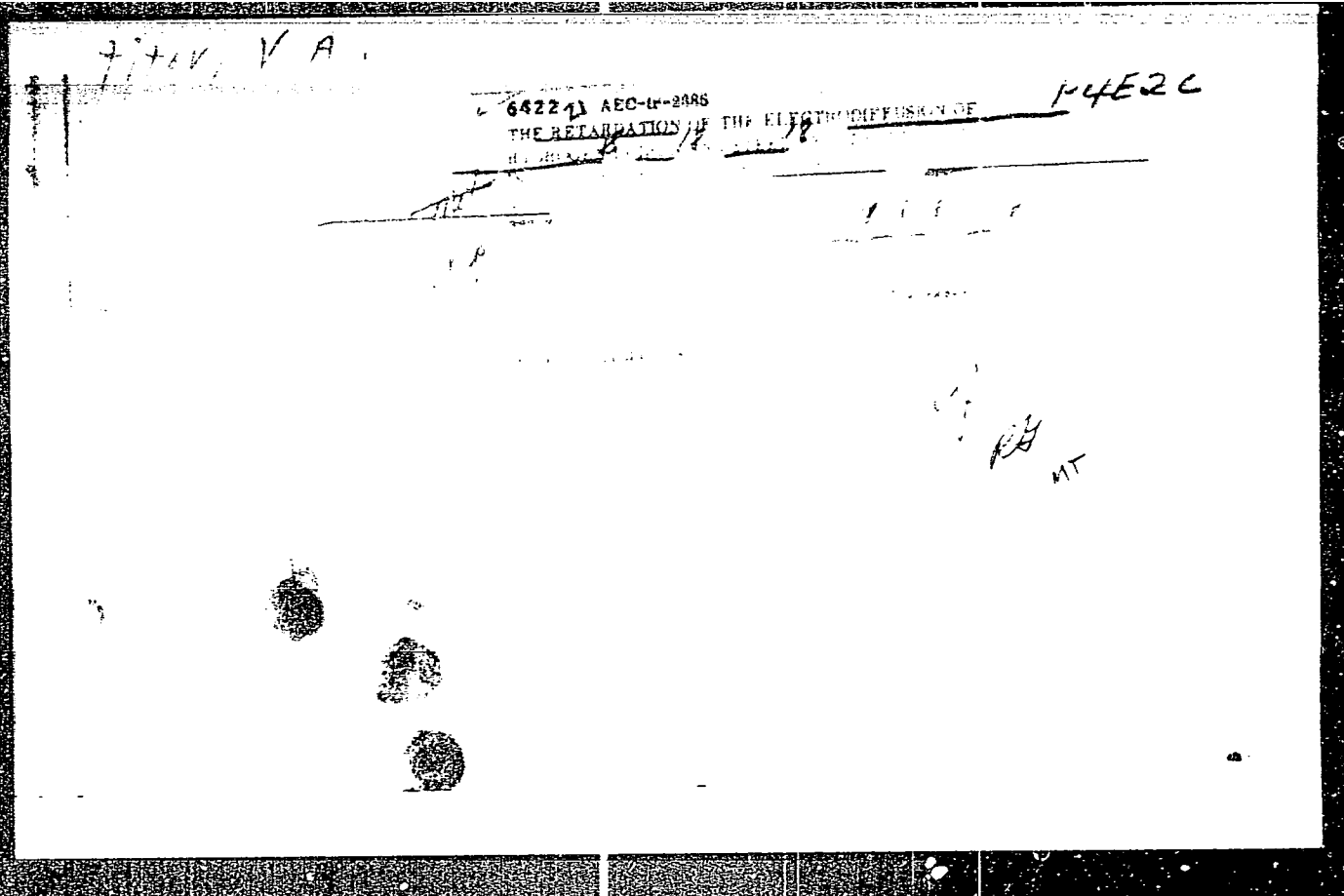
T. 724, V. A

Tests on a New Machine for Convulsion Fatigue Testing
with Was Test Pieces

3

X

111
100
101



SOV/80-32-5-45/52

5(2)

AUTHORS: Titov, V.A., Babkin, Yu.A., Balandin, I.M.

TITLE: The Corrosion of Metals in Thionylchloride

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1167-1169 (USSR)

ABSTRACT: Thionylchloride is the raw material for dyestuffs, moving picture films, pharmaceutical products, etc. With the moisture of the air SOCl_2 forms SO_2 and HCl . Its corrosion activity is not yet investigated. Experiments were made therefore under laboratory and industrial conditions. In the first case the pure substance was used, in the second case a mixture of 80% SOCl_2 , 2.7% dissolved gases and 17.3% chlorides. It has been shown that the resistance of copper and titanium is very low, being 11.5 mm/year and 6.8 mm/year, respectively. The corrosion of the steel of EI-461 and 1Kh18N9T grades was 0.01 and 0.02 mm/year, respectively. Both steels have also a high ductility, toughness and good welding properties. EI-461 is very expensive and can be used only for a small number of apparatus parts.

Card 1/2

The Corrosion of Metals in Thionylchloride

SOV/80-32-5-45/52

There are 2 graphs and 1 table.

ASSOCIATION: Moskovskiy institut stali (Moscow Institute of Steel)

SUBMITTED: May 30, 1958

Card 2/2

81790

S/032/60/026/07/22/055
B015/B054

18.8300
AUTHORS:

Titov, V. A., Agapov, G. I.

TITLE:

Measurements of Metal Potentials in Aggressive Media at High Temperatures

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 7, pp. 839-842

TEXT: The authors describe an instrument for measuring the potential of acidproof ^vtantalum ^vniobium alloys in sulfuric acid at temperatures up to 250°C. A calomel element is used as reference electrode. The instrument (Fig. 1) is made of heat-resistant "Pyrex" glass, and is, in principle, a cylinder cooled on top, in which the alloy is dipped as electrode into sulfuric acid. The polarizing current is supplied via a Pt electrode. The present experiments were carried out with a suitable arrangement (Fig. 2) containing the polarization scheme and a measuring scheme. The authors investigated alloys with 70.8% of Ta + 29.2% of Nb, as well as 21.6% of Ta + 78.4% of Nb. Potential measurements of the former alloy at different temperatures have shown (Fig. 3) that at 100°C the potential became gradually more positive due to the consolidation of the

Card 1/2

81790

Measurements of Metal Potentials in Aggressive Media at High Temperatures

S/032/60/026/07/22/055
B015/B054

passivating film, and at 250°C more negative, apparently because of dissolution of the alloy. After two hours, however, the potential is stabilized at both temperatures (at 100°C to +0.610 v, and at 250°C to +0.270 v). At relatively low temperatures, an oxide film is formed with a strong passivating effect whereas at 250°C the film contains, besides the oxides, also compounds of the types $Ta(SO_4)_5$ and $NbO(SO_4)_4$, whereby the film potential drops. In the latter alloy, a shift of the potential to more negative values (Fig. 4) was already observed at low current density. There are 4 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy institut stali im. I. V. Stalina (Moscow Steel Institute imeni I. V. Stalin)

Card 2/2

Titov, V.A.

82445

18.1200

S/149/60/000/004/009/009

AUTHORS: Babkin, Yu.A., Tomashov, N.D., Titov, V.A., Konstantinov, V.I.TITLE: Corrosion Resistance of Tantalum-Niobium Alloys in Sulfurous AcidPERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya,
1960, No. 4, pp. 153-156 ✓

TEXT: The authors investigated the corrosion resistance of tantalum-niobium alloys in sulfurous acid at various temperatures. The alloys were prepared of electrolytic powders by the metalloceramic method and subsequently rolled into sheets. Specimens were cut out of the unannealed sheets. The tests were performed with specimens of pure tantalum and niobium and their alloys with a Ta content of 21.6; 34; 48.9; 51.1; 67.3 and 70.8 atomic %. The amount of admixture in the alloys did not exceed 0.1%. Prior to the tests the specimens were polished, washed and degreased. Corrosion tests were performed at 20 and 60°C with flasks with ground stoppers. At 110 and 150°C the experiments were carried out with soldered glass ampoules placed in metal cylinders with screwed-on stoppers. To prevent the destruction of ampoules by internal pressure, the cylinders were filled with water whose vapors produced the necessary counter-pressure. The flasks and cylinders were kept in a thermostat for 20 hours. During the tests, measurements

Card 1/3

82445

8/149/60/000/004/009/009

Corrosion Resistance of Tantalum-Niobium Alloys in Sulfurous Acid

were taken of the corrosion rate (in $\text{g}/\text{m}^2 \text{ hr}$); proneness to crystallite corrosion; changes in the mechanical properties, and electrode potential. The irreversible electrode potential was measured every 5-10 minutes during 3-4 hours by the conventional potentiometric circuit. A calomel electrode served as a comparison electrode. The following results were obtained: Corrosion of pure niobium and niobium alloys with 21.6; 34 and 48.9 atomic % Ta was observed in 90% H_2SO_4 at 110°C . An increased Ta content made the alloys corrosion resistant in the same degree as pure Ta. Proneness to crystallite corrosion was not observed. During the corrosion process changes in the mechanical properties of niobium and the alloy with 21.6% Ta took place as a result of hydrogenization. In 90% H_2SO_4 at 60°C , niobium corrosion depended linearly on the holding time at a mean rate of $0.354 \text{ g}/\text{m}^2 \cdot \text{hour}$. The niobium alloy with 21.6% Ta corroded noticeably after 100 hrs. Maximum hydrogenization of niobium at 110°C was observed in 60% H_2SO_4 . Niobium and its alloy with 21.6% Ta corroded, depending on the temperature, according to the exponential equation

$$K = A e^{-\frac{Q}{RT}},$$

where A is the constant; Q is the activation energy of the process in cal/mole;

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82445

S/149/60/000/004/009/009

Corrosion Resistance of Tantalum-Niobium Alloys in Sulfurous Acid

R is the gas constant, and T is the temperature in K scale. The activation energy of niobium is 5440 cal/mole and 15,000 cal/mole for the alloy. It was established that Ta-Nb alloys, beginning with a Ta content of over 30%, were almost fully corrosion resistant in 90% H₂SO₄ at 110°C. This approaches the resistance of pure Ta. The alloys can be recommended to be used as structural and coating materials for equipment and structures operating under similar conditions. There are 4 graphs, 1 photo and 4 Soviet references. ✓

ASSOCIATION: Moskovskiy institut stal' (Moscow Steel Institute) Kafedra korrozii i zashchity metallov (Department of Corrosion and Protection of Metals)

SUBMITTED: August 20, 1959

Card 3/3

TITOV, V.A.

Corrosion of steel under stress in nitric acid. Zhur.prikl.
khim. 33 no.2:402-408 F '60. (MIRA 13:5)

1. Moskovskiy institut stali imeni I.V.Stalina.
(Steel--Corrosion) (Strains and stresses)

FREIMAN, L.I.; TITOV, V.A. (Moscow)

Diffusion of electrolytic hydrogen through iron plates, and the
mechanism of hydrogen overvoltage on iron. Zhur.fiz.khim. 34

no.1:23-26 Ja '60.

(MIRA 13:5)

(Hydrogen) (Overvoltage) (Iron)

36453

S/137/62/000/003/149/191

A052/A101

17.831

AUTHORS: Titov, V. A., Balandin, I. M., Tomashov, N. D.

TITLE: Investigation of the effectiveness of various methods of metal protection in sulfuric and phosphoric acid solutions at high temperatures

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 82, abstract 3I526 (V sb. "Korroziya i zashchita konstrukts. metallich. materialov". Moscow, Mashgiz, 1961, 200 - 214)

TEXT: An investigation was made into the effect of cathodic (As, Bi ions) and anodic (Cu, Ag, Au ions) inhibitors as well as of the electrical protection by anodic polarization by means of Ag-, Cu- and Au-platings and Ag- and Au-contact on the rate of corrosion of 1X18H9T (1Kh18N9T), X 232H28M3A3T (Kh232N28M3-D3T) steels and EI461 alloy in 10% H₂SO₄ and H₃PO₄ solutions at 250°C. An addition of cathodic inhibitors to the solutions of acids reduces considerably the rate of corrosion of the above-mentioned steels. Anodic inhibitors have a noticeable inhibiting effect on the corrosion of these steels, but as far as the EI461 alloy is concerned only Ag has a positive effect. Electrochemical protec-

Card 1/2

S/081/62/000/002/050/107
B156/B101

AUTHORS: Titov, V. A., Belousova, V. V.

TITLE: Corrosion of steel in contact with copper

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1962, 322-323, abstract 2I141 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz., 1961, 230-244)

TEXT: The corrosion rate (CR) of Cu in contact with grades 08 and 40 steel in various media (town water, diesel fuel, gasoline and avtol), also in a 3 % solution of NaCl, at $80 \pm 1^{\circ}\text{C}$ (except in the case of gasoline, for which the temperature was $25 \pm 1^{\circ}\text{C}$), is investigated. It is shown that, when the steel is in contact with Cu, its CR is 30 and 100 % higher, in town water and the 3 % solution of NaCl respectively, than when not in contact with Cu. Contact between Cu and steel in organic media does not increase the CR of the steel, since the media investigated were not electrically conductive. It is pointed out that, in organic media, Cu is less resistant than the steel to corrosion. Research conducted into the endurance of grade 40 steel in a 3 % solution of NaCl and in water, with micro- and macro-contact.

Card 1/2

Corrosion of steel in contact...

S/081/62/000/002/050/107
B156/B101

showed that the endurance of the steel is higher, by comparison, with micro-contact than with macro-contact. The ultimate mechanical fatigue strength of 1.0 mm dia. Cu-Fe clad wire is 22 kg/mm², while the specific corrosion fatigue figures in distilled water, town water, and a 3 % solution of NaCl are 21.0, 18.5 and 16.5 kg/mm² respectively. With macro-contacts, in water and a 3 % solution of NaCl steel has a higher CR than with micro-contact. [Abstracter's note: Complete translation.]

Card 2/2

L 43086-65 EWT(m)/EPA(w)-2/EVA(m)-2 Pab-10/Pt-7 IJP(c) GS
ACCESSION NR: AT5007913 S/0000/64/000/000/0058/0064

AUTHOR: Doynikov, N. I.; Monoszon, N. A.; Titov, V. A.; Shukeylo, I. A.; Komar, Ye. G. 271

TITLE: A high-energy accelerator with a supplementary control beam of particles

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 55-64

TOPIC TAGS: high energy accelerator, particle accelerator, particle beam

ABSTRACT: Data is presented to show the technical and economic feasibility of constructing a 1000-Gev proton accelerator with strong focusing, which accords with present experience in the development and operation of cyclotrons. The basic design parameters and tolerances permitted in this accelerator are discussed. An auxiliary beam would be employed to determine the inaccuracies of the magnets and the instability of the foundation, thus permitting the needed corrections to be made in the main orbit of particles. An auxiliary chamber of large cross-section would permit determination of the beam's position at various cross-sections and the

Card 1/3

L 43086-65
ACCESSION NR: AT5007913

accurate calculation of the height and radius of the magnets. Corrections similar to those signalled by the displacement of the axis of the auxiliary beam would be introduced during the operation of the machine when the foundation is unstable. The aperture of the main beam is expected to be 6 x 3 cm, close to that planned for the present machine. The aperture of the auxiliary beam is expected to be 2 x 1 cm. The instability of the machine is expected to be small, since the main magnet is only the geometric correction. The main problem in the case of very small displacements of the plates, if the control system having a feedback loop is used, the contact potential difference influences on the position of the plates. The stray fields of the plates and sections would have negligible effect on the main magnet. The stray fields of the plates in the electrostatic system is expected to be small. The stray fields of the plates (easily shielded (by permanent magnets in the base of the magnet) and of the auxiliary beam. The alternative of an optical auxiliary beam for alignment was not considered since the stray fields of the main electro-magnet, which is a general problem for all accelerators and not therefore considered in the present report. The stray fields' effect in the orbit of the auxiliary beam is small

Card 2/3

L 43086-65

ACCESSION NR: AT5007913

(one oersted) and reduced by a factor of 90-100 by normal shielding such as is used in Soviet linear accelerators. Orig. has 3 figures, 4 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury imeni D. V. Yefremova GKAE SSSR (Scientific Research Institute of Electrophysical Apparatus, GKAE SSSR)

SUBMITTED: 26May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 001

OTHER: 000

a.1
Card 3/3

TITOV, V. A.

L 43088-65 EWT(m)/ EPA(w)-2/EWA(a)-2 Pab-10/Pt-7 IJP(c) JT/GS 18
ACCESSION NR: AT5007918 S/0000/64/000/000/0197/0201

AUTHOR: Vladimirov, V. V.; Gol'din, L. L.; Koshkarov, D. G.; Tarasov, Ye. K.;
Yakovlev, B. M.; Gustov, G. K.; Komar, Ye. G.; Kulikov, V. V.; Malyshov, I. F.;
Monozon, H. A.; Popkovich, A. V.; Stolov, A. M.; Strol'tsov, N. S.; Titov, V. A.;
Vodop'yanov, F. A.; Kuz'min, A. A.; Kuz'min, V. F.; Mints, A. L.; Rubchinskiy,
S. M.; Uvarov, V. A.; Zhadanov, V. H.; Filaretov, S. G.; Shirayev, F. Z.

TITLE: 60-70 Gev Proton Synchrotron 19

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy.
Moscow, Atomizdat, 1964, 197-201

TOPIC TAGS: high energy accelerator, synchrotron

ABSTRACT: A 60-70 Gev proton synchrotron with strong focusing is being constructed
not far from Serpukhov, as has been reported earlier (e.g. "Research Institute for
Electro-Physical Equipment, Leningrad," in Proceedings of the International Confer-
ence on High Energy Accelerators and Instrumentation (CERN, 1959), p. 373). The
present report describes parameter changes and improvements in precision structural
characteristics of the accelerator, and the present state of construction in mid-
1963. The parameters of the magnet are presented in a table. A small change in
the original plans permitted an increase in the length of a part of the free
Cord. 1/4

L 43088-65

ACCESSION NR: AT5007918

sections, some of which are utilized for input and exit of beams. The super-period design is described. The lengthened sections were obtained as a consequence of shortening the focusing and defocusing blocks by 112 cm. The focusing properties of the magnetic channel were diminished consequently, but very little; and the limiting energy was lowered by 2-3 Gev. The construction of the magnet is described. Each of the magnetic blocks is divided lengthwise into 5 sub-blocks which are enveloped by the common winding. These sub-blocks consist of laminar two-millimeter silicon steel. These steel sheets were stamped out without subsequent mechanical working, and were subjected to sorting and intermixing in order to smooth out their magnetic characteristics. The sub-blocks are constricted by lateral welded plates without adhesion. Provision was made for windings on the poles in order to correct for pole nonlinearity and for variations in the drop reading. These windings make it possible to introduce artificial quadratic (square) nonlinearity that changes the dependence of the frequency of transverse oscillations during a pulse. In order to correct for straying of the residual field, provision has been made for windings on the yoke in series with the main winding. The sub-blocks must undergo calibration on a magnet stand in order to make correcting systems more precise and to determine the most convenient disposition of the sub-blocks along the ring. The winding of the electromagnet is made of aluminum busbars with hollow cores for cooling water. The length of the busbar is so selected that there would be no

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welded joints inside the coils. The winding consists of 4 sections, two of which are disposed on the upper pole and two on the lower. The most important characteristics of the electromagnet and power supply system are described in a table. Also described are the vacuum chamber and accelerating field (obtained by 53 paired resonators with ferrite rings, which operate at the 30-th harmonic of revolution and give accelerating potential of 350 kilovolts). The ring tunnel and the general arrangement of the accelerator are shown in figures and described. The building for the injector and portions of the ring tunnel from the injector to the experimental room have been completed in the main and are ready for installation of equipment. This room, in the form of a single-aisle building without internal supports, permits one to work on beams brought into the inner and outer sides. A 90-meter arch covers this room, whose overall length is 150 meters. Provisions have been made for a second experimental room at the southwest part of the ring. Orig. has 4 figures, 2 tables.

ASSOCIATION: Institute teoreticheskoy i eksperimental'noy fiziki GKAE SSSR (Institute of Theoretical and Experimental Physics, GKAE SSSR). (2) Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury imeni D. V. Yefremova GKAE SSSR (Scientific Research Institute of Electrophysical Apparatus, GKAE SSSR).

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2

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SUBMITTED: 26May64

ENCL: 00

SUB CODE: EE, NP

NO REF SOV: 002

OTHER: 001

am
Card 4/4

TITOV, V. A.

physic

~~SECRET~~

TITOV, V.A.

Scientific-Research Institute of Electro-Physical Apparatus imeni D.V. Yefremov, State Commission on Atomic Energy, USSR, Leningrad

(Source: Works of the International Conference on Accelerators, Dubna, 21-27 August 1963)

RAZUVAYEV, G.A.; PETUKHOV, G.G.; TITOV, V.A.; DRUZHKOVA, O.N.

Reaction of triphenylbismuth with benzene. Zhur. ob. khim.
35 no.3:481-484 Mr '65. (MIRA 18:4)

ACCESSION NR: AP3008209

S/0286/63/000/013/0055/0055

AUTHOR: Gershenson, G. S.; Zlatin, A. L.; Titov, V. A.

TITLE: Half-wave trigger. Class 42, No. 155649

SOURCE: Byulleten' izobreteniy i tovarny*kh znakov, no. 13, 1963,
55

TOPIC TAGS: half wave ac trigger, half wave trigger, ac trigger

ABSTRACT: An Author Certificate has been issued for a half-wave a-c trigger. To achieve a trigger circuit which would use a-c power in collector circuits, the trigger contains a transistor with a feedback inductance connected to its emitter circuit; a capacitor is connected between the emitter and the base. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 30May62

DATE ACQ: 21Oct63

ENCL: 00

SUB CODE: SD

NO REF SOV: 000

OTHER: 000

Card 1/1

VLADIMIROV, O.A.; TITOV, V.B.

Simple method of computing future tides for 24-hour periods,
Trudy GOIN no. 57:84-88 '60. (MIRA 14:1)
(Tides)

VLADIMIROV, O.A.; TITOV, V.B.

Calculation of cotidal maps with an interference account of
tidal waves. Trudy GOIN no.37:155-177 '59.

(MIRA 13:4)

(Barents Sea--Tides--Maps)

TITOV, V. B.

20-5-19/48

AUTHORS: Brodskiy, A. M. , Kalinenko, R. A. , Lavrovskiy, K. P. , Corresponding Member AN USSR, and Titov, V. B.

TITLE: Kinetic Laws in the High-Temperature Cracking of Ethane (0 kineticheskikh zakonomernostyakh vysokotemperaturnogo krekinga etana)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 5, pp. 789 - 792 (USSR)

ABSTRACT: In this paper the investigation of the total kinetics of this cracking between 800 and 900° is described. The increase of temperature and the corresponding rapid shortening of the reaction period from 0,5 to 0,005 seconds demand a special experimental method. The experiment was divided into 2 parts: 1.) the cracking itself and 2.) analysis of the products. In the case of the latter a chromatographical method worked out by the authors was used (reference 3), where this method failed because of the small quantity of the single gases (e.g. isobutane), the method of radioactive indicators was used. In addition to that, a small quantity of methane, marked with C¹⁴, was added to the initial ethane. Figure 1 gives the arrangement of the basic elements of the experimental device. During the experiments a "boiling layer" (reference 2) was produced in the reactor. After a quick cooling of the cracking products after the output from the boiling layer CO₂ of room temperature and in

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a weight relation of 3 : 12 to the reaction mixture was introduced into the reactor from above. The basic composition of the waste gas at 3 temperatures is given by table 1. The given reaction duration $t = \frac{V\varepsilon}{vF}$, V = the volume of the boiling layer, v = the

average linear velocity of the current with regard to temperature extension, ε = the share of the free volume, and F = the cross section of the reactor. The conservation equation (1) for ethane is transcribed in the following way which is easy for the graphic re-

$$y = \frac{[C_2H_6]_0 - [C_2H_6]}{[C_2H_6]_0} = 1 - kt \quad (2) \quad \text{Table 2 gives the dependence}$$

$y(t)$ for all 3 investigated temperatures. The value k was at 770° 0,54, 7 at 838°, and 31 at 890°. The precision of the k value is very high as it is shown by figure 2. In table 3 the dependence $\ln k$ on $\frac{1}{T}$ is given. This shows that the value $E = -\frac{d \ln k}{d \frac{1}{T}}$

does not remain constant with the increase of T and it results from 68 Cal obtained at lower temperatures to 82,0 ± 3 Cal. This proves on the one hand the alteration of the reaction mechanism, in which the share of the chain process obviously decreases (reference 5); on the other hand the found value is approximated to the value of the cracking energy of the C - C - binding in the ethane which was

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measured in the previous paper (reference 6). By means of the authors' method it was found that in the ethane cracking products in tenth % quantities divinyl, butylene, and only traces of isobutane, finally propylene and propane, a fact which was never defined exactly in the references. Figure 2 furthermore shows that the known self-inhibition effect is not expressed up to high degrees of transformation. This can be explained by the connection between the self-inhibition at lower temperature and the influence of the walls. There are 3 figures, 1 table, and 7 references, 4 of which are Slavic.

ASSOCIATION: Petroleum Institute AN USSR
(Institut nefti Akademii nauk SSSR)

SUBMITTED: May 25, 1957

AVAILABLE: Library of Congress

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5/17/01, 4-15
BRODSKIY, A.M.; KALINENKO, R.A.; LAVROVSKIY, K.P.; TITOV, V.B.

Kinetic Laws in the high-temperature cracking of ethan. Dokl. AN
SSSR 116 no.5:789-792 0 '57. (MIRA 11:2)

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(Ethane) (Distillation, Destructive)