KRIPYAKEVICH, P.I.; PROTASOV, V.S.; CHERKASHIN, Ye.Ye.

Crystalline structure of the $ZrFe_3$ compound. Zhur. neorg. khim. 10 no.1:288-290 Ja '65. (MIRA 18:11)

1. L'vovskiy gosudarstvennyy universitet imeni Franko.

L 27502-66 EWT(m)/T/EWP(t)/ETI IJP(c) JH/JD/GS

ACC NR: AT6012369 SOURCE CODE: UR/0000/65/000/000/0048/0055

AUTHORS: Kornilov, I. I. (Doctor of chemical sciences, Professor); Volkova, M. A.; Pylayeva, Ye. N.; Kripyakevich, P. I.; Markiv, V. Ya.

ORG: none

TITLE: Investigation of equilibrium diagrams of titanium-rich alloys of the system Ti--Al

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys): trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 48-55

TOPIC TAGS: titanium, aluminum, alloy phase diagram, titanium alloy, binary alloy, lattice parameter

ABSTRACT: The phase diagram of the binary system Ti-Al (containing up to 30% Al) was determined. The diagram was constructed on the basis of thermal, microstructural, dilatometrical, and x-ray analysis. In addition, the specific electrical resistance and hardness of the alloy specimens were determined. The investigation supplements earlier work of N. V. Grum-Grzhimaylo, I. I. Kornilov, Ye. N. Pylayeva, and M. A. Volkova, (Dokl. AN SSSR, 1961, 137, No. 3, 599). The experimental results are summarized in graphs and tables (see Fig. 1) and compared to earlier literature data. A rearrangement takes place in the alloys in the temperature region from 882 to 1250C. These temperatures correspond to a transition from a hexagonal close-packed structure

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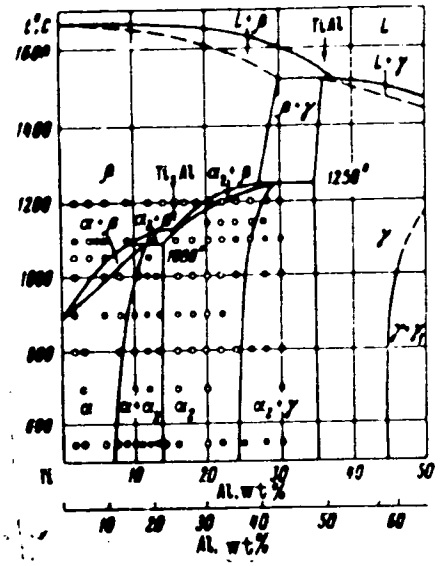

Fig. 1. Phase diagram of the system Ti--Al.

to a body-centered structure. The curves for the properties of alloys vs composition exhibit a minimum, the composition of which corresponds to the intermetallic compound Ti_3Al. The existence of the compound Ti_3Al was corroborated by x-ray analysis. The structure of Ti_3Al was found to resemble the Mg_3Cd structure. The lattice parameter

L 27502-66
ACC NR: AT6012369

of the system Ti-Al was determined as a function of the composition (see Fig. 2).

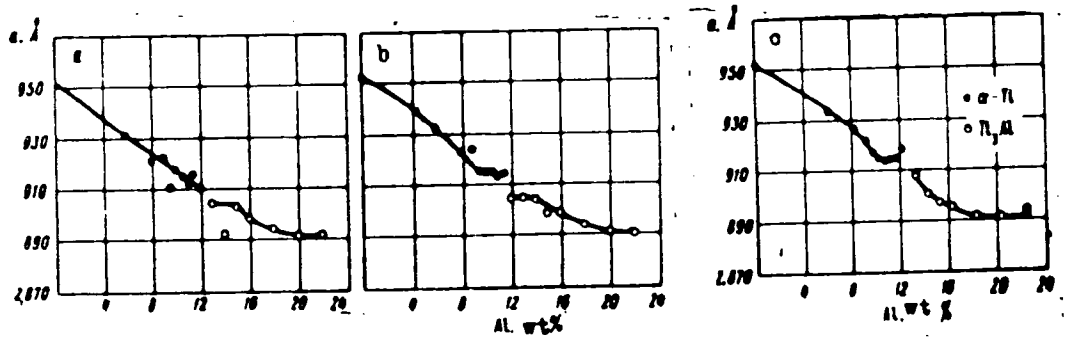

Fig. 2. Dependence of the lattice parameter of the alloy composition of the system Ti--Al annealed at 950C (a), 700C (b), and 550C (c).

Orig. art. has: 1 table and 6 figures.

SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 006/ OTH REF: 004

Card 3/3 BLG

L 44309-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG/JH

ACC NR: AP6019836 (N) SOURCE CODE: UR/0370/66/000/001/0153/0155

AUTHOR: Zarechnyuk, O. S. (L'vov); Frankevich, D. P. (L'vov); Kripyakevich, P. I. (L'vov)

ORG: none

TITLE: Radiographic investigation of the part of the Al-Be-Ce system in the 0-25% Ce region

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 153-155

TOPIC TAGS: phase analysis, x ray analysis, ternary alloy, aluminum base alloy, beryllium, cerium, intermetallic compound

ABSTRACT: Specimens of 34 ternary Al-Be-Ce alloys melted in corundum crucibles (helium atmosphere) within electric resistance furnaces and quenched from 600°C were subjected to x-ray phase analysis in the region of Ce concentrations of from 0 to 25 at.%. Findings: aside from Be itself only two binary compounds, $CeAl_4$ and $CeBe_{13}$ exist in an equilibrium with the Al-base solid solution. In the presence of 20 at.% Ce the ternary compound of variable composition $CeBe_{1.2\rightarrow1.4}Al_{2.8\rightarrow2.6}$ (D-phase) forms in the Al-Be-Ce system; this compound exists in an equilibrium with the binary compounds $CeBe_{13}$, $CeAl_4$ and $CeAl_2$ but it does not exist in an equilibrium with the Al-base solid solution. These findings make it possible to compare the Al corner of the Al-Be-Ce system with the corresponding parts of certain other Al-X-Ce systems, namely, systems with Cu, Mn and Si. Thus, ternary intermetallic compounds exist in all these systems but, by contrast with the systems Al-Cu-Ce, Al-Mn-Ce and Al-Si-Ce, the

UDC: 669.017.13

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L 44309-66

ACC NR: AP6019836

ternary compound ($CeBe_{1.2 \to 1.4}Al_{2.8 \to 2.6}$) forming in the Al-Be-Ce system does not exist in an equilibrium with the Al-base solid solution. On the other hand, the D-phase of the Al-Be-Ce system is isostructural with the T_2-phase of the Al-Cu-Ce system (Fig. 1). Orig. art. has:

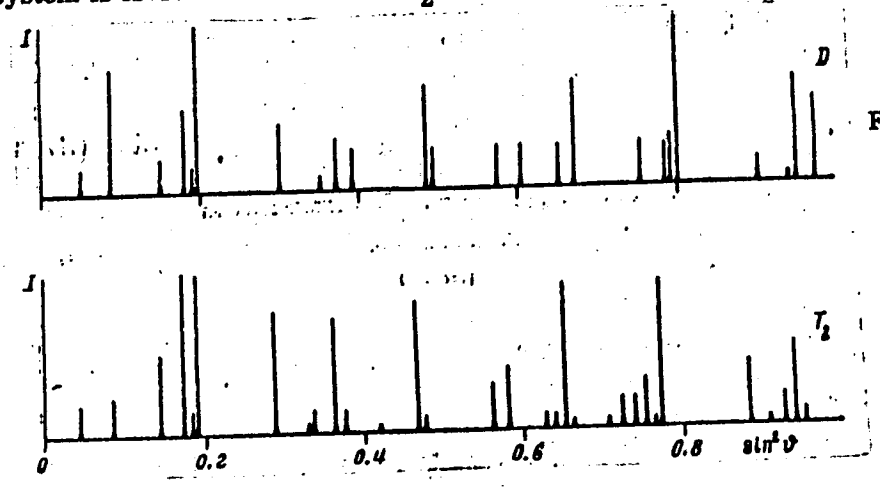

Fig. 1. Roentgenograms of the D-phase of Al-Be-Ce alloys and T_2-phase of Al-Cu-Ce alloys

2 figures.

SUB CODE: 20, 11, 13/ SUBM DATE: 13Mar65/ ORIG REF: 006/ OTH REF: 002

Card 2/2 ULR

L 46111-66 EWT(m)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6023925 SOURCE CODE: UR/0363/66/002/007/1317/1319

AUTHOR: Markiv, V. Ya.; Gladyshevskiy, Ye. I.; Kripyakevich, P. I.; Fedoruk, T. I.

ORG: L'vov State University im. Iv. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Titanium-nickel-silicon system

38
B

SOURCE: AN SSSR. Izv. Neorg materialy, v. 2, no. 7, 1966, 1317-1319

TOPIC TAGS: metal phase system, titanium, nickel, silicon, phase diagram

ABSTRACT: The study of the Ti-Ni-Si system was carried out as a part of a series of investigations concerned with phase equilibria and crystal structures of compounds in metal-metal-silicon systems. The binary systems comprising the ternary system were investigated in detail. The isothermal section of the Ti-Ni-Si system at 750°C was plotted (see Fig. 1). Six intermetallic compounds are formed in this system; three of them, $Ti_2Ni_3Si(\lambda_1)$, $Ti_6Ni_{16}Si_7(T)$ and TiNiSi(E), were confirmed, and three, $TiNiSi_2$, $Ti_{14}Ni_{49}Si_{37}$ and ~$Ti_{53}Ni_{37}Si_{10}$, were identified for the first time. The ternary compound $TiNiSi_2$ has a tetragonal structure with lattice constants a = 12.58 Å, c = 4.97 Å (possible space groups: D_{4h}^{17} = I4mmm; D_{2d}^{9} = I4m2; D_{2d}^{11} = I42m; C_{4v}^{9} = I4mm; D_4^9 = I422). The number of atoms per unit cell is 56. The compound $Ti_{14}Ni_{49}Si_{37}$, similar to the τ_3 phase of the Ti-Co-Si system, crystallizes in the hexagonal system. In the crystallochemical sense, the Ti-Ni-Si system resembles the Ti-Co-Si system. Orig.

Card 1/3 UDC: 546.821+546.74+546.28

ACC NR: AP6023925

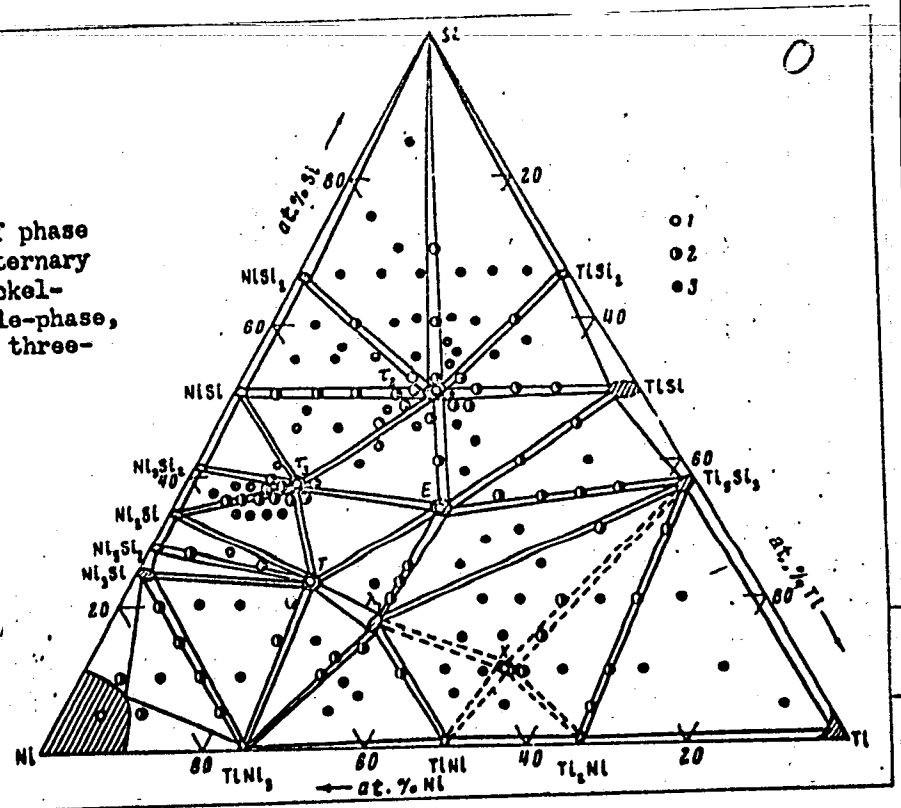

Fig. 1. Diagram of phase equilibria in the ternary system titanium-nickel-silicon: 1 - single-phase, 2 - two-phase, 3 - three-phase alloys

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L 46111-66

ACC NR: AP6023925

art. has: 1 figure.

SUB CODE: 07/ SUBM DATE: 060ct65/ ORIG REF: 016/ OTH REF: 007

Card 3/3

ACC NR: AP7007592 SOURCE CODE: UR/0070/66/011/005/0818/0821

AUTHOR: Kripyakevich, P. I.; Gladyshevskiy, Ye. I.
ORG: L'vov State University imeni I. Franko (L'vovskiy gosudarstvennyy universitet)
TITLE: Crystal structure of strontium disilicide
SOURCE: Kristallografiya, v. 11, no. 5, 1966, 818-821
TOPIC TAGS: silicide, strontium compound, crystal structure
SUB CODE: 20
ABSTRACT: The crystal structure of strontium disilicide belongs to a new structure type. In this structure the Si atoms form a three-dimensional framework, being bonded with one another into spiral chains which run parallel to the X, Y, Z axes along the screw axes 4_1 . Each Si atom belongs at the same time to three chains, as a result of which the chains are joined into the framework, and the coordination number for Si relative to Si equals 3. Each Si atom is surrounded by four Sr atoms at distances δ_1 and $\delta_{2,0}$ which either do not exceed or slightly exceed the sum of the atomic radii (3.32 A). The coordination polyhedron of the Si atom is in the form of an extended trigonal pyramid. The coordination number of the Sr atom equals 14, and the coordination polyhedron is "normal": i. e., consists only of triangles, configurations with 14 apexes. The author concludes that "The structure of $SrSi_2$ is heterodesmic, while the composition corresponds to the valences of the components; the charge of Sr^{2+} ions is balanced by the charge of a polyanion, consisting of Si atoms, each of which has one unpaired electron." Orig. art. has: 5 figures and 2 tables. [JPRS: 39,658]

Card 1/1 UDC: 548.736.3

ACC NR: AP7000013 (A) SOURCE CODE: UR/0080/66/039/011/2395/2400

AUTHOR: Makarenko, G. N.; Kripyakevich, P. I.; Kuz'ma, Yu. B.; Kosolapova, T. Ya.

ORG: Institute of Materials Science Problems, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR); L'vov State University imeni I. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Preparation of rare earth sesquicarbides

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 11, 1966, 2395-2400

TOPIC TAGS: lanthanum compound, cerium compound, praseodymium compound, neodymium compound, carbide

ABSTRACT: A study of the possibility and conditions of preparation of lanthanum, cerium, praseodymium and neodymium sesquicarbides via reduction of the metal oxides with carbon in a vacuum and in argon and reaction of the dicarbides with the corresponding oxides showed that the preparation of sesquicarbides is impossible under these conditions because their formation is superseded by the formation of the stabler dicarbides. It is shown that the four sesquicarbides can be formed by reacting dicarbides with the corresponding metals in argon, and also by arc melting of metal fragments with spectroscopically pure graphite. The existence of isostructural oxycarbides of lanthanum and praseodymium of the approximate composition LaCO and PrCO is postulated. Orig. art. has: 9 tables.

Card 1/2 UDC: 546.65.261

ACC NR: AP7000013

SUB CODE: 07/ SUBM DATE: 16Nov64/ ORIG REF: 001/ OTH REF: 003

Card 2/2

KRIVYAKEVICH, N. I.

"Productive Methods for the Control of the Shape of Cylindrical Objects." Cand Tech Sci, L'vov Polytechnic Inst, L'vov 1954. (Stanki i Instrument, No 11, 1954)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

KRIPYAKEVICH, R.I.

Faceting in cylindrical workpieces and a few methods for its prevention. Nauch. zap. IMA AN URSR. Ser. avton. i izm. tekh. 4:165-181 '55. (MLRA 10:8)
(Machine-shop practice) (Grinding and polishing)

KRIPYAKEVICH, R.I.

KARANDEYEV, K.B.; KRIPYAKEVICH, R.I.

Problems in controlling the shapes of cylindrical objects.
Nauch.zap. IMA AN URSR. Ser.avtom. i izm. tekh. 5:83-97 '55.
(MLRA 9:10)

(Machine-shop practice) (Measuring instruments)

MAKSIMOVICH, Georgiy Grigor'yevich, kand. tekhn. nauk; KRIPYAKEVICH, Roman Ivanovich, kand. tekhn. nauk; TUCHKOVA, L.K., inzh., ved. red.; SMIRNOVA, L.A., insh., red.; SOROKINA, T.M., tekhn. red.

[Automatic device for differentiated checking of threads]Avtomat dlia differentsirovannogo kontrolia rez'b. Moskva, Filial Vses. in-ta nauchn. i tekhn.informatsii, 1958. 12 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 21. M-58-208/11) (MIRA 16:2)
(Screw threads--Testing)

KRIPYAKEVICH, R. I.

21-1-8/26

AUTHORS: Karpenko, G.V., and Kripyakevich (Kryp'yakevych), R. I.

TITLE: On the Effect of Hydrogen on Strained Steel (O deystvii vodoroda na deformiruyemuyu stal')

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi RSR, 1958, # 1, pp 37-40 (USSR)

ABSTRACT: The authors carried out experiments for studying an effect of hydrogen in the deformation process of soft steel on its mechanical properties. A special accessory to the IM-12 research tensile machine made it possible to place a steel sample being stretched at a constant rate into an electrolyte and apply a cathode or anode potential to it.

Observations have shown that the samples of steel 3 did not lose their plasticity and did not change other mechanical properties on applying anode potential, although they became covered with thin films of oxides during the experiment. However, on applying cathode potential, the steel samples lost plasticity and broke along the planes of shift. Mechanical properties of the cathode-polarized samples altered considerably, in particular, indices of plasticity and real breakdown stress. The limit of durability and yield point remained practically unaltered independent of the type of electrolyte,

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anode material and density of current. Experiments have shown that the variation of mechanical properties of the cathode-polarized samples depended primarily upon the density of current and only insignificantly upon the anode material. Results of experiments have been compiled into a table, and the dependence of some properties on the current density is shown by the graphs in Figure 2 of the article. It is concluded that in the process of steel deformation, its saturation with hydrogen occurs along the shift lines during galvanization.

The article contains 1 photo, 1 graph, 1 table and 1 Russian reference.

ASSOCIATION: Institute of Machine Study and Automation (Instytut mashynoznavstva i avtomatyky AN URSR) of the Ukrainian Academy of Sciences

PRESENTED: By Academician of the Ukrainian Academy of Sciences Yu.K. Delimarskiy (Delimars'kyy)

SUBMITTED: 24 June 1957

AVAILABLE: Library of Congress

Card 2/2 1. Steel-Deformation-Physical factors 2. Steel-Test methods 3. Steel-Test results

KARPENKO, G.V. [Karpenko, H.V.] (L'vov); KRIPYAKEVICH, R.I. [Kryp'iakevych, R.I.] (L'vov)

Effect of the polarization of steel subjected to deformations on its mechanical properties. Prykl. mekh. 4 no.4:376-383 '58. (MIRA 11:12)

1. Institut mashinovedeniya i avtomatiki AN USSR.
(Steel--Testing)

AUTHORS: Karpenko, G. V., Kripyakevich, R. I. SOV/20-120-4-38/67

TITLE: The Influence of the Polarization of Steel on Its Mechanical Properties (Vliyaniye polyarizatsii stali na yeye mekhanicheskiye svoystva)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp. 827 - 829 (USSR)

ABSTRACT: The authors in various electrolytes investigated the influence of the polarization of steel on its mechanical properties. A special device in the tensile-testing machine IM - 12 made the disruption of steel samples in an electrolyte possible when these steel samples are anodically or cathodically polarized by external power supplies. Besides, the mechanical properties of steel can be determined in this manner during the process of polarization. The authors examined soft annealed steel-3 with a perlite-ferrite structure in order to be able to observe the decrease in plasticity. Aqueous solutions of sulfuric acid, sodium hydroxide, or NaCl served as electrolytes. The current density in polarization varied from 0 to $\pm$ 60 ampères/dm^2. The breaking test was carried out at a constant velocity of ex-

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tension of V = 2 mm/min, and the current was applied simultaneously with the starting up of the tensile-testing machine. The soft annealed steel-3 on the occasion of its stretching in air had a distinct flow surface, a considerable elongation, a lateral constriction, and even flow figures. The same phenomena were observed on the occasion of the stretching samples with the same velocity in an electrolyte without polarization by an external power supply and also in an electrolyte with anodic polarization of the stretched sample. A brittle destruction existed in cathodically polarized samples mainly along the planes of the maximum tangential tensions (along the flow figures). On the occasion of the cathodic polarization of the samples the indices of plasticity δ_{10} and ψ and the actual breaking tension decreased in a particularly high degree. Anodic polarization has no influence on the mechanical properties of steel. The phenomena in cathodic polarization are apparently due to hydroden occlusion (navodorazhivaniye) which makes the stretched steel samples brittle. There are 3 figures and 1 table.

The Influence of the Polarization of Steel on Its Mechanical Properties SOV/20-120-4-38/67

ASSOCIATION: Institut mashinovedeniye i avtomatiki Akademii nauk USSR (Institute of Mechanical Engineering and Automation AS UkrSSR)

PRESENTED: January 24, 1958, by P. A. Rebinder, Member, Academy of Sciences, USSR

SUBMITTED: January 23, 1958

1. Steel--Mechanical properties 2. Steel--Polarization
3. Polarization--Metallurgical effects

Card 3/3

25(6) PHASE I BOOK EXPLOITATION SOV/3218

Kryp'yakevych, Roman Ivanovych

Kontrol' formy tsylindrychnykh detaley (Inspection of Roundness of Cylindrical Machine Parts) Kyyiv, Vyd-vo AN URSR, 1959. 110 p. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrains'koyi RSR. Instytut mashynoznavstva i avtomatyky.

Ed.: K. B. Karandyeyev, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: I. V. Kisina; Tech. Ed.: M. I. Yefimova.

PURPOSE: This book is intended for technical and scientific personnel in machine and instrument manufacturing.

COVERAGE: Interchangeability and inspection of cylindrical machine parts, in particular, problems of checking deviations from correct geometric shape are discussed. Methods and instruments for

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manual and automatic checking of dimensions and shape of cylindrical parts are described. No personalities are mentioned. There are 80 references: 57 Soviet, 10 English, 7 German, 4 Czech, 1 French, and 1 Polish.

TABLE OF CONTENTS:

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VK/mmh
4-18-60

66895

SOV/126-8-1-13/25

18.8200

AUTHORS: Karpenko, G. V. and Kripyakevich, R. I.

TITLE: Effect of Hydrogen Diffusion, Occurring During Deformation, of Steel, on the Mechanical Properties of the Latter

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1, pp 90-94 (USSR)

ABSTRACT: A special attachment to the tensile testing machine IM-12 (Fig 1) enabled a steel specimen to be fractured in an electrolyte during application of a cathodic or anodic potential from an external source of current. This attachment also enabled the mechanical properties of the steel and the kinetics of the hydrogen diffusion to be determined when the elongated specimen was made the cathode, and it was possible to change the anode material as well as the composition of the electrolyte and the current density. Finally this attachment enabled steel specimens to be studied during their anode polarization. In order to be able to observe the decrease in plasticity the experiments were carried out with the soft annealed steel St.3 having a pearlite-ferrite structure. Specimens of 10 mm diameter and a working portion length of 100 mm, were washed with aviation benzene and desorbed with

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Effect of Hydrogen Diffusion, Occurring During Deformation of Steel, on the Mechanical Properties of the Latter

activated carbon prior to testing. Soft steel St.3, lead, copper and graphite were used as anode material. An aqueous 26% sulphuric acid solution (s.g. 1.18) and an 18% aqueous solution of caustic soda were used as the electrolytes. The current density changed due to polarization from 0-60 amps/dm^2. Tests were carried out at a constant rate of v = 2 mm/min. The current was switched on and the tensile testing machine was started simultaneously. The electrolyte was poured in immediately before the beginning of the test (an average of 4 min passed between the beginning of the electrolyte pouring and the beginning of the test). The entire test lasted from 10-15 min. The aim of the test was to determine the UTS (σ_{UTS}, kg/mm^2), the yield stress (σ_{yield}, kg/mm^2), the true stress during fracture (σ_{true}, kg/mm^2), percentage elongation ($\delta_{10\%}$) and the percentage reduction in area ($\psi\%$) of the steel during the polarization process. In Fig 2 the influence of polarization of steel St.3 on the nature of the stress-strain curves is shown: a - in

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Effect of Hydrogen Diffusion, Occurring During Deformation on Steel, on the Mechanical Properties of the Latter

air, б - during anodic polarization, в, г, д - during cathodic polarization. The anode material was iron. Fig 3 shows specimens of steel St.3 fractured under various conditions: а - in air, б - during anodic polarization and В - during cathodic polarization. In Fig 4 the dependence of ψ on current density is shown: а - copper anode, acid electrolyte; b - lead anode, acid electrolyte; В - iron anode, acid electrolyte; г - graphite anode, acid electrolyte and д - lead anode, alkaline electrolyte. The table on p 92 gives mechanical properties of steel St.3 as determined by tests carried out in air and in an electrolyte at the optimum current density at which the greatest changes in mechanical properties of the steel were observed. The authors arrive at the following conclusions: 1) The influence of hydrogen on soft steel during its deformation by straining consists in decreasing the plasticity, ψ and б, and the true stress on fracturing, σ_{true}. The UTS and yield stress do not change.

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66895
SOV/126-8-1-13/25

Effect of Hydrogen Diffusion, Occurring During Deformation on Steel, on the Mechanical Properties of the Latter

2) The effect of the influence of hydrogen on the above mechanical properties of steel depends on the current density, and it becomes evident at certain optimum current density values.
3) The fracture of cathodically polarized specimens during elongation is brittle in nature and occurs essentially along planes of maximum tangential stresses (along slip lines).
There are 4 figures, 1 table and 4 references, 3 of which are Soviet and 1 French.

ASSOCIATION: Institut mashinovedeniya i avtomatiki AN UkrSSR (Institute of Machine Construction and Automation, Ac.Sc., UkrSSR)

SUBMITTED: June 13, 1957

Card 4/4

KARPENKO, Georgiy Vladimirovich [Karpenko, H.V.]; KRIP'YAKEVICH, R.I., kand.tekhn.nauk, otv.red.; KISINA, I.V., red.izd-va; KADASHEVICH, O.O., tekhn.red.

[Effect of hydrogen on the mechanical properties of steel] Vplyv vodniu na mekhanichni vlastyvosti stali. Kyiv, Vyd-vo Akad.nauk URSR, 1960. 69 p. (MIRA 14:3)
(Steel--Hydrogen content)

S/137/61/000/001/031/043
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, p. 34, # 1Zh256

AUTHOR: Kripyakevich, R.I.

TITLE: About the Influence of Hydrogenization Time on the Effect of Embrittlement in Deformed Steel

PERIODICAL: "Nauchn. zap. In-ta mashinoved. i avtomat. AN USSR, 1960, No. 7, pp. 70 - 74

TEXT: The author investigated changes in the intensity of hydrogen embrittlement depending on the hydrogenization time during expansion of annealed "20" grade steel specimens which were electrolytically hydrogenized during the deformation process. Deformation was carried out on a ИМ-12 (IM-12) machine with an additional reductor producing the following speed series: 0.025; 0.1; 0.8; 2; 16 and 105 mm/min. The dependences of the mechanical properties of "20" grade steel on the deformation speed were recorded during tests in air and during hydrogenization. The hydrogen embrittlement was indicated by the value of a relative

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S/137/61/000/001/031/043
A006/A001

About the Influence of Hydrogenization Time on the Effect of Embrittlement in Deformed Steel

decrease in ductility. It was established that reduced electrolytical hydrogenization time, by increasing the deformation speed, entailed a reduced effect of hydrogen embrittlement. The intensity of the hydrogen embrittlement process decreases proportionally to the logarithm of hydrogenization time. Hydrogenization of the specimen without its deformation does not cause any noticeable hydrogen embrittlement.

I. K.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

KARPENKO, G.V., otv. red.; LEONOV, M.Ya., doktor fiz.-mat. nauk, zam. otv. red.; KRIPYAKEVICH, R.I., kand. tekhn. nauk, red.; MAKSIMOVICH, G.G., kand. tekhn. nauk, red.; PANASYUK, V.V., kand. fiz.-mat. nauk, red.; PODSTRIGACH, Ya.S., kand. fiz.-mat. nauk, red.; STEPURENKO, V.T., kand. tekhn. nauk, red.; TYNNYY, A.A., kand. tekhn. nauk, red.; CHAYEVSKIY, M.I., kand. tekhn. nauk, red.; YAREMA, S.Ya., kand. tekhn. nauk, red.; REMENNIK, T.K., red. izd-va; LISOVETS, A.M., tekhn. red.

[Machines and devices for testing metals] Mashiny i pribory dlia ispytanii metallov. Kiev, Izd-vo Akad.nauk USSR, 1961. 132 p. (MIRA 15:2)

1. Akademiya nauk URSR, Kiev. Instytut mashinoznavstva i avtomatyky. 2. Chlen-korrespondent Akad. nauk USSR(for Karpenko).
(Testing machines)

S/723/61/000/001/001/005

AUTHORS: Karpenko, G. V., Kripyakevich, R. I.

TITLE: Modern concepts on the effect of H on the properties of steel.

SOURCE: Vliyaniye rabochikh sred na svoystva stali. vyp. 1: Sredy, vyzyvayushchiye navodorozhivaniye stali. In-t mash. i avtom. AN UkrSSR. Kiyev, Izd-vo AN UkrSSR, 1961, 5-21.

TEXT: The paper sets forth the extant basic theories on the effect of H on the properties of a steel, together with a critique and a presentation of the authors' concepts on this problem. The existing theories of hydrogen-embrittlement can be divided into 3 groups, each of which has a number of ramifications: (1) The H-molecular pressure theory, including (a) the theory of the areal pressure, (b) the diffusion theory, (c) the energetic theory, (d) the theory of reversible and irreversible brittlers. (2) the adsorption theories; (3) the theory of the maximal triaxial stresses. The first concepts are discussed in the light of the Zapffe-Sims theory, the Cottrell-Garrett concepts, the Bastien-Azou concepts, the DeKazinczy theory, the Soviet Moroz-Mingin views, and others. The critique of the pressure theory follows 2 lines: On the one hand, the position taken by the originators of that theory disregards the effect of diffusion processes on the mechanism of H-embrittlement and ... attribute it strictly to the ...

...directly to the pressure in the collectors. On the other hand, it can be

Modern concepts on the effect of H on the S/723/61/000/001/001/005

reasoned that, according to the combined pressure and diffusion theories, the pressure of the molecular H in the collectors must evoke, firstly, a decrease in tensile strength and, secondly, a decrease in plasticity of the steel. By vector analysis it

[illegible], 3 French, 1 German)
Card 2/2

S/723/61/000/001/002/005

AUTHOR. Kripyakevich, R. I.

TITLE. On the effect of the state of the crystalline lattice of a steel on the effect of H-embrittlement.

SOURCE: Vliyaniye rabochikh sred na svoystva stali. vyp. 1: Sredy, vyzyvayushchiye navodorozhivaniye stali. In-t mash. i avtom. AN UkrSSR. Kiyev, Izd-vo AN UkrSSR, 1961, 22-26.

Kiyev, Izd-vo AN UkrSSR, 1961, 22-26.

TEXT: The paper describes the results of an experimental investigation which shows that the reduction in plasticity as a result of the electrolytic hydrogenation of a steel depends on the state of the crystalline lattice during the process. A deformation process intensifies the reduction of plasticity to a more significant extent than elastic or plastic deformation on an immobile lattice. This effect is attributed to the diffusional permeability of the crystalline lattice of the steel in which elastic-plastic deformations appear and are developed, together with opening of microfissures etc. The objective of the investigation was to determine which of the three phenomena exerts a decisive effect on the enhancement of H-embrittlement: (1) Residual strains; (2) elastic lattice deformation; (3) the process of plastic deformation of the specimen. A special equipment designed to clarify this question is

[redacted] tion of the specimen. A special equipment designed to clarify this question is

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On the effect of the state of the crystalline ... S/723/61/000/001/002/005

described and depicted, together with the curves showing the dependence of the relative necking, ψ, on the degree of strain, ε, during hydrogenation, including plastic strain, and plastic and elastic strain, and the dependence of the elongation, δ_{10}.

strain, and plastic and elastic strain, and the dependence of the elongation, δ_{10}, on the degree of strain, ε, during hydrogenation. The resulting curves justify the following conclusions: (1) H-embrittlement of steels upon electrolytic hydrogenation appears to be maximal when it occurs simultaneously with a plastic tensile strain. Immobile deformations of the lattice (elastic and plastic strains) exert some reinforcing effect on the diffusional permeability of the steel and the effect of H-embrittlement, but this reinforcement is small in comparison with the effect observed during slip, even if the strain occurred at lower values of ε than the preceding established elastic and plastic strain; (2) the effect indicated here increases with an increase of the degree of tensile strain, ε. For steel 20 it attains a maximum at $\varepsilon \approx 7.5\%$ under the above-stated conditions. At higher values the effect is less appreciable because of the prevalence of a more significantly developed concentrated strain; (3) the test results confirm the author's concepts on the mechanism

[redacted]

Abstract [redacted]. There are 3 figures and 3 Russian-language Soviet references.

Card 2/2

[redacted]

S/723/61/000/001/005/005

AUTHORS: Karpenko, G. V., Babey, Yu. I., Kripyakevich, R. I.

TITLE: On hydrogen fatigue of steel under cathodic protection.

SOURCE: Vliyaniye rabochikh sred na svoystva stali. vyp. 1: Sredy, vyzyvayushchiye navodorozhivaniye stali. In-t mash. i avtom., AN UkrSSR, Kiyev, Izd-vo AN UkrSSR, 1961, 59-64.

TEXT: An experimental investigation has shown that under cathodic protection of cyclically stressed steel parts their endurance is impaired because of the action of electrolytically penetrated H (the "H fatigue of steel"). It is established that this

They were made of steel 45 (0.45% C, 0.62% Mn, 0.34% Si, 0.035% S, 0.02% P,

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On hydrogen fatigue of steel under cathodic S/723/61/000/001/005/005

0.03% Ni, 0.05% Cr, σ_b = 70 kg/mm^2, H_B = 207). The corrosive medium tested was a 3% solution of NaCl in faucet water, which, to a degree, simulates sea water. The specimen served as the cathode, and a Pt anode was employed. The electrolyte was

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S/021/61/000/003/009/013
D274/D301

AUTHORS: Kryp'yakevych, R.I., Babey, Yu.I. and Karpenko, G.V.

TITLE: On the role of hydrogen in corrosion fatigue-failure of steel

PERIODICAL: Akademiya nauk UkrSSR. Dopovidi, no. 3, 1961, 325-327

TEXT: An experimental study of corrosion fatigue is described. The experiments showed that the reduction in fatigue strength can be related exclusively to the cathode process and the absorption and diffusion of hydrogen involved. The specimens were made of steel 45 and had a diameter of 20 mm. The corrosive substance was a 3% NaCl-solution in water (similar to sea-water), which was introduced through tube 1, separator 2, and tube 3 of Fig. 1. The anode was platinum wire 4, the cathode - the specimen. The current density varied between 0.007 to 6.2 amp/dm^2. It is noted that conditions of flow of the electrolyte have a considerable effect on

On the role of hydrogen...

the cathode process and on the hydrogenization. A figure shows the dependence of the conditional corrosion-endurance limit σ_{-1}^{N} on the current density D_c. The experiment led to the following conclusions: 1) The increase (within certain limits) of the current density with cathode polarization, leads to a decrease in the intensity of the anode process, as a result of which the endurance limit σ_{-1}^{N} increases. 2) With optimum current-density (under the given conditions, $D_c \approx 0.15$ amp/dm^2), the anode process ceases altogether; σ_{-1}^{N} reaches its maximum value, which is by 10% lower than the endurance limit in air σ_{-1}. This can be explained by the presence of the cathode process, and by adsorption and diffusion effect. 3) An increase in the current density above the optimum value, leads to an intensification of the cathode process and to a decrease in σ_{-1}^{N}. 4) Cathodic protection cannot, even with optimum choice of current density, completely reestablish the fatigue-limits of the metal. The character of the fatigue-curves in the cathode process shows that this process develops with time, leading

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On the role of hydrogen...

to a further decrease in metal endurance. This has to be taken into account in calculating endurance of parts which are subject to sign-changing loading and to corrosion. There are 3 figures and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Instytut mashynoznavstva ta avtomatyky AN USSR (Institute of the Science of Machines and Automation AS UkrSSR)

PRESENTED: by Academician Yu.K. Delimars'kyy AS UkrSSR

SUBMITTED: July 19, 1960

Card 3/4

KRIPYAKEVICH, R. I.

PHASE I BOOK EXPLOITATION SOV/6170

Karpenko, Georgiy Vladimirovich, and Roman Ivanovich Kripyakevich

Vliyaniye vodoroda na svoystva stali (The Effect of Hydrogen on Steel Properties). Moscow, Metallurgizdat, 1962. 195 p. 4250 copies printed.

Ed. of Publishing House: Ye. N. Berlin; Tech. Ed.: L. V. Dobuzhinskaya.

PURPOSE: This book is intended for scientific and engineering personnel in metallurgy and other branches of industry, engaged in the investigation of the strength and ductility of steel, and also of its electrical and magnetic properties, in connection with possible penetration of hydrogen into steel.

COVERAGE: The book reviews changes in steel properties caused by hydrogen absorbed during electrochemical processes or from gaseous media under conditions of high temperature and pressure. The following topics are discussed: the place and form of occurrence of

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The Effect of Hydrogen on Steel Properties SOV/6170

hydrogen in steel, present ideas on the role of hydrogen in the change of mechanical characteristics of steel under short- and long-time static or repeated load, the effect of hydrogen on some electrical, magnetic, and electrochemical properties of steel, the role of hydrogen in the process of steel fracture, and modern theories of hydrogen embrittlement. No personalities are mentioned. There are 282 references, Soviet and non-Soviet.

TABLE OF CONTENTS:

Card 2/62

S/676/62/009/000/006/010
A006/A101

AUTHORS: Kripyakevich, R. I., Babey, Yu. I., Karpenko, O. V.

TITLE: On the possible appearance of hydrogen brittleness in steel during its deformation in neutral corrosion media

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut mashynoznavstva i avtomatyky, L'viv. Nauchnyye zapiski. Seriya mashinovedeniya. v. 9, 1962, Voprosy mashinovedeniya i prochnosti v mashinostroyenii, no. 8, 47 - 50

TEXT: The decrease of mechanical properties of steel parts under the effect of neutral electrolytes, accompanied by polarization, might be caused by hydrogen. The singling out of hydrogen ions can take place at a sufficient current density of cathode polarization from an external voltage source, or at a sufficient difference of potentials between the micro-electrode sections of the metal surface. Both cases were studied and the nature of metal deformation in the process of hydrogenization was determined. The following 3 cases were investigated: 1) cyclic bending below the yield limit; 2) uni-axial tension be-

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yond the yield limit; 3) alternating bending beyond the yield limits. The corrosion medium was a 3%-solution of sodium chloride; current density was 0.07 - 15 amp/dm^2; the specimens were made of pre-eutectoid steel. An analysis of the results obtained leads to the following conclusions. In all types of deformation, polarization from the external power source causes a decrease in the mechanical properties. For case 2 and 3 the neutral corrosion medium reduces these indices even without polarization from the external source. The dependence curves of mechanical characteristics show, for all the cases, a maximum in the range of lower current densities. An increase in the current density toward both the anode and cathode reduces the indices of mechanical characteristics, which is explained for the former case by intensified anodic processes and for the latter case by hydrogenization of the metal, entailing hydrogen fatigue and brittleness. The inclination of the curves indicates the predominance of either the anodic or cathodic process, or their equilibrium. As the deformation intensity increases from the first to the third case, the maximum is shifted from the anode to the cathode. This indicates an increasing difference of potentials between the micro-anodic and micro-cathodic sections of the steel surface. As a result, in the third case conditions are developed for the hydrogenization of

On the possible appearance of...

S/676/62/009/000/006/010
A006/A101

the steel over the micro-cathodic sections, even without polarization. To eliminate the cathodic process it is necessary to produce anodic polarization of 0.07 amp/dm^2 current density, which prevents hydrogenization. There is 1 figure.

SUBMITTED: February 7, 1961

Card 3/3

S/020/62/145/001/017/018
B145/B101

AUTHORS: Karpenko, G. V., Babey, Yu. I., and Kripyakevich, R. I.

TITLE: Hydrogen fatigue of steel

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 1, 1962, 144 - 146

TEXT: The fatigue of cyclically stressed steel 45 in 3 % NaCl solutions, during cathodic polarization and anodic polarization and in air, was investigated in order to determine the optimum conditions for cathodic protection and the corrosion resistance of the metal. The cyclic stress was applied by an UMA-30 (IMA-30) machine, ($20 \cdot 10^6$ cycles in the corrosive medium and $10 \cdot 10^6$ cycles in air), the electrolyte being well mixed. The density of the polarization current varied between 0.007 and 6.2 a/dm^2. An endurance limit of cathodic protection (the stress at which destruction does not set in when either the time or the cycles of stress are increased) was not observed. The conventional endurance limit, σ^N_{-1}, decreased with time over the whole region of current density. The function $\sigma^N_{-1} = f(D_c)$,

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Hydrogen fatigue of steel

or $\sigma_{-1}^{N} = f(D_a)$ (where D_c = cathodic current density, D_a = anodid current density) showed that the intensity of the anodic process leading to corrosion fatigue decreases as D_c increases, but the intensity of the cathodic process increases steadily. This causes an increase of σ_{-1}^{N} to a maximum of 0.15 a/dm^2 which is 10 % below the corresponding value from the experiment in air. Further increase of D_c (intensification of the cathodic process and of hydrogen fatigue) and application of an anodic potential causes a decrease in σ_{-1}^{N}. There are 3 figures.

ASSOCIATION: Institut mashinovedeniya i avtomatiki Akademii nauk USSR (Institute of the Science of Machines and Automation of the Academy of Sciences UkrSSR)

PRESENTED: February 6, 1962, by P. A. Rebinder, Academician

SUBMITTED: July 8, 1961

Card 2/2

KARPENKO, Georgiy Vladimirovich. Prinimal uchastiye KRIPYAKEVICH, R.I.; LIKHTMAN, V.I., doktor fiz.-matem. nauk, prof., retsenzent; FURER, P.Ya., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Steel resistance in a corrosive medium] Prochnost' stali v korrozionnoy srede. Moskva, Mashgiz, 1963. 185 p. (MIRA 16:7)

(Steel--Corrosion)

KRIVYAKEVICH, R.I.

Hydrogen brittleness of steel. Vlijan. rab. sred na svois. mat. no.2:152-158 '63. (MIRA 17:10)

SLABKOVSKIY, I.S.; KRIPYAKEVICH, R.I.

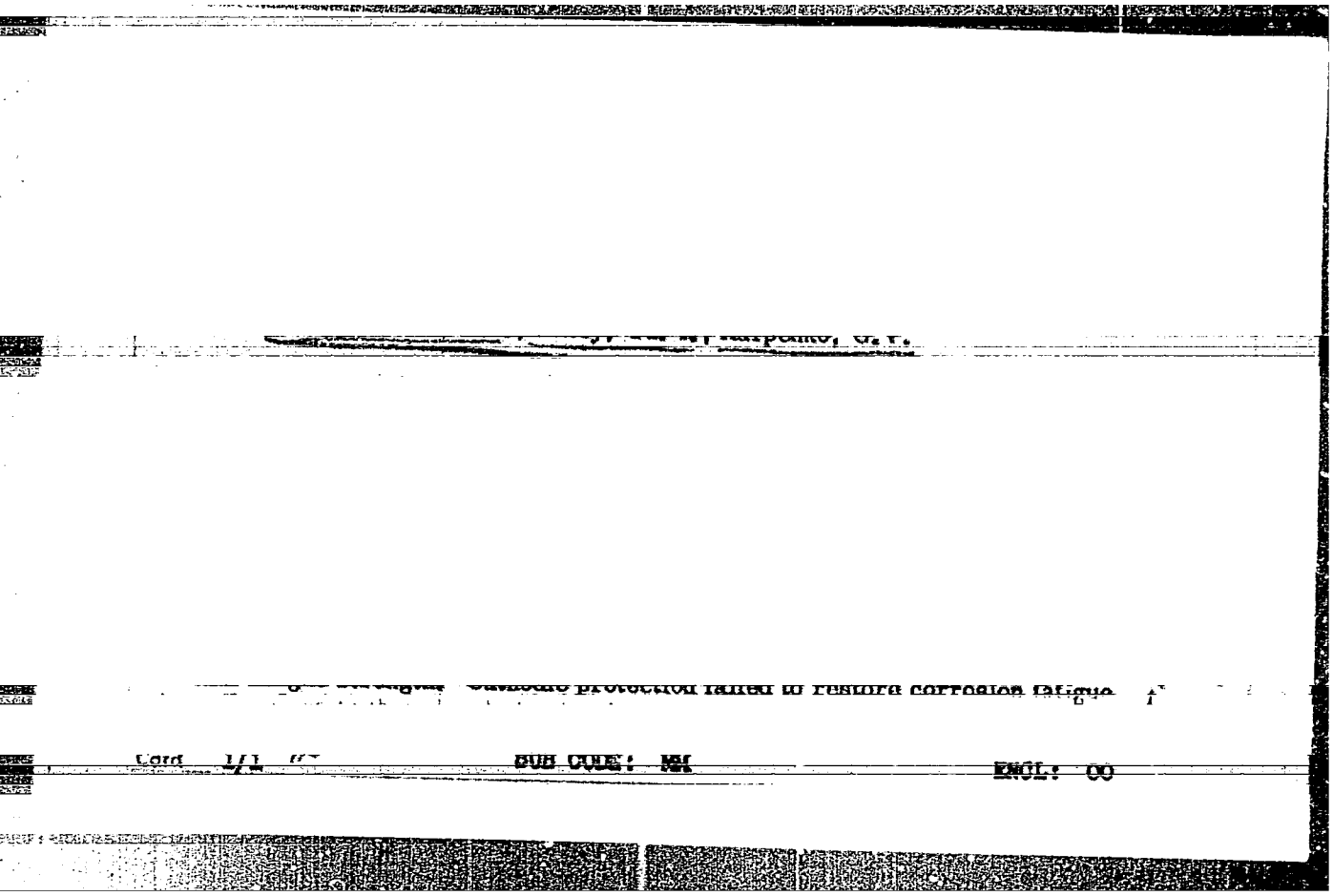
Form of the hydrogen state in α-iron. Vliian. rab. sred na svois.mat. no.3:19-22 '64. (MIRA 17:10)

KRIPYAKEVICH, R.I.; BABEY, Yu.I.; LITVIN, A.K.; KACHMAR, B.F.

Effect of cyclic elastic-plastic deformation of steel on its tendency toward brittle failure in neutral electrolytes. Vliian. rab. sred na svois. mat. no.3:23-27 '64. (MIRA 17:10)

KACHMAR, B.F.; KRIPYAKEVICH, R.I.; LITVIN, A.K.

Equipment for the investigation of metal penetrability by hydrogen at high temperatures. Vliian. rab. sred na svoiis. mat. no.3:35-39 '64.
(MIRA 17:10)



L 14437-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) MJW/JD

ACC NR: AP6002117 (N) SOURCE CODE: UR/0369/65/001/006/0688/0693

AUTHOR: Tkachev, V.I.; Kripyakevich, R.I.

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: On the role of hydrogen in the processes of steel failure in neutral corrosive media

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 6, 1965, 688-693

TOPIC TAGS: hydrogen embrittlement, carbon steel, cathode polarization, mechanical fatigue, corrosion, sodium chloride

ABSTRACT: Low-cycle plastic fatigue (alternating deformation above the yield point) was studied on 08 KP steel (0.09% C, 0.37% Mn, 0.019% Si, traces of P and S) in order to determine low degrees of hydrogen absorption taking place in neutral electrolytes (3% NaCl solution). The specimens were subjected to bend tests beyond the elastic limits (plastic fatigue) at a frequency of 0.8 cps on an IMA IP-1 machine. A platinum spiral served as the anode during polarization. From the test results, "polarization curves," i.e., graphs of plastic fatigue (number of cycles up to failure) versus density of the cathodic polarization current were plotted. The curves obtained for the action of

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L 14437-66

ACC NR: AP6002117

neutral and acid electrolytes in the presence of cathodic polarization were qualitatively similar, which constitutes an indirect confirmation of the hydrogen embrittlement of the metal in neutral electrolytes in the presence of plastic fatigue. The decrease in plastic fatigue under the influence of hydrogen at relatively low cathodic current densities is reinforced by the presence of stress concentrators produced by selective corrosion. Orig. art. has: 3 figures.

SUB CODE: 11 / SUBM DATE: 11Jun65 / ORIG REF: 013 / OTH REF: 007

Card 2/2

L 14415-66 EWP(z)/EWT(m)/EWP(b)/T/EWA(d)/EWP(w)/EWI(t) MJW/JD/WB
ACC NR: AP6002126 (N) SOURCE CODE: UR/0369/65/001/006/0732/0733

AUTHOR: Tkachev, V. I.; Kripyakevich, R. I.; Kuslitskiy, A. B.; Kreymerman, G. I.

ORG: Physicomechanical Institute AN UkrSSR, L'vov (Fiziko-mekhanicheskiy institut AN UkrSSR)

TITLE: Effect of the purity of steel and corrosion medium on low-cycle fatigue

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 6, 1965, 732-733

TOPIC TAGS: steel, corrosion, durability, hydrogen embrittlement, sulfuric acid, sodium chloride, stress concentration

ABSTRACT: The effect of the content of nonmetallic inclusions on the low-cycle fatigue of annealed ShKh15 steel produced by various processes was studied in air and in corrosive media (3% NaCl solution; 0.1 N H_2SO_4 solution; 0.1 N H_2SO_4 solution with cathodic polarization at current density D_c = 10 A/dm^2 corresponding to hydrogen absorption). Tests in air showed a marked divergence in the values of the durability of the purest and most contaminated steel. In the neutral medium, the durability drops by 15—25% while the effect of purity diminishes. In the acid medium, the durability drops even more (by 25—30%). Under hydrogen absorption conditions, the durability is at its minimum (about 60% of the value in air),

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L 14415-66
ACC NR: AP6002126

and its dependence on the purity is slight; this is because the formation of brittle cracks causes a decrease in durability. As the corrosiveness of the medium increases, the influence of steel purity of low-cycle fatigue levels off, probably because additional stress concentrators which are more effective than the nonmetallic inclusions are formed. During hydrogen absorption, the inclusions act as sources of cracks. Orig. art. has: 2 figures.

SUB CODE: 11 / SUBM DATE: 17Jun65 / ORIG REF: 003

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L 42319-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6020916 SOURCE CODE: UR/0369/66/002/002/0192/0194

AUTHORS: Tkachev, V. I.; Kripyakevich, R. I.; Kuslitskiy, A. B. 44 B

ORG: Physico-Mechanical Institute, AN UkrSSR, L'vov (Fiziko-mekhanicheskiy institut AN UkrSSR)

TITLE: Influence of preliminary hydrogenation and corrosion on the low-cycle fatigue of steel

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 2, 1966, 192-194

TOPIC TAGS: CORROSION RATE, HYDROGENATION, LOW CARBON STEEL, CARBON STEEL, steel, alloy steel, hydrogen embrittlement, metal aging / 08kp low carbon steel, ShKh15 carbon steel

ABSTRACT: The low-cycle (plastic) fatigue of annealed low-carbon steel 08kp and of high-carbon steel ShKh15 was studied. The study extends the results of an earlier investigation by B. I. Tkachev and R. I. Kripyakevich (Fiziko-khimicheskaya mekhanika materialov, 1965, No. 6). The experimental procedure followed is described by V. I. Tkachev and Yu. I. Babey (Fiziko-khimicheskaya mekhanika materialov, 1966, No. 2). The hydrogenation and corrosion of 2.5 x 5 mm specimens was carried out in 3% NaCl at a current density of 3 amp/dm^2. The experimental results are presented graphically (see Fig. 1). It was found that the decrease of plastic strength due to corrosion and hydrogenation bears a different character: corrosion leads to irreversible changes, whereas changes brought about

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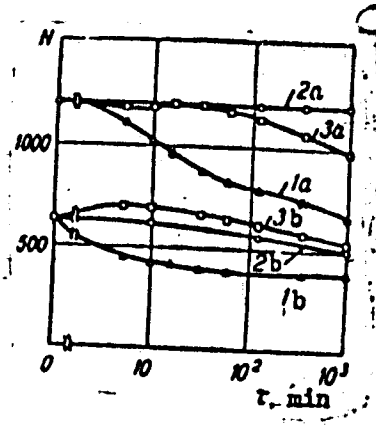
L 42319-66

ACC NR: AR6020916

Fig. 1. Influence of the period, τ, of preliminary corrosion and hydrogenation on the number of cycles N for complete destruction of steel specimens 08kp (a) and ShKh15 (b) respectively. 1 - preliminary hydrogenation; 2 - same, but followed by two hours of aging at 1000; 3 - preliminary corrosion.



by hydrogenation may be reversed by hydrogen desorption. The rate and degree of strength recovery depend on the composition of the steel; carbon and alloying elements decrease the tendency towards recovery. It is suggested that plastic fatigue experiments constitute a more sensitive method for determining hydrogen than the rupture experiments. Orig. art. has: 2 graphs.

SUB CODE: 11/ SUBM DATE: 19Jan66/ ORIG REF: 004

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L 04923-67 EWT(d)/EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) EM/JD/WB

ACC NR: AP6029687 SOURCE CODE: UR/0369/66/002/004/0457/0463

AUTHOR: Tkachev, V. I.; Kripyakevich, R. I.

ORG: Physics-Engineering Institute, AN UkrSSR, L'vov (Fiziko-mekhanicheskiy institut AN UkrSSR)

TITLE: Effect of characteristics of cyclic load on the low-cycle fatigue in media

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 4, 1966, 457-463

TOPIC TAGS: chromium steel, cyclic load, cyclic strength, corrosive strength, hydrogenation

ABSTRACT: Effects of amplitude, frequency, and asymmetry of cyclic deformation on the service life of steel in corrosive and hydrogenating environments was studied. High tempered 2.5 mm diam specimen of 12 KhN3A steel were exposed to 3% NaCl aqueous solutions and in the same solution under cathodic polarization to 10 a/dm^2 current densities, and tested at 1, 10, and 100 cycles/min and 0.5--8% amplitude of total deformation, ε. The amplitude of deformation was shown to be the dominating factor for service life. Stress characteristics

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and alloy properties affected service life under experimental conditions much more than electrochemical conditions. At 10—10^4 cycles to failure, $\varepsilon N^m = C$, N being the number of cycles and m and C constants. The effect of environment decreases with increasing amplitude of deformation and no essential effect of corrosivity is observed if the amplitude reaches a critical value. Under uniform amplitudes of deformation and at low-cycle tests in air, service life is hardly affected by the asymmetry of cycles. Service life in a hydrogenating medium increased at the transition from asymmetry to symmetry of the cycle. Effects of environment on service life decreased with increasing frequencies of cyclic stress, particularly in hydrogenating and, to a lesser degree, in corrosive environments. The value of the critical amplitude decreases with increasing frequency. Orig. art. has: 2 formulas, 2 tables, and 4 figures.

SUB CODE: 11/ SUBM DATE: 03Mar66/ ORIG REF: 005/ OTH REF: 006

kh

L 04241-67 EWT(d)/EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) EM/JD
ACC NR: AP6029688 SOURCE CODE: UR/0369/66/002/004/0464/0467

AUTHOR: Tkachev, V. I.; Kripyakevich, R. I.; Kuslitskiy, A. B.; Kreymerman, G. I.

ORG: Physics-Engineering Institute, AN UkrSSR, L'vov (Fiziko-mekhanicheskiy institut AN UkrSSR)

TITLE: Effect of stress concentration on low-cycle fatigue in media

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 4, 1966, 464-467

TOPIC TAGS: stress concentration, material deformation, corrosive strength, hydrogenation, cyclic strength, fatigue strength

ABSTRACT: The effect of the amplitude of total deformation, ε, and of stress frequency, ν, on the low-cycle fatigue of specimens was studied with concentrators of stress, represented by 1 mm holes in the flat samples. The latter were tested in air and in corrosive and in hydrogenating environments. Concentration of stress resulted in a marked decrease of service life under low-cycle fatigue as compared with conditions of uniform stress distribution. The value $N(\varepsilon)$, N being the number of cycles, showed the same basic dependence upon conditions as under uniform stress. The value of critical deformation decreased at a concentration of

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L 04941-67
ACC NR: AP6029688

stress. The dependence of the effective coefficient of stress concentration on deformation amplitude and stress frequency was determined by the ratio of the environment factors for uniform stress and concentrated stress, respectively. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 03Mar66/ ORIG REF: 001/ OTH REF: 011

kh

Card 2/2

ACCESSION NR: AR3004170 S/0271/63/000/005/B030/B030

SOURCE: RZh. Avtomatika, telemekhanika i vy*chisl. tekhnika, Abs. 5B157

AUTHOR: Briling, K. K., Krirorutskiy, Yu. Kh., Levinskiy, L. S.

TITLE: Design of a large capacity operational magnetic memory device

CITED SOURCE: Sb. Vy*chisl. i inform. tekhnika. M., 1962, 215-221

TOPIC TAGS: memory, magnetic memory, address selector

TRANSLATION: A system for selecting addresses from a large capacity, intermediate speed, magnetic operational memory of the Z type is discussed. When controlling the selection of the digital ruler by the coordinate network the authors use the method of current of commutation of one shaper over the chosen coordinates by means of a current switch. They analyzed commutators utilizing magnetic diode keys or boundary transformers. It follows from this analysis that two-coordinate systems of magnetic control with direct selection for large capacity magnetic operational memory devices have a basic shortcoming - a large power consumption. Consequently, the authors use a saturated transistor as the commutating element.

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ACCESSION NR: AR3004170

This triode can be used either as a common base amplifier or as a regenerative key. The second alternative reduces considerably the start-up power. The adopted solutions greatly simplify the current shaper. There are 6 figures and 3 references. O. B.

DATE ACQ: 25Jun63 SUB CODE: CP, SD ENCL: 00

Card 2/2

KRIS, A., prof., laureat na Leninska premiia; STEFANOV, S.; GICEV, V., st. nauch. sutrudnik

In the depths of the living matter. Priroda Bulg 13 no.4:99-101 Jl-Ag '64.

1. Director, Laboratory of Electronic Microscopy at the Academy of Sciences of the U.S.S.R. (for Kris).

KRISAN, M.L. [Krysan, M.L.], slesar'; KOVALENKO, M.I., inzh.

Repairing valve seats of fuel pumps. Mekh.sil'.hosp. 10 no.11:21 N '59. (MIRA 13:3)
(Fuel pumps)

18.5100

78049
SOV/130-60-3-18/23

AUTHOR: Krisanov, A. F. (Deputy Chief of Equipment Shop)

TITLE: Redesign of Shock Absorbers of Long-Stroke Cylinders of Piercing and Reeling Mills

PERIODICAL: Metallurg, 1960, Nr 3, pp 32-33 (USSR)

ABSTRACT: Productivity of piercing and reeling mills of automatic rolling mill installations depends to a considerable extent on the speed at which the rolls advance and withdraw. This speed is limited by the ability of the shock absorber to absorb the energy of the mobile slider, thrust bearing, and rolls in extreme positions. Pneumatic shock absorbers with individual air supply were substituted for spring shock absorbers of 400 mm piercing and reeling mills at Nikopol'sk Southern Pipe Plant (Nikopol'skiy yuzhnotrubnyy zavod) (Fig. A). The shock absorber rod with piston is rigidly attached in the bed by means of the wedge and washer. Compressed air is supplied into the shock absorber from the main line through ball valve provided with a spring

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whose pressure is controlled by a screw. As the slider hits the absorber, the cylinder moves along the stationary piston, compresses air, and absorbs the energy. Calculations showed that the maximum energy absorbed by pneumatic shock absorbers exceeds that of spring absorbers of the same size by 2.5 times. In addition, the repair cost of pneumatic shock absorbers is lower. The introduction of pneumatic shock absorbers on a 400 mm pipe rolling mill decreased the consumption of thrust bearings and increased the productivity of the mill. There is 1 figure.

ASSOCIATION: Nikopol'sk Southern Pipe Rolling Mill (Nikopol'skiy yuzhnotrubnyy zavod)

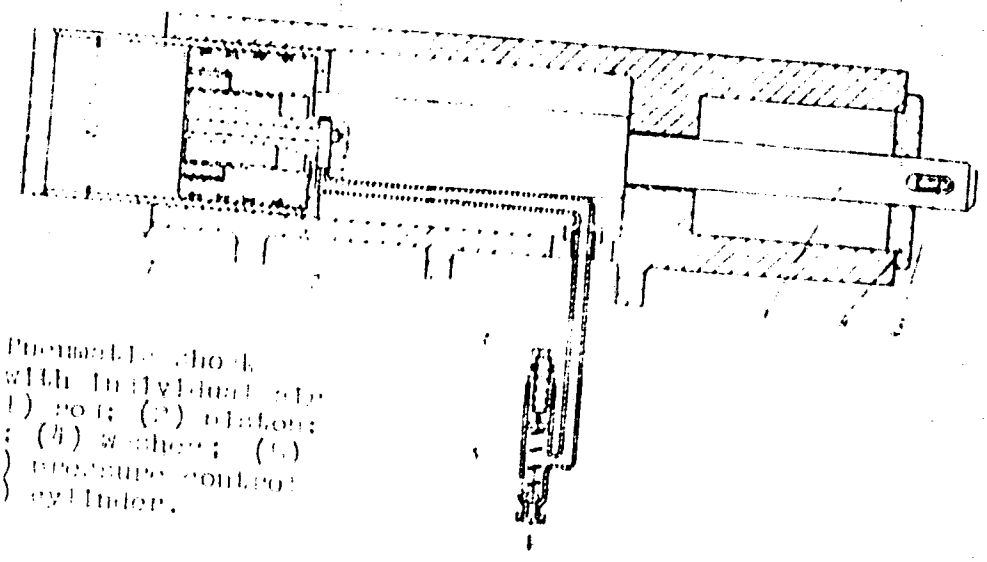


Fig. 6. Pneumatic shock absorber with individual slip sleeve: (1) rod; (2) piston; (3) seals; (4) washer; (5) valve; (6) pressure control screw; (7) cylinder.

Card 4/5

KRISANOV, A.F.

Redesign of long-tunnel cylinders for pipe-rolling mills. Metallurg 5 no.7:29-31 Jl '60. (MIRA 13:7)

1. Pomoshchnik nachal'nika trubopokatnogo tsekha No 2 Nikopol'skogo zavoda.

(Pipe mills)

KRISANOV, A.F.; SHAMANSKAYA, A.I.

Mechanized painting of the inside surface of pipes.
Metallurg 5 no.8:26-27 Ag '60. (MIRA 13:7)

1. Truboprokatnyy tsekh Yushnotrubnogo zavoda.
(Pipe mills)
(Painting, Industrial--Equipment and supplies)

KRISANOV, A.F.; MALYY, D.V.

Attachment for external grinding of pipes. Stan.i instr. 31 no.2:43 F '60. (MIRA 13:5)
(Lathes--Attachments)

KRISANOV, A.F.

Device for the automatic lubrication of thrust bearings.
Metallurg 7 no.6:35 Je '62. (MIRA 15:7)

1. Pomoshchnik nachal'nika tsekha No.12 po oborudovaniyu Nikopol'skogo yuzhnotrubnogo zavoda.
(Pipe mills—Lubrication)

KRTSANOV, A.F.

Redesign of thrust bearing drives. Metallurg 7 no.12:25-27 D '62.
(MIRA 15:12)

1. Pomoshchinik nachla'nika tsekha No.2 po oborudvaniyu Nikopol'skogo yuzhnotroubnogo zavoda.
(Pipe mills—Transmission devices)

KRISANOV, A. F., inzh.

Shock absorbers of pneumatic pushers of pipe rolling mills.
Vest. mashinostr. 42 no.12:37-39 D '62.
(MIRA 16:1)

(Pipe mills)

KRISANOV, A.F.

Pneumatic compensating device for the spindles of pipe rolling mills. Metallurg 8 no.5:29-30 My '63. (MIRA 16:7)

1. Nikopol'skiy yuzhnotrubnyy zavod.
(Pipe mills)

KOZHEVNIKOV, S.N.; KRISANOV, A.F., inzh.

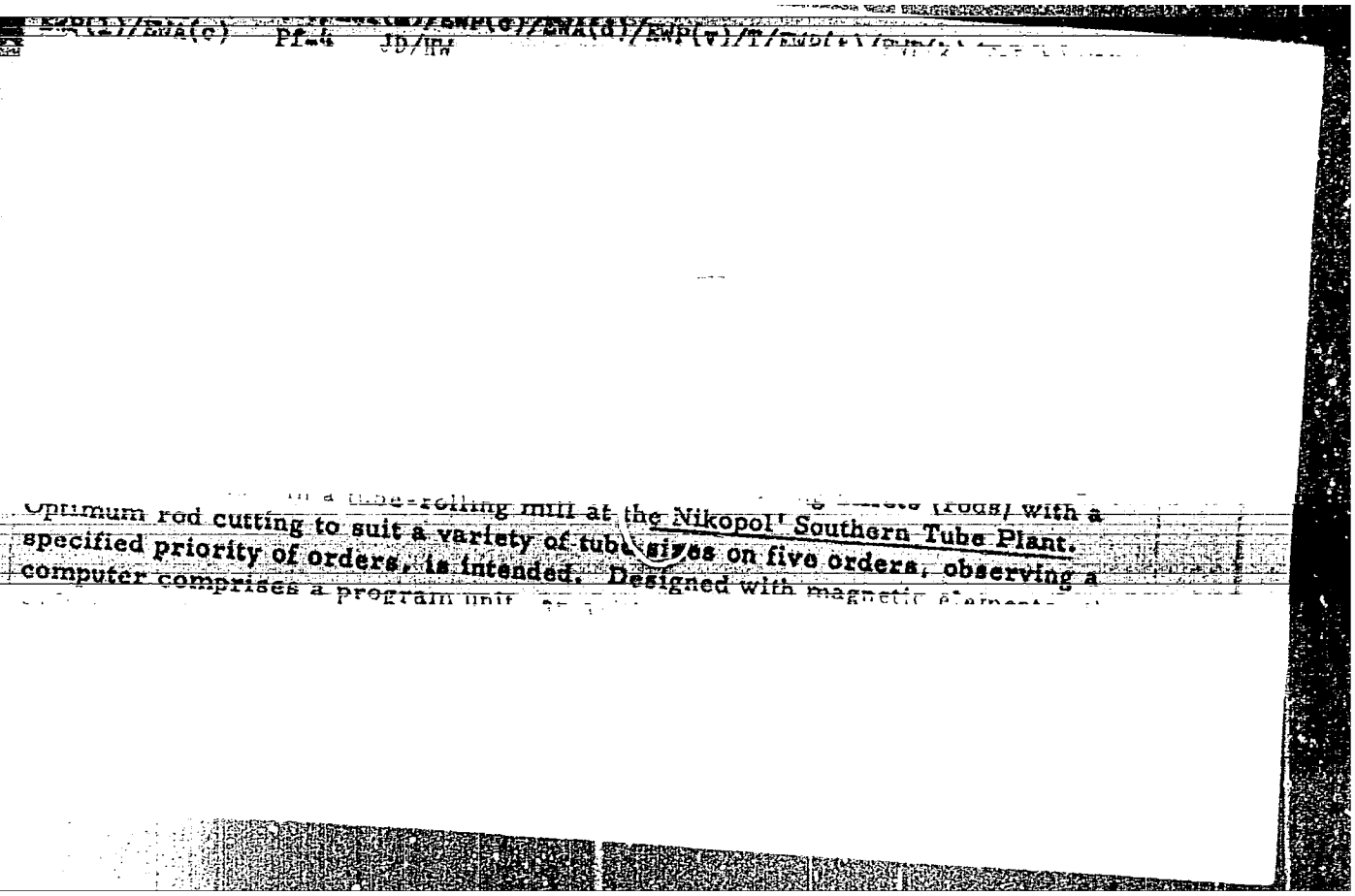
Possibility of increasing the output of pipe-rolling plants with automatic mills. Stal' 23 no.5:447-450 My '63. (MIRA 16:5)

1. Chlen-korrespondent AN UkrSSR (for Kozhevnikov).
(Pipe mills) (Automatic control)

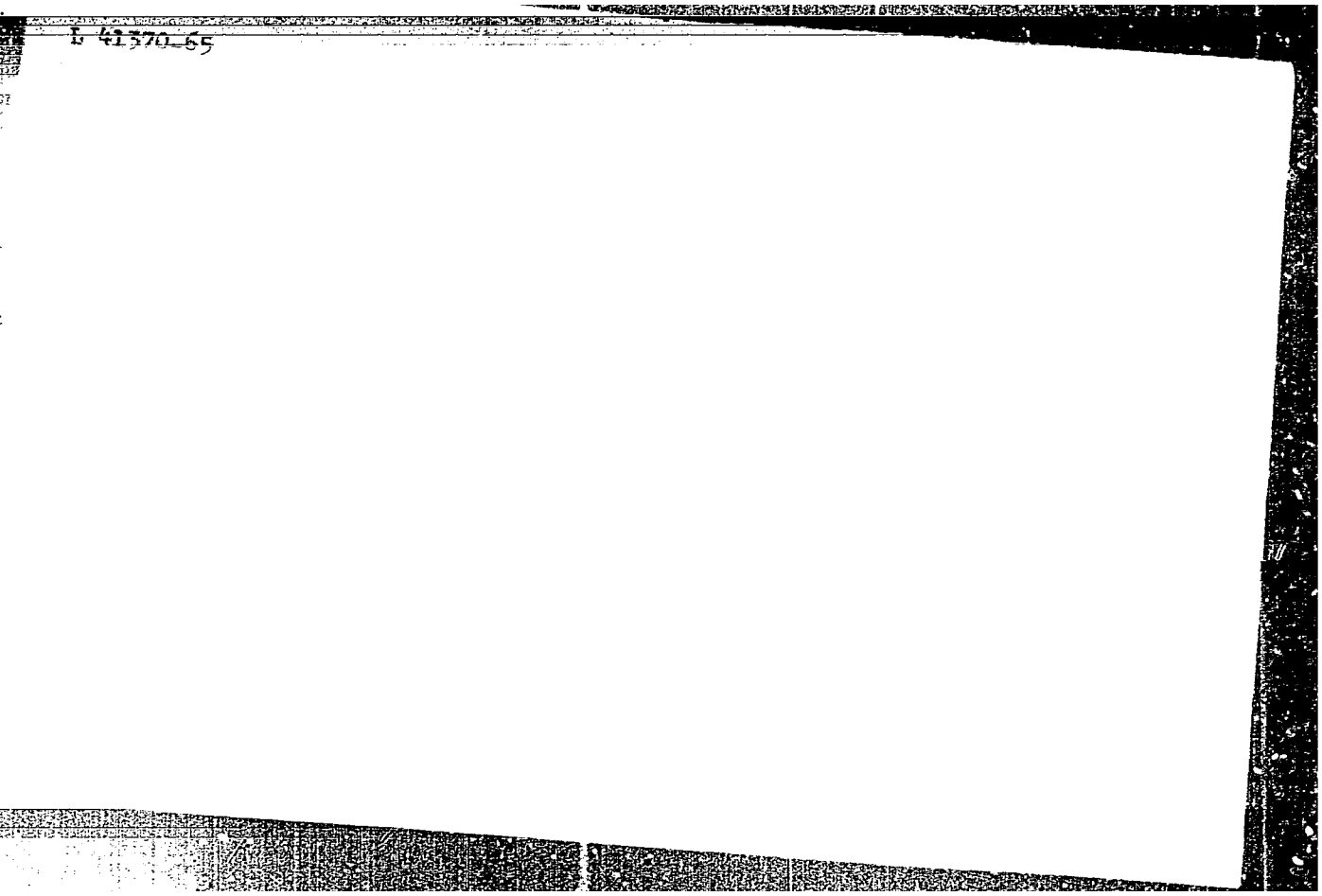
KRISANOV, A.F.; KHAYKOV, L.L.

Redesign of electropneumatic distributers. Metallurg 8 no.8: 32-33 Ag '63. (MIRA 16:10)

1. Nikopol'skiy yuzhnotrubnyy zavod.



optimum rod cutting to suit a variety of tube sizes on five orders, observing a specified priority of orders, is intended. Designed with magnetic elements [illegible] computer comprises a program unit [illegible] tube-rolling mill at the Nikopol' Southern Tube Plant.



BURKATSKAYA, Yelena Nikandrovna [Burkats'ka, O.N.], kand. med. nauk; KRISENKO, A.F., red.

[Prophylactic measures for working with poisonous chemicals in agriculture] Profilaktychni zakhody pry roboti z otruto-khimikatamy v sil's'komu hospodarstvi. Kyiv, Zdorov'ia, 1965. 37 p. (MIRA 18:9)

KOZHEVNIKOV, S.N.; KRYSANOV, A.F.

Theoretical investigations of long-stroke pneumatic cylinders.
Teor. mash. i mekh. no.101/102:30-41 '64.

(MIRA 17:11)

ISANOV, A.F.; GONCHAROV, G.K.; [illegible]SKAYA, S.G.

Machine for cutting off the unfinished ends of shells. Metallurg 10 no.6:43 Je '65. (MIRA 18:6)

KRIGANOV, A.F., kand. tekhn. nauk; GVO[illegible], V.D., i[illegible]; NAPADA[illegible], I.T., inzh.; [illegible], G.H., inzh.

Automatic synchronization systems for [illegible] sections of a pipe-rolling mill. Mekh. i avt.proizv. 18 no.[illegible]:28-29 Ag '64. (MIRA 17:10)

KRISANOV, A.E.; GONCHAROV, G.K.; NEVRYAGA, V.T.; PONOMARENKO, V.I.

Equipment for use with coupling screw-thread cutting machines.
Metallurg 10 no.7:39 Jl '65.
(MIRA 18:7)

KRISANOV, A.F.

Transfer chains last longer. Metallurg 10 no.8:30-31 Ag '65.
(MIRA 18:8)

1. Dnepropetrovskiy filial Instituta avtomatiki.

MALKIN, A.S.; KRISANOV, A.F.

Modernizing mandrel thrust bearings on pipe-rolling machines at the Nikopol' Southern Pipe Mill. Met. i gornorud. prom. no.6:70 N-D '65. (MIRA 18:12)

KRIS.NOV, A.F.; ..NAMOV, Yu.N.

...bilities of increasing production of an automatic mill. ..., i gornorud. prom. no.4:43-47 J..g '65. (MIRA 18:10)

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000826510013-5"

EXCERPTA MEDICA Sec.15 Vol.11/5 Chest Diseases May 1958

KRISANOVA, A.D.

1139. RESPIRATORY FUNCTION IN PNEUMOCONIOSIS (Russian text) - Krisanova A.D. - ZDRAVOOKH. KAZAKH. 1956, 7 (19-22)

Pneumoconiosis in coal miners causes increase or fall of the vital capacity, increase of respiratory quotient, decrease of respiratory reserve and changes in the results of functional respiratory tests. In the first stages of pneumoconiosis respiratory reserve falls and hyperventilation diminishes. With the disease progressing the vital capacity increases or diminishes, the respiratory quotient rises and the coefficient of oxygen utilization diminishes Basal metabolic rate increases in the later stages of pneumoconiosis.

(S)

SULACSIK, Laszlo; LAZAR, Istvan; KRISAR, Csilla

Investigating the rubbing sensitivity of the three-component pyrotechnic dust mixtures. Munkavedelem 8 no.7/9:16-19 '62.

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KRISAR, Zoltan, Dr, KOTSIS, Lajos, Dr, DOBJANSCHI, Sandor, Dr, MONOSI, Mihaly, Dr; I. Hospital of Nagyvarad (Oradea), Department of Surgery (department head-chief physician: KRISAR, Zoltan, Dr) (Nagyvaradi (Oradeai) I. sz. Korhaz, Sebeszeti Osztaly).

"Correction of Esophageal Stricture, Caused by Alkali Burns, by Plastic Surgery Using Tissue From the Transverse Colon."

Budapest, Magyar Sebeszet, Vol XIX, No 4, Aug 66, pages 236-243.

Abstract: [Authors' Hungarian summary] Retrosternal reconstruction of the esophagus with transverse colon tissue was performed in 17 cases of esophageal stricture caused by alkali burns. One patient was lost because of peritonitis subsequent to suppurative pleuritis, 14 patients had an uneventful recovery. The late results were satisfactory both from the functional and esthetic aspect. The operation is performed in a single session and, in the presence of a good general condition, without previous stomach fistula. In one case, gastric resection was also performed simultaneously with the plastic operation. The technical and postoperative-nursing problems of esophageal plastic with transverse colon tissue, the sources of the eventual complications and the mode of their treatment are discussed. 1 Hungarian, 19 Western references.

1/1

KRISCH, Robert

Handling of sugar-industry finished products. Cukor 16 no.4:102-104 Ap '63.

1. Acsi Cukorgyar.