"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, A.L.

Improving the production of leather substitutes coated with nitrocellulose. Leg. prom. 18 no.1:22 Ja '58. (MIRA 11:2)
(Leather substitutes) (Nitrocellulose)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, A.L., kand.tekhn.nauk

Manufacture of rubberized fabrics for rainwear in the Hungarian People's Republic. Kozh.-obuv.prom. 3 no.6:33-35 Je '61. (MIRA 14:8)

(Hungary--Rubberized fabrics)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, A.L., kand.tekhn.nauk

Development of the technological process for the production of goods from reclaimed thermoplastic high-polymeric materials.
Trudy NITKHI no.1:39-44 '62. (MIRA 17:4)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Aleksandr Leonidovich, kand. tekhn. nauk; VOLKOVA, Anastasiya Nikitichna, kand. tekhn. nauk; BARINOVA, O.N., red.; ZAV'YALOV, S.N., tekhn. red.

[Chemical cleaning of artificial fur] Khimicheskaia chistka iskusstvennogo mekha. Moskva, Gosbytizdat, 1963. 19 p. (MIRA 17:2)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

L 26068-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Po-4/Pr-4/Ps-4 RPL WW/JWD/RM

ACCESSION NR: AR4048488 S/0081/64/000/013/S034/S034

34
32
B

SOURCE: Ref. zh. Khimiya, Abs. 13S341

AUTHOR: Lakhtin, A. I.

TITLE: The problem of plasticizing nitrocellulose and polyvinyl chloride

CITED SOURCE: Tr. N.-i. tekhnokhim. in-ta by t. obsluzh., vy p. 3, 1963, 49-53

TOPIC TAGS: nitrocellose leatherette, polyvinyl chloride film, polymer plasticizing, plasticizer, gelatinizing plasticizer, dibutylphthalate, castor oil, cotton seed oil, polymethylmethacrylate, synthetic rubber, mechanical cracking

TRANSLATION: Questions as to the mechanism and methods of plasticizing high polymers are reviewed. In this study, the author used both gelatinizing (dibutylphthalate, chloroparaffin and others) and non-gelatinizing (castor oil and oxidized cotton seed oil) plasticizers. Another promising method is the plasticizing of one high polymer by another. For example, polymethylmethacrylate and butadiene-nitrile rubbers (brands SKN-26 and SKN-40) act as plasticizers for polyvinyl chloride and nitrocellulose. The combination of high polymers can be achieved by prolonged simultaneous treatment on rollers, resulting in mechanical

Card 1/2

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L 26068-65

ACCESSION NR: AR4048488

cracking which leads to a decrease in adhesive strength between the macromolecules and a consequent shift of the vitrification range towards lower temperatures; in other words, the phenomenon of plasticizing is produced. During this process, the mechanical strength of the sample (e.g. film) is increased and the aging process is slowed down. The author notes that it is possible on the basis of a mechanochemical process, to create a new technology for the manufacture of nitrocellulose leatherette which does not involve toxic and inflammable solvents.

L. Kotlyarevskaya

SUB CODE: CC, FP ENCL: 00

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Aleksandr Leonidovich; SENCHENKO, Boris Nikolayevich; PODKLETNOV, N.Ye., retsenzent; BARINOVA, O.N., red.

[Dry cleaning of clothing] Khimicheskaia chistka odezhdy. Moskva, Legkaiz industriia, 1965. 133 p. (MIRA 18:6)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, B., inzh.; RAYKH, I., inzh.

Work of the technological council. Energ. stroi. no.33: 79-81 '63. (MIRA 17:8)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, B.M., inzh.

Construction of electric power transmission lines with wooden poles. Energ. stroi. za rub. no.2:51-55 '59. (MIRA 14:2)

1. Moskovskiy filial instituta "Orgenergostroy."
(United States--Electric lines--Overhead)
(Canada--Electric lines--Overhead)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, B.M., inzh.

Contemporary trends in the region of station auxiliaries of large power stations in England (from "English Electric Journal," no.3, 1959). Energokhoz.za rub. no.3:23-28 My-Je '60. (MIRA 13:7)
(Great Britain--Steam power plants)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

IYEVLEV, Valentin Ivanovich; RYABTSEV, Yuriy Ivanovich; LAKHTIN, B.M., red.; SHIROKOVA, M.M., tekhn. red.

[Installation of 500 kv. power transformers] Montazh transformatorov napriazheniem 500 kv. Moskva, Gosenergoizdat, 1961. 39 p. (Biblioteka elektromontera, no.52) (MIRA 15:5)
(Electric transformers)
(Electric power distribution—Equipment and supplies)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, B.M., inzh., red.; SLOBODKINA, G.N., red.; LEBEDEVA, L.V., tekhn. red.

[Establishment of the consolidated electric power distribution system]Za sozdanie edinoi energeticheskoi sistemy; materialy seminara. Moskva, Orgenergostroi, 1961. 102 p. (MIRA 15:12)

(Electric power distribution)
(Interconnected electric utility systems)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

DUTKIN, G.S., inzh.; LAKHTIN, B.M., red.; MIKHAYLENKO, Yu.Ya., red.

[Control of line equipment and increase in the quality of work in the improvement in assemblying overhead power transmission lines]Kontrol' lineinoi armatury i povyshenie kachestva montazha provodov linii elektroperedachi. Moskva, Orgenergostroi, 1962. 87 p. (MIRA 15:12)
(Electric lines--Overhead)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

L 22415-66 EWT(m)

ACC NR: AP6013626 SOURCE CODE: UR/0104/65/000/009/0045/0050

23
B

AUTHOR: Lakhtin, B. M. (Engineer)

ORG: none

15

TITLE: New reinforced concrete poles

SOURCE: Elektricheskiye stantsii, no. 9, 1965, 45-50

TOPIC TAGS: reinforced concrete, electric power transmission

ABSTRACT: At the present time 220-kV long-distance power lines in the III and IV climatic regions (as well as the 330-kV lines in I-IV climatic regions) made of prefabricated reinforced concrete are constructed with intermediate gantry-type poles with PV-15 and PB-16 guy wires. At present, attempts are made to simplify such poles and make them adaptable for industrial production. The article describes in considerable detail several new solutions which range from those developed by the North-West Section of the "Energoset'proyekt" Institute (trying to reduce the amount of labor connected with the use of PB-15 and PB-16 guy wires but preserving the basic principle of hinged positioning on concrete fundaments) to the development of free-standing poles (P-220, P-330) which makes the design of the cross-piece more complicated. Some of these new designs were used in 1964 for the construction of six new 330 kV long distance power lines. [JPRS]

Orig. art. has: 5 figures and 3 tables.

SUB CODE: 13, 10 / SUBM DATE: none UDC: 621.315.668.3

Card 1/1 BIG

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, G.A.; TIL'GA, V.A.; ROZLOVSKIY, A.A.; BOGDANOV, V.A.; AFASHAGOV, Yu.A.

Mercury vapor condensation in apparatuses with internal water cooling. TSvet. met. 35 no.9:44-50 S '62. (MIRA 16:1)
(Mercury--Metallurgy) (Distillation apparatus)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, G.A.

Increasing the productivity of labor in technological research. (MIRA 14:8)
Izv.Sib.otd.AN SSSR no.8:3-12 '61.
(Research, Industrial—Labor productivity)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

L 28735-65 EWP(1)

ACCESSION NR: AT5003192 S/3005/64/000/008/0093/0104 14 13 B+1

AUTHOR: Lakhtin, G.A.

TITLE: The interrelationship between controlled and controlling systems in chemical processes

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut avtomatiki i elektrometrii. Trudy, no. 8, 1964. Avtomaticheskoye upravleniye nepreryvnymi protsessami (Automatic control of continuous processes), 93-104

TOPIC TAGS: automatic control, chemical process, control system, quality control, control sensitivity

ABSTRACT: An attempt is made to combine in general form the basic characteristics of the controlled (product quality, process rate, equipment size and productivity) and the controlling (sensitivity, operating speed) systems, to indicate their interrelationship, and to indicate how a lack of information interrupts this relationship and what losses this leads to. Two types of control are distinguished: 1. that based on information about the nature of the process, i.e., the current composition of the material being processed; 2. that based on external (prescribed) parameters of the process. The first is demonstrated to be more economical when there is a rapid means of obtaining information.

Card 1/2

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

L 28735-65

ACCESSION NR: AT5003192

Orig. art. has: 19 formulas.

ASSOCIATION: Institut avtomatiki i elektrometrii, Sibirskoye otdeleniye AN SSSR (Automation and electrometrics institute, Siberian division, AN SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: IE

NO REF SOV: 001 OTHER: 000

Card 2/2

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

SHCHUKAREV, S.A.; ARIYA, S.M.; LAKHTIN, G.I.

Thermochemistry of magnesium compounds with the elements of the main subgroup of the fifth group. Vest. LGU 8 no.2:121-126 F '53. (MIRA 12:7)

(Magnesium compounds) (Thermochemistry)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

AM4029014 BOOK EXPLOITATION S/

Lakhtin, Lev Mikhaylovich

Free movement in the earth spheroid field (Svobodnoye dvizheniye v pole zemnogo sferoida) Moscow, Fizmatgiz, 63. 0120pp. illus., biblio. 4,500 copies printed.

TOPIC TAGS: motion in gravitational field, elliptic theory of motion, shape of earth, perturbation of elliptic motion, Lagrange method, osculating element, external ballistics, satellite motion, motion in spheroid field

PURPOSE AND COVERAGE: The book considers some methods for investigating the motion of earth satellites and applications of these methods to the solution of the main problem of exterior ballistics in airless space. A direct derivation is proposed for the Lagrange differential equations in terms of osculating elements. The method of Keplerian unperturbed motion in the plane of the orbit (in polar coordinates) is extended to include the case of nonplanar perturbed motion. This is done by considering the perturbed motion of a satellite in a moving Hansen plane of ideal coordinates. The geometrical properties of trajectories of a missile is considered as part of the development of an elliptic theory of missile motion. A method of solving the fundamental problems of ballistics in the gravitational field of a

Card 1/3

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spheroid is developed on the basis of the theory of the motion of the satellite of a normal spheroid. The book is intended for engineers and scientists working in the field of space flight theory, and also to graduate and senior students specializing in this field. The usual higher-technical school mathematics preparation is sufficient for understanding the book. The author thanks Professor A. A. Kosmodem'yanskiy, Professor D. A. Pogorelov, Candidate of Technical Sciences L. I. Shatrovskiy, and Candidate of Physical-Mathematical Sciences A. S. Shlopak for reading the manuscript and making many valuable remarks.

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Ch. IV. Perturbation of elliptic motion - - 76
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Card 2/3

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

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SUB CODE: SV

OTHER: 001

SUBMITTED: 09Oct63

DATE ACQ: 27Feb64

NR REF SOV: 022

Card 3/3

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, M.D.

AID P - 2213

Subject : USSR/Aerodynamics

Card 1/2 Pub. 135 - 14/18

Author : Not given

Title : Readers' suggestions

Periodical: Vest. vozd. flota, 6, 73-79, Je 1955

Abstract : In this column the four following articles are published, all related to the evaluation of wind in flight: 1) "Measuring the drift angle by twice taking the bearing of a fix in the rear hemisphere of the aircraft" by Lakhtin, M., Lt. Col. Examples, graphs, formulae; 2) "How to accelerate the computation of navigational data" by Kurov, V., Guards Maj. Examples, graphs, formulae; 3) "Determination of the drift angle and the true speed by two slanting ranges and the course angle" by Levshin, B., Jr. Lt. Examples, graphs, formulae; 4) "Graphs for the determination of the navigational data of a flight" by Shabalin, Yu., Lt., in which the

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AID P - 2213

Vest. vozd. flota, 6, 73-79, Je 1955

Card 2/2 Pub. 135 - 14/18

author gives a short description of the use of a graph giving corresponding values of the drift angle slanting distances.

Institution: None

Submitted : No date

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

AID P - 4639

Subject : USSR/Aeronautics - bombing

Card 1/1 Pub. 135 - 5/26

Author : Lakhtin, M. D., Lt. Col., Navig. class I

Title : Calculation of intermediate winds during high-altitude bombing.

Periodical : Vest. vozd. flota, 5, 20-30, My 1956

Abstract : The author discusses the influence of intermediate winds on the bombing accuracy and suggests some methods, which he himself considers not yet quite perfect, for calculation of such winds. Seven sketches, two graphs, two tables. The article deserves attention.

Institution : None

Submitted : No date

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, V., arkhitektor

Building cities in Chelyabinsk Province. Zhil. stroi. no.9:25-28 S '60. (MIRA 13:9)

(Chelyabinsk Province--City planning)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

VAYNBERG, M., kand.tekhn.nauk; LAKHTIN, V., kand. arkhitektury

Evaluation of methods of distribution housing construction. Zhil. stroi. no.12:2-3 '61. (MIRA 15:2)
(Chelyabinsk--Construction industry) (Apartment houses)
1. Ch...

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, V.

On the threshold of a new five-year plan. Zhil. stroi. no.11:20-23 '65. (MIRA 18:12)

1. Glavnyy arkhitektor goroda Chelyabinska.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, V.P.

LAKHTIN, V.P.; ASTAKHOV, A.V.

Production of heavy fabrics on AT-100-1 looms. Tekst. prom. 18 no.1:31-33 Ja '58. (MIRA 11:2)

1. Glavnyy inzhener Shuysko-Novinskoy fabriki (for Lakhtin). 2. Nachal'nik tsekha Shuysko-Novinskoy fabriki (for Astakhov).
(Cotton manufacture)

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PROCESSES AND PROPERTIES INDEX

9

Rapid method of nitridation of steel. V. Berkhin and Yu. Lakhtin. *Novosti Tekhniki* 1936, No. 34-35, 9-11.—NH_3, passing through $C_4H_9NH_2$, carries a small amt. of the latter into a furnace. The gas mixt. obtained has a very strong nitriding action. The application of the combined temp. cycles with the above mixt. shortens the time of nitridation to less than 1/6, and gives an excellent result. Exptl. data are given. A. A. Podgorny

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

9

The influence of the hardening temperature on the mechanical properties of alloyed chromium-nickel steels. Yu. M. Lakhtin. *Avtogennoye i sklennoye* 1938, No. 7, 29–38; *Chem. Zentr.* 1939, I, 3001–2.—Fine-grained steels contg. C 0.22–0.37, Mn 0.25–0.33, Si 0.37–0.38, Cr 0.07–1.35, Ni 3.37–4.34% with and without the addn. of 0.85% W were studied. As the temp. of quenching was raised, the impact resistance (notched-bar test) at first increased and reached its highest value at a quenching temp. of 950–1050°. At higher temps. the impact resistance decreased somewhat or remained unchanged. In coarse-grained steels the impact resistance decreased with increase in the hardening temp. The amt. of residual austenite in the steel with 0.37% C varied after quenching from temps. of 850–1100°, the amt. being 1.80–5.7% depending on the cooling agent used. For the steel contg. C 0.22, Ni 4.34 and W 0.85% the corresponding value for the residual austenite varied from 0.0 to 5.7%. In the case of the first steel (with 0.37% C) the curve showing the amt. of residual austenite increased somewhat at first with increase in the quenching temp., passed through a max. at a temp. of about 950–1000°, after which it gradually decreased again. In the case of the W steel the amt. of residual austenite showed a steady decrease with increase in the hardening temp. Because of the increase in thermal strains so produced, an increase in the rate of cooling caused a reduction in the amt. of residual austenite. In the fine-grained steels the beginning of the growth of the austenite grains corresponded to a temp. of 950 [illegible] with intensive growth being observed at 1050°. In the case of the coarse-grained steels grain growth began at 850° and the grains had attained considerable size at 1000°. In the fine-grained steels the growth of the austenite grains at temps. of 850–1050° had no effect on the impact resistance of the steel; only at temps. at which an appreciable grain growth took place was the impact resistance reduced. The impact resistance of the fine-grained steels after quenching from 850° and tempering at 200° was sharply reduced as compared with coarse-grained steel. The increase in impact resistance of fine-grained steels with increase in the temp. of quenching is explained by the more complete conversion of the carbide into solid soln. and the production of a more stable austenite.

M. G. Moore

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

9

Influence of the degree of ammonia dissociation upon the nitrided surfaces. Yu. M. Lakhtin. *Avtoprom yshlennost* 1939, No. 10, 35-43.—Steel rods contg. C 0.33, Si 0.37, Mn 0.45, P 0.022, Cr 1.41, Mo 0.42 and Al 1.11% were nitrided for 24 hrs. at 520° under degrees of NH_3 varying from 5 to 100%. By increasing the degree of dissocn. up to 65-70% the hardness of the nitrided layer and the depth of N diffusion were not adversely affected. A higher degree of dissocn. produces large decreases in hardness of the nitrided layers and also in the depth of N diffusion. In the interval up to 45-50% dissocn. the microstructure of the nitrided layer did not change and at higher dissocns. the structure assumes a less differentiating character. No increase in brittleness was observed with increasing degree of NH_3 dissocn. B. Z. Kamich

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LAKHTIN, Yu. M.

LAKHTIN, YU. M., N.N. CHULITSKII, and others.

Aviatsionnoe materialovedenie. Moskva, Oborongiz, 1941.

Title tr.: Course in aircraft materials.

NCF

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yuriy Mikhaylovich.

LAKHTIN, IUrii Mikhailovich; Nitriding steel. Moskva, Gos. nauch.-tekhn. izd-vo mashinostroit. lit-ry, 1943. 47 p. (50-40145)

TN734.L34

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

CA

9

The diffusion of nitrogen into iron. Yu. M. Lakhtin. *Vestnik Inzhenerov i Tekh.* 1947, 48-55; *Chem. Zentr.* (Russian Zone Ed.) 1948, II, 1229-30.—A phys.-chem. study was made of the process of formation of the nitrided layer. N diffuses most easily into the α phase of the iron, since less energy is required for the act of diffusion itself in this case. Diffusion of the N into the γ phase is essentially more difficult. On the assumption of a uniform diffusion of N, a temp.-time relation is developed for the depth of penetration of the hexagonal ϵ phase. M. G. Moore

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yuriy Mikhaylovich.

LAKHTIN, IUrii Mikhailovich: The physical principles of the nitriding process. Moskva, Gos. nauch.-tekhn. izd-vo, 1943. 141 p. (50-15026)

TN734.L343

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

B

Heat Treatment of Steel. (In Russian.) A. P. Gulisev, Iu. M. Lakhtin, and A. I. Tarusin. 282 pages. 1946. State Scientific-Technical Publishing House for Machine Construction Literature, Moscow, U.S.S.R.

Theory and practice are analyzed without giving data concerning conditions of practical applications. Principal purpose is to interpret and evaluate data and theories concerning the mechanisms involved in heat treating.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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PA 32/49T46

LAKHTIN, YU. M

Nov/Dec 48

USSR/Engineering
Machinery - Construction
Building Materials

"Review of 'Machine Building,' Encyclopedic Handbook, Volumes III and IV," Docent Yu. M. Lakhtin, Cand Tech Sci, 2 pp

"Vest Inzhener i Tekhnik" No 6

Reviews favorably. Volumes describe testing of materials, properties of metals and alloys metallo-ceramics, and nonmetallic materials. Published by Mashgiz, Moscow, 1948.

32/49T46

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LAKHTIN, Yuriy Mikhaylovich

Aronovich, M. S.

Principles of metallography and heat treatment Moskva, Gos. Nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1952. 414 p. (53-35379)

TN690.A7

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1. LAKHTIN, YU. M., PETROV, YE. A., SEMENOV, A. A.

2. USSR (600)

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7. Problems of Soviet technology in the new edition of the Large Soviet Encyclopedia. Sov. kniga no. 12, 1952.

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LAKHTIN, YU. M.

Defended his Dissertation for Doctor of Technical Sciences in the Moscow Advanced Technical School, Moscow, 1953

Dissertation: "Scientific Bases of the Technology of the Process of Nitriding"

SO: Referativnyy Zhurnal Khimiya, No. 1, Oct. 1953 (W/29955, 26 Apr 54)

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DELLE, V.A.; LAKHTIN, Yu.M., redaktor; GORDON, L.M., redaktor; ATTOPOVICH, M.K., tekhnicheskiy redaktor.

[Alloyed structural steel] Legirovannaia konstruktsionnaia stal'. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 423 p. [Microfilm] (MLRA 7:10)
(Steel, Structural)

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LAKHTIN, Yu. M.; SYSOEV, V. I.; TRAPEZIN, I. L.

Machinery - Construction

Manual for machine builders, Vols. 1-3, Reviewed by Yu. M. Lakhtin, V.I. Sysoev, I. L. Trapezin, Sov. kniga No. 2, 1953

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BRYUKHANOV, A.N.; LAKHTIN, Yu.M.; MALYSHEV, A.I.; NIKOLAYEV, G.N.; SHUVALOV, Yu.A.; SHISHKOV, P.P., dotsent, kand.tekhn.nauk; retsenzent; ARSHINOV, V.A., kand.tekhn.nauk, retsenzent; LOSEV, I.S., inzh., retsenzent; YEGORNOV, A.N., prof., red.; VYDRIN, P.G., inzh., red.; SOKOLOVA, T.F., tekhn.red.

[Technology of metals] Tekhnologiia metallov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1954. 624 p. (MIRA 13:12)

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VISHNYAKOV, Dmitriy Yakovlevich; PAISOV, Ivan Vasil'yevich; LAKHTIN, Yu.M., redaktor; ATTOPOVICH, M.K., tekhnicheskiy redaktor

[Laboratory manual for steel and heat treatment of steel] Posobie k laboratornym zaniatiiam po metallovedeniiu i termicheskoi obrabotke stali. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 113 p. (MLRA 8:7)
(Steel)

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LAKHTIN, Yu.M., doktor tekhnicheskikh nauk, redaktor; POPOVA, S.M., tekhnicheskiy redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor.

[Metallography and the heat treatment of metals] Metallovedenie i termicheskaia obrabotka. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1955. 319 p. (MIRA 8:4)

1. Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo mashinostroiteley. Moskovskoye otdeleniye. Sektsiya metallovedeniya i termicheskoy obrabotki.
(Metallography) (Metals--Heat treatment)

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LAKHTIN, Yu. M.

NATAPOV, Boris Solomonovich; BLAGOVESHCHENSKIY, Nikolay Arkad'yevich [deceased]; LAKHTIN, Yu.M., redaktor; VALOV, N.A., redaktor EVENSON, I.M., tekhnicheskiy redaktor

[Heat treatment of metals] Termicheskaia obrabotka metallov. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 392 p. (MLRA 8:10)
(Metals--Heat treatment)

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DORONIN, Vladimir Mikhaylovich; LAKHTIN, Yu.M., redaktor; ATTOPOVICH, M.K., tekhnicheskiy redaktor

[Heat treatment of carbon steel and steel alloys] Termicheskaia obrabotka uglerodistoi i legirovannoi stali. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 395 p.
(Steel--Heat treatment) (MIRA 9:4)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

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MUKHIN, G.G.; LAKHTIN, Yu.M.

"Electron microscopy of steel" A.I.Gardin. Reviewed by G.G.Mukhin, IU M.Lakhtin.Metalloved. i obr. met. no.1:72-75 Jl '55.(MLRA 9:7) (Steel--Metallography) (Electron microscope) (Gardin, A.I.)

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NATAPOV, Boris Solomonovich; LAKHTIN, Yu.M., redaktor; GOLYATKINA, A.G., redaktor izdatel'stva; NVENSON, I.M., tekhnicheskiy redaktor

[Metals] Metallovedenie. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 343 p. (MIRA 9:12)
(Metals)

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POGODIN-ALEKSEYEV, Georgiy Ivanovich; GELLER, Yuliy Aleksandrovich; RAKHSHTADT, Aleksandr Grigor'yevich; LAKHTIN, Yu.M., professor, doktor tekhnicheskikh nauk, retsenzent; BERNSHTEYN, M.L., dotsent kandidat tekhnicheskikh nauk, redaktor; PETROVA, I.A., izdatel'skiy redaktor; GLADKIKH, N.N., tekhnicheskiy redaktor

[Physical metallurgy; methods of analysis, laboratory work and problems] Metallovedenie; metody analiza, laboratornye raboty i zadachi. Izd. 2-oe, perer. Moskva, Gos. izd-vo obor. promyshl., 1956. 427 p. (MLRA 9:10)

(Physical metallurgy)

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LAKHTIN, YU. M.

PHASE I BOOK EXPLOITATION 290

Pogodin-Alekseyev, G.I., Doctor of Technical Sciences, Professor, and Zemskov, G.V., Candidate of Technical Sciences, Docent

Gazovaya tsementatsiya stali (Gas Carburizing of Steel) Kiyev, Mashgiz, 1957. 111 p. 5,000 copies printed.

Reviewer: Lakhtin, Yu. M., Doctor of Technical Sciences. Professor; Ed.: Braun, M.P., Doctor of Technical Sciences, Professor; Ed. of Publishing House: Leuta, V.I., Engineer; Tech. Ed.: Rudenskiy, Ya. V.

PURPOSE: This book is intended for engineering and technical personnel of machine-building plants.

COVERAGE: This book explains the general mechanics of carbon diffusion in iron, as well as the principles of the steel carburizing process using artificially prepared gas mixtures and natural gas. The effect of basic factors of the carburizing process (temperature, time, velocity of the gas stream, etc.) on

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the carburized case depth and the carbon concentration in the diffused layer are discussed. The principal considerations concerning gas carburizing conditions in a plant, and the structure and properties of carburized steel are given. There are 117 references, 100 of which are Soviet, 16 are English, and 1 is German.

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Gas Carburizing of Steel

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LAKHTIN, YU M.

MOROZ, Lev Solomonovich, LAKHTIN, Yu.M., redaktor; VALOV, N.A., redaktor izdatel'stva; EVENSON, I.M., tekhnicheskiy redaktor

[Fine structure and the strength of steel] Tonkaia struktura i prochnost' stali. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 158 p. (MLRA 10:6)
(Steel--Metallography)

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LAKHTIN, Y. M.

PHASE I BOOK EXPLOITATION 645

Lakhtin, Yuriy Mikhaylovich

Osnovy metallovedeniya (Principles of Physical Metallurgy) Moscow, Metallurgizdat, 1957. 458 p. 22,000 copies printed.

Ed.: Rakhshtadt, A. G.; Ed. of Publishing House: Berlin, Ye. N.; Tech. Ed.: Attopovich, M. K.

PURPOSE: This book was written to help young engineers and technicians bridge the gap between theory and practical problems in metallurgy and as a refresher course for experienced engineers. It may also be used by students of institutions of higher learning dealing with metallurgy and machine design.

COVERAGE: In this book the author attempts to present recent developments in metallurgy in the Soviet Union and in other countries, with special emphasis on physical metallurgy. In his discussion the author presents enough details and specific examples to explain the basic nature of metals and alloys and the elementary processes in their preparation and application. Ferrous as well as nonferrous metals and alloys are discussed in this manner.

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There are numerous phase and equilibrium diagrams showing the behavior of certain alloys, and photomicrographs showing the grain structure and fibrosity of metals. The author thanks A.G. Rakhshtadt for his work in editing this book and M.L. Bernshteyn, Candidate of Technical Science, for his constructive suggestions in proofreading this book. There are 70 references, 68 of which are Soviet and 2 German.

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LAKHTIN, Yu. M.

LAKHTIN, Yu.M., doktor tekhn. nauk, prof.

"Metals and heat treatment; a handbook." Reviewed by IU.M. Lakhtin. Metalloved. i obr. met. no.12:72-74 D '57. (MIRA 11:1)
(Metals)

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LAKHTIN, Yu.M.

VLADISLAVEV, V.S.

25(1) PHASE I BOOK EXPLOITATION SOV/1439

Spravochnik metallista v pyati tomakh, t. 3, kn. 1 (Metals Engineering Handbook in Five Volumes, Vol. 3, Bk. 1) Moscow, Mashgiz, 1958. 560 p. 30,000 copies printed.

Ed. (Title page): V.S. Vladislavlev, Professor (Deceased); Ed. (Inside book): V.I. Krylov, Engineer; Tech. Ed.: T.F. Sokolova; Editorial Board: N.S. Acherkan (Chairman and Chief Ed.), Doctor of Technical Sciences, Professor, V.S. Vladislavlev, Professor (Deceased), A.N. Malov, Candidate of Technical Sciences, S.N. Feodosyakov, A.Ya. Rostovykh, G.B. Stolbin, and S.A. Chernavskiy; Managing Ed. for Reference Literature: V.I. Krylov, Engineer.

PURPOSE: The book is a reference book for technicians and engineers working in the field of machinery design and in production.

COVERAGE: The book covers the following: engineering specifications, treatment and use of cast iron, steel and carbides, heat treatment of steel and cast iron, specifications, treatment and use of nonferrous metals and nonmetallic materials. I.I. Znamorovskiy, V.P. Vologdin, N.V. Geveling are mentioned as being concerned in this field.

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LAKHTIN, Yu. M.

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ANTIPOV, K.F., inzh.; BALAKSHIN, B.S., prof., doktor tekhn.nauk; BARYLOV, G.I., inzh.; BEYZEL'MAN, R.D., inzh.; BERDICHEVSKIY, Ya.G., inzh.; BOBKOV, A.A., inzh.; KALININ, M.A., kand.tekhn.nauk; KOVAN, V.M., prof., doktor tekhn.nauk; KORSAKOV, V.S., doktor tekhn.nauk; KOSILOVA, A.G., kand.tekhn.nauk; KUDRYAVTSEV, N.T., prof., doktor khim.nauk; KURYSHEVA, Ye.S., inzh.; LAKHTIN, Yu.M., prof., doktor tekhn.nauk; NAYERMAN, M.S., inzh.; NOVIKOV, M.P., kand.tekhn.nauk; PARIYSKIY, M.S., inzh.; PEREPONOV, M.N., inzh.; POPILOV, L.Ya., inzh.; POPOV, V.A., kand.tekhn.nauk; SAVERIN, M.M., prof., doktor tekhn.nauk; SASOV, V.V., kand.tekhn.nauk; SATEL', E.A., prof., doktor tekhn.nauk; SOKOLOVSKIY, A.P., prof., doktor tekhn.nauk [deceased]; STANKEVICH, V.G., inzh.; FRUMIN, Yu.L., inzh.; KHRAMOY, M.I., inzh.; TSEYTLIN, L.B., inzh.; SHUKHOV, Yu.V., kand.tekhn.nauk; MARKUS, M.Ye., inzh., red. [deceased]; GRANOVSKIY, G.I., red.; DEM'YANYUK, F.S., red.; ZUBOK, V.N., red.; MALOV, A.N., red.; NOVIKOV, M.P., red.; CHARNKO, D.V., red.; KARGANOV, V.G., inzh., red. graficheskikh rabot; SOKOLOVA, T.F., tekhn.red.

[Manual of a machinery designer and constructor; in two volumes] Spravochnik tekhnologa-mashinostroitelia; v dvukh tomakh. Glav. red. V.M.Kovan. Chleny red.soveta B.S.Balakshin i dr. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.1. Pod red. A.G.Kosilovoi. 1958. 660 p. (MIRA 13:1)
(Mechanical engineering--Handbooks, manuals, etc.)

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129-58-7-9/17

AUTHORS: ~~Lakhtin, Yu. M.~~ Doctor of Technical Sciences Professor and Pinchuk, D. S., Engineer

TITLE: Nitriding of high strength magnesium inoculated iron (Azotirovaniye vysokoprochnogo magniyevogo chuguna)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 39-42 (USSR)

ABSTRACT: For determining the volume dissolution of magnesium in the "selico ferrite", V. D. Yakhnina and A.F. Landa subjected a magnesium inoculated iron to nitriding. According to V. D. Yakhnina the nitrided layer of magnesium inoculated cast iron has a high hardness (up to 900 H_V) and corrosion resistance in water. It was pointed out that for obtaining a given depth of the nitrided layer a considerably smaller duration of the process is required than for nitriding steel and other types of cast iron. For instance, in the case of nitriding at 650°C and a dissociation of the ammonia of 45% only one hour is required for obtaining a 0.16 mm thick layer and three hours for obtaining a 0.35 mm thick layer. For ensuring a uniform and high hardness of the nitrided layer, these authors recommend that pearlite and ferrite-pearlite base magnesium inoculated iron should be subjected to

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Nitriding of high strength magnesium inoculated iron

homogenization annealing at 720 to 740°C prior to nitriding. Taking into consideration the possibility of using nitriding for improving the wear resistance and the corrosion resistance of magnesium inoculated iron, the authors of this paper carried out special investigations for studying the kinetics of formation and the phase composition of the diffusion layer produced in the case of saturation of magnesium inoculated iron with nitrogen and also to establish the influence of the parameters of the process on the properties of the nitrided layer. For the investigations a magnesium inoculated pearlite-ferrite iron was chosen which contained 3.05% C, 2.41% Si, 0.63% Mn, 0.1% S. Ultimate strength 56.4 kg/mm^2, relative elongation 2.7%, hardness 245 H_B. Inoculation was in the ladle and, after casting, the iron was annealed at 950°C. Nitriding was effected in laboratory equipment at 500, 550, 600, 650, 700, 750 and 800°C for durations of 1, 3, 6, 12 and 24 hours. The graph, Fig.1, gives the dependence of the hardness of the nitrided layer on the temperature of the process and it can be seen that the hardness of the nitrided layer of

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Nitriding of high strength magnesium inoculated iron

magnesium inoculated iron is considerably greater than that of other iron. This justifies the assumption that the increase in the hardness is due to the presence of magnesium in the solid solution (Refs.2 and 4). The maximum hardness of the nitrided layer in magnesium inoculated iron will be obtained for a processing temperature of 650 to 700°C unlike aluminium alloyed steel in which the temperature is considerably lower (480 to 520°C). The hardness of a nitrided layer depends to a large degree on the duration of the process of saturation of the iron with the nitrogen (Fig.2). For obtaining maximum hardness the duration of the process should be at least 12 to 24 hours. The higher the temperature the faster the maximum hardness achieved. The character of the change of hardness with depth of the nitrided layer is shown in the graph, Fig.3; the nitrided layer revealed practically no brittleness. The graph, Fig.4, gives the dependence of the depth of the diffusion layer on the temperature and the duration of the nitriding process. The depth of the diffusion layer obtained on magnesium inoculated iron (detected by macro and micro analysis and by the hardness method) is.

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Nitriding of high strength magnesium inoculated iron

under otherwise equal conditions, lower than in the case of nitriding of carbon and alloy steels since the coefficient of diffusion of the nitrogen in the ε- and the α-phases of the systems Fe-N decreases with increasing carbon content of the alloy. The obtained data do not confirm the conclusions of V. D. Yakhnina, who stated that the diffusion of the nitrogen in the magnesium iron is faster than in steel. The structure of the nitrided layer obtained in magnesium inoculated iron differs little from that of the nitrided layer formed in carbon steel (Fig.5). In investigating the micro-structure of the nitrided layer a non-etched bright strip can be detected which corresponds to the carbo-nitride ε-phase; the presence of an ε-phase was confirmed by X-ray analysis. The depth of the ε-phase does not exceed 0.02 to 0.03 mm. With increasing temperature up to 700°C the thickness of the layer containing the ε-phase increases and then decreases. At low nitriding temperatures (short process duration) no ε-phase is detected by X-ray analysis but only the presence of a γ'-phase. After the ε-phase (γ'-phase) an $\alpha + \gamma_{excess}$ (α-phase) or a eutectoidal

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Nitriding of high strength magnesium inoculated iron

mixture $\alpha + \gamma'$ (γ-phase) will be present, depending on the nitriding temperature. Formation of a eutectoid was observed only after nitriding at 700°C which indicates an increase in the eutectoidal temperature. In the same way as during nitriding of iron in carbon steel (Ref.5), the transition from one diffusion layer to the other is accompanied by a jump in the degree of concentration (Fig.6). A somewhat increased concentration of the nitrogen in the neighbourhood of the γ-phase is probably linked with movement along the boundary of the ε-phase into the region of the γ-phase (see Fig.5). The obtained data justify the assumption that the kinetics of formation of a nitrided layer in magnesium inoculated iron is basically the same as that described by Lakhtin (Ref.5) for iron and steel. Apparently inoculation of steel with magnesium may prove one of the methods of producing new non-scarce materials for nitriding. The results obtained by the authors justify the recommendation of the process of nitriding for surface hardening of components made of high strength magnesium-inoculated iron. There are 6 figures and 5 references, all of which are Soviet. (Note: This is a full translation except for the first paragraph and the figure captions).

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BRYUKHANOV, Andrey Nikolayevich; LAKHTIN, Yuriy Mikhaylovich; MALYSHEV, Anatoliy Ivanovich; NIKOLAYEV, Grigoriy Nikolayevich; SHUVALOV, Yuliy Avraamovich; RYBIN, V.V., inzh., retsenzent; GLIKIN, N.M., kand. tekhn. nauk, red.; RZHAVINSKIY, V.V., red. izd-va; MODEL', B.I., tekhn. red.

[Technology of metals] Tekhnologiia metallov. Izd.2.,perer. i dop. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1959. 599 p. (MIRA 14:7)

(Metallurgy)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

MES'KIN, Veniamin Semenovich; LAKHTIN, Yu.M., red.; BERLIN, Ye.N., red.izd-va; ATTOPOVICH, M.K., tekhn.red.

[Principles of steel alloying] Osnovy legirovaniia stali. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 688 p. (MIRA 12:10)
(Steel--Metallurgy) (Steel alloys)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yu. M.

"Boriding of Steel in Gaseous Media"

Paper presented at the All-Union Conference on Heat Treatment and Metal Science held in May 1960, Odessa,

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

POLUKHIN, P.I., prof., doktor tekhn.nauk, red.; GRINBERG, B.G., dotsent, kand.tekhn.nauk; KANTENIK, S.K., dotsent, kand.tekhn.nauk; ZHADAN, V.T., dotsent, kand.tekhn.nauk; VASIL'YEV, D.I., dotsent, kand.tekhn.nauk; LEBEDEV, B.G., dotsent, kand.tekhn.nauk, nauchnyy red.; LAKHTIN, Yu.M., prof., doktor tekhn.nauk, retsenzent; KITAYTSEV, V.A., dotsent, kand.tekhn.nauk, retsenzent; RAZYGRAYEV, A.M., inzh., retsenzent; YUDINA, L.A., red.izd-va; RYAZANOV, P.Ye., tekhn.red.

[Technology of metals] Tekhnologiia metallov. Pod obshchei red. P.I.Polukhina. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 460 p. (MIRA 14:3)

1. Kafedra metallovedeniya Moskovskogo avtomobil'no-dorozhnogo instituta (for Lakhtin, Kitaytsev, Razygrayev).
(Metals) (Metalwork)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yu.M.

81822

S/129/60/000/07/008/013
E193/E235

18.7100

AUTHORS: Pchelkina, M. A., Engineer and Lakhtin, Yu. M., Doctor of Technical Sciences, Professor

TITLE: Application of Boron Trichloride in the Boride Process

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No. 7, pp. 40-42 + 1 plate

TEXT: The results of experiments, carried out on technical iron and steels 20, 40, and U12, heated in the atmosphere of $BCl_3 + H_2$ at temperatures between 750 and 950°C, showed that this gaseous medium can be successfully used in case-hardening of steel by the boride process. The optimum results were obtained under the following conditions: temperature - 850°C; duration of treatment - 3 to 6 h; BCl_3/H_2 ratio - approximately 0.05. Under these conditions, a surface layer, 150 microns thick, consisting of FeB and Fe_2B was produced, the hardness of these two constituents being 2340 to 1890 and 1680 to 1290 kg/mm^2, respectively. With increasing carbon content in the steel, the proportion of FeB in the surface layer decreased, and hardness of both FeB and FeB_2 was reduced. There are 5 figures and 4 references: 2 Soviet, 1 English and 1 German.

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

83292

S/148/60/000/007/013/015
A161/A029

2308 only 18.7500

AUTHORS: Pchelkina, M.A.; Lakhtin, Yu.M.

TITLE: Boration of Steel from Gas

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 7, pp 163-170

TEXT: Saturation of steel with boron from gas was tried before /Ref 1-5/. The purpose of the special investigation described here was to find optimum conditions for the formation of a high-quality diffusion layer in steel at thermic decomposition of diborane (B_2H_6-H_2). Boration was tried with induction heating of specimens and in an externally heated reactor container, into which diborane was fed through a rheometer and water-cooled nozzles (to prevent pyrolysis before reaching the container.) The installation is described and illustrated (Fig. 1). Pure diborane could not be used because of heavy boron deposits, and another gas was added - nitrogen, argon, carbon monoxide or hydrogen. Hydrogen showed the best results, at the ratio B_2H_6:H_2 of 1:25 to 1:100, and a flow of 75-100 liter /hr. Microphotographs of diffusion layers obtained are included. The

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A161/A029

Boration of Steel from Gas

boride phase spread in the diffusion direction very unevenly with formation of specific needle-like crystallites (Figure 2). On carbon steel, redistribution of carbon took place with concentration under the diffusion layer (Figure 6). It was concluded that the method is practically applicable, and a relatively low temperature (650-850°C) is needed, which is important. In some cases brief boration (2-3 hours) will be expedient, with subsequent diffusion soaking for several hours without more gas feed, which gives a more sound diffusion layer. The higher the process temperature the less sound is the borated layer. It was stated that the kinetics of the layer formation followed the general law of multiphase diffusion layer formation. Boron diffused readier in alpha-phase than in gamma-phase. Carbon inhibited the growth of the boride phases, and saturation of steel with boron was accompanied by displacement of carbon from the diffusion layer and formation of a high-carbon zone directly under the borated layer. There are 7 figures and 6 references: 3 are Soviet, 2 English and 1 German.

ASSOCIATION: Moskovskiy avtomobil'no-dorozhnyy institut (Moscow Motor

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83292

Boration of Steel from Gas

S/148/60/000/007/013/015
A161/A029

Vehicle and Highway Institute)

PRESENTED: June 13, 1959

IX

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

20260

S/129/61/000/003/005/011
E073/E335

18.1130 12.08, 1496, 1454

AUTHORS: Lakhtin, Yu.M., Doctor of Technical Sciences, Professor and Pchelkina, M.A., Engineer

TITLE: Borating High-alloy Steels

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No. 3, pp. 27 - 30 and 35

TEXT: For the purpose of increasing the hardness, wear-resistance, resistance-to-erosion and abrasion at elevated temperatures of high-alloy stainless and high-temperature steels, the authors investigated the use of boron saturation in the gaseous phase. In preliminary experiments the influence of chromium and nickel on the hardness, depth and phase composition of the boron-saturated layer was studied. Boron saturation was effected by means of the mixture ($B_2H_6:H_2$ = 1:25) at 950 °C for 6 hours (Pchelkina, Lakhtin - Ref. 1). Following that, the specimens were held at the saturation temperature for 4 hours. At the saturation temperature high-chromium steels had a mixed structure, consisting of γ and α phases. All the other steels had an austenitic

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E073/E335

Borating ....

structure. Fig. 1 shows the influence of the chromium content (%) on the depth (μ) of the boron-saturated layer (solid-line curves - total thickness of the layer; dashed-line curves - thickness of the dense boride layer). Fig. 2 shows the same for nickel. The hardness of the boron-saturated layer increases somewhat with increasing chromium content. For instance, it amounts to 1 290 H_μ for steel with 0.38% C and 1.06% Cr and to 1 850 H_μ for steel containing 7.56% Cr. Typical microstructure photographs are also included. Introduction of up to 8% Mn into chromium steel (0.32% C, 15% Cr) has practically no effect on the depth and structure of the boron-saturated layer. Fig. 5 shows the influence of Ti on the depth of the boron-saturated layer of steel (0.15% C, 18.39% Cr, 8.4% Ni, 2.05% W) (continuous-line curve - total depth of the layer; dashed-line curve - depth of the dense boride layer). The lower graph gives the depth of the layer, μ and the top graph gives the hardness, H_μ. Fig. 6 shows the influence of niobium for the steel containing

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0.27% C, 17.5% Cr, 8.1% Ni and 2.3% W (the notations are the same as for Fig. 5). It can be seen that niobium and particularly titanium bring about a sharp decrease in the depth and hardness of the boron-saturated layer for 18/8 steels. Numerical results for a number of boron-saturation experiments of standard stainless and heat-resistant steels are given in the table. Fig. 7 shows the hardness H_v along the depth (in μ) of the borated layer for the steel ЭИ612 (EI612); the same picture was observed for other austenitic steels. Saturation of the steels with boron is accompanied by carbon impoverishment of the austenite which is adjacent to the boride phase. The carbon diffuses away from the boride layer towards the core. Thus, at the diffusion temperature there will be in the transition austenite-boride zone, in addition to the boride phase, two γ solid solid solutions, one with a low and the other with a high carbon concentration. X-ray investigations of the phase composition of borated layers of high-chromium and high-nickel steels has shown that these layers consist of boron carbides in which a part of the iron atoms

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E073/E335

Borating ....

is substituted by the alloying elements. The results have shown that high-alloy steels, including austenitic-class steels, can be gas-borated. The borated layer of high-alloy steels has a high hardness and wear-resistance. There are 9 figures, 1 table and 4 references: 3 Soviet and 1 non-Soviet.

ASSOCIATION: Moskowskiy avtomobil'no-dorozhnyy institut (Moscow Motor-road Institute)

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1.1800

24574

S/137/61/000/005/027/060
A006/A106

AUTHORS: Lakhtin, Yu.M., Pchelkina, M.A.

TITLE: Gas boronizing of steel

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 5, 1961, 37-38, abstract 5D334 (Tr. Sektsii metalloved. i term. obrabotki metallov. Tsentr. pravl. Nauchno-tekhn. o-va mashinostroit. prom-sti, no. 2), Moscow, 1960, 92 - 105)

TEXT: The authors discuss studies on the boronizing of steel, and describe results of investigating the boronizing process during the thermal decomposition of diborane (B_2H_6). At room temperature gaseous B_2H_6 decomposes, accompanied by the formation of higher B and H hydrides. The rate of pyrolysis decreases when adding H_2 and remains unchanged when an equivalent amount of N_2 is added. A description is made of the reaction of B_2H_6 pyrolysis and of the scheme of installations for gas boronizing when heating with high frequency current in a muffle furnace. To inhibit the decomposition reaction and reduce the amount of B in the gaseous phase N, Ar, CO and H are employed as rarefying gases. Boronizing with diborane in N_2 atmosphere did not yield positive results; in CO and Ar atmosphere

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S/137/61/000/005/027/060
A006/A106

Gas boronizing of steel

24574

diffusion saturation of B was not observed. Best results were obtained when rare-
fying with H_2. The $B_2H_6:H_2$ ratio varied within 1/25 to 1/150. Fe specimens (0.006
% C) and 45 St steel specimens were subjected to boronizing at 550, 650, 750, 800,
900, 950 and 1,050°C for 2 hours; $B_2H_6:H_2$ was 1/25, the feed rate was 50 liters/
hour. Kinetics of the formation of a boronized layer is analyzed. The possibili-
ty is shown of boronizing in B_2H_6-H_2 at relatively low temperatures (650 - 850°C).
It is recommended to perform short-time boronizing (2 - 3 hours) with subsequent
diffusion holding for 2 - 5 hours, without the supply of a boronizing gas mixture.
This assures a greater density of the diffusion layer. The density of the boroniz-
ed layer decreases with higher boronizing temperatures. Diffusion of B in the α-
phase proceeds easier than in the γ-phase. C inhibits the growth of boride
phases. Saturation of the steel with B is accompanied by the expelling of C from
the diffusion layer into the core. There are 25 references.

A. B.

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

27624
S/145/61/000/002/004/005
D214/D303

1.1860

AUTHORS: Lakhtin, Yu.M., Doctor of Technical Sciences, Professor, and Pchelkina, M.A., Aspirant

TITLE: Gas boranizing of austenitic steel, ЭИ612 (EI612)

PERIODICAL: Izvestiya vysshykh uchebnykh zavedeniy. Mashinostroyeniye, no. 2, 1961, 171-174

TEXT: Austenitic steel, EI612, is used for producing parts that operate in steam at high temperatures and pressures. Its chemical composition in percent is: C - 0.06; Si - 0.18; Mn - 1.02; S - 0.09; P - 0.1; Cr - 15.05; Ni - 35; W - 3.39 and Ti - 1.32. Experiments were carried out by treating it in a mixture of diborane (B_2H_6) and hydrogen in a ratio of 1:25, as reported by A.F. Zhigach, I.S. Antonov and M.A. Pchelkina and others (Ref. 3: Metallovedeniye i termicheskaya obrabotka, no. 4, 1959) and M.A. Pchelkina, Yu.M. Lakhtin (Ref. 4: Sb. "Termicheskaya obrabotka", Trudy sektsii metallovedeniya i termicheskoy obrabotki, NTO Mashprom, Mashgiz, 1960). Dibor-

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S/145/61/000/002/004/005
D214/D303

Gas boranizing...

ane is decomposed above 500°. The arrangement for the gas boranizing is then shown and described. Optimum conditions were studied with temperatures varying between 850-1050°. The effect of the duration of the saturation process on depth and hardness of diffuse layer were also considered. Results are plotted in Figs. 2 and 3. They demonstrate that steel EI612 can be successfully hardened by boranizing. As expected, the increase of temperature and duration of treatment result in the greater depth of diffused layer. It should be noted that EI612 steel can be boranized at the relatively low temperature of 850°. The character of the structure of the diffused layer in EI612 differs from that obtained in iron, carbon and low-alloyed steels. It consists of a dense layer of solid borides with an austenitic-borides zone underneath. The boride layer of EI612 steel probably consists of two diffusion zones: at the surface - borides of the type of (Fe, Ni, Cr)B, and deeper - type (Fe, Ni, Cr)$_2$B. The kinetics of the boranized layer formation in iron and low-alloyed steels which include EI612 differ. After reaching limit boron saturation in γ (α) iron, conditions are created at the

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Gas boranizing...

surface to form stable borides Fe_2B at the start, and then FeB. This leads to a growth column type structure of a olid boride layer. Formation of two-phase diffusion layer at saturation temperature is improbable. Austenitic borides (two-phase layer) may be produced as a result of the predominant diffusion of boron along the boundary of the grain. When boride forming alloying elements (Ni, Cr, etc) are present, then at saturation temperature a single phase layer is produced of a saturated hard solution of γ (α) and borides. A layer in an alloyed steel, such as EI612 is formed in the following manner. Borides are formed as separate sections within the hard solution. They are made gradually also inside the layer, and the austenitic borides zone spreads to a certain depth. With the growth of borides there is a possibility of recrystallization. The hardness of (Fe, Ni, Cr)B is greater than that of $(Fe, Ni, Cr)_2B$, and it decreases during the passage into the austenitic boride zone. Hardness of this layer changes little during a long heating at 650-700°. A.V. Ratner and L.G. Leonova at the Vsesoyuznyy nauchno-issledovatel'skiy institut (All-Union Scientific and Research Insti-

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Gas boranizing...

tute) demonstrated that the boranized layer in EI612 steel has a high erosion resistance even after long heating. The above method is, therefore, considered as the most promising process for hardening components which operate in superheated steam. There are 6 figures and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Moskovskiy avtomobil'no-dorozhnyy institut (Moscow Automobile Highway Institute)

SUBMITTED: June 13, 1960

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yu. M., doktor tekhn.nauk, prof.; PCHELKINA, M.A., inzh.

Boron hydride coatings of high alloy steels. Metalloved i term. obr. met. no.3:27-30 Mr '61. (MIRA 14:6)

1. Moskovskiy avtomobil'no-dorozhnyy institut.
(Boron hydride)
(Case hardening)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

YURGENSON, Aleksey Alekseyevich; LAKHTIN, ~~Yu.M.,~~ prof., doktor tekhn. nauk, retsenzent; DUGINA, N.A., tekhn. red.

[Nitriding in power machinery construction] Azotirovanie v energomashinostroenii. Sverdlovsk, Mashgiz, 1962. 128 p. (MIRA 15:7)
(Gase hardening) (Machinery industry)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

RUSTEM, S.L., kand. tekhn. nauk; LAKHTIN, Yu.M., doktor tekhn. nauk, prof.; GLIKIN, N.M., dots., red.; IVANOV, N.A., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Equipment and design of heat-treating plants] Oborudovanie i proektirovanie termicheskikh tsekhov. Moskva, Mashgiz, 1962. 588 p. (MIRA 15:7)

(Furnaces, Heat-treating)
(Metals—Heat treatment)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

IVASHCHENKO, T.M.; LAKHTIN, Yu.M., doktor tekhn. nauk, prof., red.; GRONDA, V.I., red.; SHVETSOV, S.V., tekhn. red.

[Structural steels and aluminum alloys] Stroitel'nye stali i aliuminievye splavy. Pod red. IU.M.Lakhtina. n.p. Rosvuzizdat, 1963. 56 p. (MIRA 16:12)
(Steel, Structural) (Aluminum alloys)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

STRUVE, Natal'ya Ernestovna; LAKHTIN, Yu.M., prof., red.; OLEYNIK, L.K., red.

[New engineering materials] Novye materialy v tekhnike. Moskva, Vysshaia shkola, 1963. 90 p. (MIRA 18:4)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

GULYAYEV, Aleksandr Pavlovich; LAKHTIN, Yu.M., doktor tekhn. nauk, prof., retsenzent; KLAUSTING, Ye.A., inzh., red.; VINOGRADSKAYA, S.I., red.izd-va; NOVIK, A.Ya., tekhn.red.

[Physical metallurgy] Metallovedenie. 4., perer. izd. Moskva, Oborongiz, 1963. 464 p. (MIRA 17:1)
(Physical metallurgy)

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

ACCESSION NR: AP4020244 S/0129/64/000/003/0022/0028

AUTHOR: Lakhtin, Yu. M.; Neustroyev, G. N.

TITLE: Low-temperature gas cyaniding of constructional steel

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1964, 22-28

TOPIC TAGS: case hardening, cyaniding, triethanolamine, structural steel, steel cyaniding, steel, gas cyaniding

ABSTRACT: The authors developed a new process of low-temperature gas-cyaniding in a medium of the products of triethanolamine $(C_2H_5O)_3$ pyrolysis. Preliminary pyrolysis is necessary in order to eliminate the resinous substances as the triethanolamine is directly fed to the furnace. After testing various case-hardening processes including nitriding, the authors conclude that cyaniding at 600 C is vastly superior to other methods. Impact abrasion hardness determined by a Suzuki and a Scott-Savin machine was considerably higher in specimens cyanided at that temperature. The same applies to wear resistance and fatigue limit tests. Specimens treated at 600 C for 6 to 10 hours had a 4 to 10-micron thick diffusion layer which showed high brittle resistance after Rockwell hard-

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ACCESSION NR: AP4020244

ness and Vickers diamond hardness tests under loads of 150 and 5 kg respectively. Therefore, the authors recommend low-temperature cyaniding for parts exposed to service conditions where high wear and variable load application such as push rods, gear drives, shafts etc. are commonplace. Orig. art. has 9 figures and 5 tables.

ASSOCIATION: Moskovskiy avtomobil'no-dorozhny*y institut (Moscow Automobile and Highway Institute)

SUBMITTED: 00 DATE ACQ: 31Mar64 ENCL: 00

SUB CODE: ML NO. REF. SOV: 003 OTHER: 000

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"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yuriy Mikhaylovich; GELLER, Yu.A., prof., doktor tekhn. nauk, red.

[Metals and their heat treatment] Metallovedenie i termicheskaia obrabotka. Moskva, Metallurgiia, 1964. 471 p. (MIRA 17:10)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9"

"APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928430006-9

LAKHTIN, Yu.M.; KRYMSKIY, Yu.N.; SEMENOV, R.A.

Nitriding high-strength cast iron in a glow discharge. Metalloved. i term. obr. met. no.3:37-41 Mr '64. (MIRA 17:4)

1. Moskovskiy avtodorozhnyy institut.

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L 8649-65 EPA(s)-2/EWT(m)/EPF(n)-2/EPR/EWP(b) Pad/Ps-4/Pt-10/Pu-4
ASD(m)-3 MJW/JD/HW/JG/AT/WH
ACCESSION NR: AT4043507 S/3107/64/000/003/0042/0063

AUTHOR: Lakhtin, Yu. M. (Doctor of technical sciences, Professor); Pchelkina, N. A. (Engineer)

TITLE: Mechanism of the formation and properties of a bonded layer on iron- and nickel-base alloys

SOURCE: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promy*shlennosti. Sektsiya metallovedeniya i termicheskoy obrabotki. Metallovedeniye i termicheskaya obrabotka, no. 3, 1964, 42-63

TOPIC TAGS: boriding, nickel alloy boriding, nickel boriding, stainless steel boriding, heat resistant steel boriding, boride layer

ABSTRACT: A study has been made of the effect of alloying components on the phase composition, formation mechanism, depth, and properties of the borided layer of medium carbon (0.38--0.51%C)

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steel with 1.06--23.5% Cr and 2--12.8% Ni, high-chromium steels with 15 and 45% Cr, chromium-nickel stainless and heat-resistant steels, and nickel-base alloys with 16--27% Cr. The data obtained showed that in medium carbon steels, chromium, especially in amounts up to 3%, decreases the depth of the borided layer, but it increases the microhardness of the borided layer from 1290 at 0.06% Cr to 1850--2290 at 13--19.5% Cr. Nickel, in amounts up to 4--6%, decreases the depth and the hardness of the borided layer, with no effect for further increases in nickel content. Nickel in high-chromium steel (15% Cr) somewhat increases the depth of the borided layer. 2.2% tungsten decreases it, and manganese in amounts up to 8% has no effect on the depth or the composition of the borided layer. In Kh18N9 steel (AISI-304), niobium and particularly titanium sharply decrease the depth and the hardness of the borided layer. In other stainless and heat-resistant steels, the depth of the borided layer increases with increasing temperature and time of boriding. The borided layer consists of iron borides with part of the iron atoms replaced by those of the alloy elements. Boriding of nickel and nickel-base alloys in a diborane-hydrogen mixture ($B_2H_6+H_2$ in a ratio of 1:25) for 6 hr at 950C produced a continuous boride

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layer up to 70 μ in depth with a microhardness of 1780--2010. Orig. art. has: 23 figures and 6 tables.

ASSOCIATION: none

SUBMITTED: 00 ATD PRESS: 3111 ENCL: 00

SUB CODE: MM NO REF SOV: 011 OTHER: 011

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L 19835-65 EWT(1)/EWT(m)/EWA(d)/T/EWP(t)/EWP(b) MJW/JD

ACCESSION NR AP4049074 S/0148/64/000/011/0180/0184

AUTHOR: Lakhtin, Yu. M.; Neustroyev, G. N.

TITLE: The effect of low temperature cyanization on the durability of structural steel

SOURCE: IVUZ. Chernaya metallurgiya, no. 11, 1964, 180-184

TOPIC TAGS: Structural steel, steel durability, steel wear, triethanolamine pyrolysis, steel brittleness, steel cyanization, low temperature cyanization/steel 45, steel 30Kh2N2VFA

ABSTRACT: Steel 45 and steel 30 Kh2N2VFA (0.31% C, 1.60% Cr, 1.55% Ni, 1.45% W, 0.24% V, 0.18 Cu) were tested for gaseous cyanization (light nitration) in a mixture of the pyrolysis products of triethanolamine at 580-600C. A carbonitride ε-phase with hexagonal lattice forms a non-corroding inert layer on the surface of the metal, which layer increases in thickness with prolongation of the process and with temperature. When the layer is 4-10 microns thick, which is accomplished during cyanization at 600C for 6-10 hours, it is not brittle and exhibits high durability. Lowering the temperature necessitates lengthening the process, while raising it to 650-700C causes brittleness. Comparative experiments between this process and cyanization for 3 hours at 560C in a bath of 50% NaCN and 50% KCN were performed on ring-shaped and other steel samples 5.33 mm in diameter, 0.4 mm in height,

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and 0.2 mm in depth. Durability of steel 30Kh2N2VFA was increased 30% by the gaseous process, and that of steel 45 by 55%, but the increases were 30% and 31% respectively, for the solution process. In general, the gaseous process increased the durability of non-alloyed steels 30-60% and of alloyed steels 20-40%. However raising the temperature and prolonging the process, although increasing the durability to as much as 42 kg/mm^2 for steel 30Kh2N2VFA and 50 kg/mm^2 for steel 45, led to brittleness when carried beyond 10 hours at 600C. "The calculation of the residual stress was carried out on a device of the Moskovskiy aviatsionnyy institut (Moscow Aviation Institute)." Orig. art. has: 4 graphs, 2 photomicrographs, and 1 table.

ASSOCIATION: Moskovskiy avtomobil'no-dorozhnyy institut (Moscow Institute of Highways)

SUBMITTED: 21Feb64 ENCL: 00 SUB CODE: MM

NO REF SOV: 004 OTHER: 004

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