

18-8310

31555
S/081/61/000/022/029/076
B110/B138

AUTHORS:

Tomashov, N. D., Al'tovskiy, R. M., Prosvirin, A. V.,
Shamgunova, R. D.

TITLE:

Corrosion of titanium and its alloys in sulfuric acid

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 22, 1961, 255, abstract
22I151 (Sb. "Korroziya i zashchita konstrukts. metallich.
materialov". M., Mashgiz, 1961, 151-163)

TEXT: It has been found that the corrosion-resistance of Ti in H_2SO_4
is increased if the Ti surface is saturated by oxygen and, especially,
by N_2 and H_2 . [Abstracter's note: Complete translation.]

X

Card 1/1

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

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

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

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 258, abstract 22I169 (Sb. "Korroziya i zashchita konstrukts. metallich. materialov". M., Mashgiz, 1961, 254 - 259)

TEXT: A study of the corrosion resistance (CR) of nonferrous and black metals and alloys in media used for hexachlorane production showed that the Ni - Mo alloy type ЭИ461 (EI461), Pb and Cr-Ni steels types 1X18M9T (1Kh18N9T) and ЭИ654 (EI654) were unstable under the conditions mentioned. It was found that Ta had absolute CR and therefore can be used as plating material. CR of Ti in the gaseous phase was satisfactory under conditions of benzene distillation $\leq 120^{\circ}\text{C}$. [Abstracter's note: Complete translation.]

✓

Card 1/1

L 31180-66 EWT(m)/EWP(t) IJP(q) JD

ACC NR: AP6007113

SOURCE CODE: UR/0129/66/000/002/0046/0048

AUTHOR: Romadin, Yu. P.; Prosvirov, E. N.; Pogodin-Alekseyev, G. I.

26
B

ORG: none

TITLE: Structure and properties of aluminum-silicon carbide alloy

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 2, 1966, 46-48

TOPIC TAGS: aluminum alloy, silicon carbide containing alloy, dispersion strengthened alloy, alloy structure, alloy property

ABSTRACT: The effect of the content and degree of dispersion of initial components on the mechanical and physicochemical properties of aluminum-silicon carbide alloys has been investigated. Alloy specimens were prepared from 99.99% pure aluminum² and contained 2.5, 5, 7.5, 10, 15, 20, or 30% silicon carbide with a particle size of 14, 28, 60, 100, or 160 μ. It was found that increasing the silicon-carbide content from 2.5 to 30% at the same particle size of 100 μ decreased elongation from 5 to 0.5%, reduction of area from 9 to 2%, reduction in upsetting from 50 to 30%, and notch toughness from 4.5 to 0.5 kg/cm². Brinell hardness increased from 48 to 70 kg/mm². The maximum tensile strength of 12-14 kg/mm² was reached at a particle size of 16 μ and a silicon-carbide content of 3%; with increasing particle size the maximum tensile strength is lower and is reached at a higher content of silicon carbide. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: none/ ATD PRESS: 4214

[AZ]

Card 1/A LC

UDC: 621.789.2:669.715'732

2

L 11075-63

EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JT

ACCESSION NR: AP3001015

S/0193/63/000/004/0015/0018 57

AUTHOR: Pogodin-Alekseyev, G. I. (Dr. of technical sciences); Romadin, Yu. P.; Prosvirov, E. N.TITLE: Producing cast alloys from nonfusible components ¹⁴ under the effect of ultrasonic vibration

SOURCE: Byul. tekhniko-ekonomicheskoy informatsii, no. 4, 1963, 15-18

TOPIC TAGS: dispersion-strengthened alloy, ultrasound casting

ABSTRACT: The Laboratoriya ul'trazvuka by'vsh. Volgogradskogo sovnarkhoza (Ultrasound Laboratory of the former Volgograd Sovnarkhoz) has experimented with ultrasound as a means of promoting fusion between usually nonfusible components (e.g., molten metals with oxide, carbide, or nitride powders). It was found that ultrasonic vibrations applied to molten metal break down the oxide film on powder particles and facilitate the wetting of powder by metal. Simultaneous stirring of the metal contributes to a uniform distribution of powder particles over the metal volume. The fusion and uniformity of distribution of powder particles depends very much upon the relative quantity, chemical

Card 1/2

L 11075-63

ACCESSION NR: AP3001015

0

composition, specific weight and size of powder particles, and upon the temperature of the molten metal. With increasing temperature the surface tension and viscosity of molten metal decrease, but oxide film forms and grows more rapidly and the ultrasonic head begins to disperse rapidly. The method was used in experimental production of various dispersion-strengthened alloys of tin, lead, bismuth, zinc, aluminum, or copper with oxide, carbide, nitride, and other powders. These alloys can be remelted and cast. Alloys containing 10 to 20% powder particles are sufficiently fluid and can be cast into molds of intricate shape. Alloys with higher contents of powder particles are thick flowing and can be cast only by special methods such as pressure casting. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 11Jun63

ENCL: 00

SUB CODE: ML, MA

NO REF SOV: 000

OTHER: 000

Card 2/2

empty

PROSVIRIN, I.

Journal of Applied Chemistry
March 1954
Industrial Inorganic Chemistry

(Handwritten initials)

Chromium-nickel steels alloyed with nitrogen. N. H. Polakowski
(*Metal Progr.*, 1953, 63, No. 6, 170-172).—A digest of a paper
by I. Prosvirin, N. S. Krishitshanski, and R. P. Zaletayeva
(*Lit. Prosvirina*, 1952, 9, 22) is presented. N is introduced as
nitrided ferrochrome (C 0.04%, Cr 65%, N 2-3%) into a steel
containing C 0.1%, Cr 17%, and Ni 10%, when melted in an induc-
tion furnace at ~1530°. With the N content of the bath ranging
from 0.5 to 1.5%, ~0.3% of the N is retained in solid solution in
the alloy; higher N content in the bath causes porosity in the solid
ingot. For steels containing 15-17% of Cr the optimum N
content of the bath is 0.15-0.20%. In melting practice temp.
variations from 1338° to 1349° and heating durations up to 30 min.
do not lead to a significant loss of N in the metal.

C. W. MORLEY

TURKENICH, D.I., inzh.; ROSTOVTSSEV, S.T., prof.; BAPTIZMANSKIY, V.I., dotsent;
PROSVIRIN, I.S., inzh.

Effect of reduction and modification on the purity and resilience
of converter rail steel. Izv. vys. ucheb. zav.; chern. met. 2 no.3:
21-25 Mr '59. (MIRA 12:7)

1.Dnepropetrovskiy metallurgicheskiy institut. Rekomendovano
kafedroy teorii metallurgicheskikh protsessov Dnepropetrovskogo
metallurgicheskogo instituta.

(Steel--Metallography)
(Railroads--Rails--Testing)
(Bessemer process)

KUZNETSOV, M.P., inzh.; BAPTIZMANSKIY, V.I., dotsent, kand.tekhn.nauk;
PROSVIRIN, K.S., kand.tekhn.nauk

Nature of spotty segregation in steel. Izv.vys.ucheb.zav.: Chern.
met. 2 no.5:35-39 My '59. (MIRA 12:9)

1. Zavod im. Dzerzhinskogo, Dnepropetrovskiy metallurgicheskiy
institut. Rekomendovano kafedroy teorii metallurgicheskikh pro-
tseessov Dnepropetrovskogo metallurgicheskogo instituta.
(Steel--Defects)

KARPUNIN, A.M.; PROSVIRIN, K.S.; BESEDIN, P.T.; ORGIYAN, V.S.;
BAPTIZMANSKIY, V.I.; SHCHERBINA, P.A.; REKHLIS, G.N.

Rails made of low-alloy, acid, Bessemer steel. Stal' 24
no.5:448-451 My '64. (MIRA 17:12)

1. Dneprovskiy metallurgicheskiy zavod im. Dzerzhinskogo,
Dnepropetrovskiy metallurgicheskiy institut i Ukrainskiy
institut metallov.

S/137/62/000/005/019/150
AC06/A101

AUTHOR: Prosvirin, K. S.

TITLE: Carbon oxidation process during the formation of rimming steel ingots

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 54-55, abstract 5V321 ("Nauchn. tr. Dnepropetr. metallurg. in-t", 1961, no. 45, 97-106)

TEXT: It is assumed that C oxidation in solidifying rimming steel ingots proceeds on account of O₂ supplied to the mother liquor from two sources simultaneously: i.e. from the solidifying ingot section as a result of segregation process, and from the atmosphere over the liquid steel surface. To reveal the part of O₂ supplied from the atmosphere, experiments were made with a great number of open-hearth and bessemer heats of rimming steel. The ingot weight varied within 0.2 to 9 tons. The experiments were carried out with conventional through-molds and molds with a covered upper butt-end, which were mounted on the same bottom plate. It was established that during the molding of conventional rimming steel ingots weighing 3.7 - 9.0 tons, C and Mn oxidation proceeds by more

Card 1/2

Carbon oxidation process ...

S/137/62/000/005/019/150
A006/A101

than one half on account of O_2 supplied from the atmosphere to the mother liquor. The main phases of this process are analyzed: 1) O_2 absorption by the liquid metal surface from the atmosphere and transfer of O_2 to its reaction zone with C; 2) the chemical reaction between the O and C content with the formation of C oxides; 3) separation of C oxides into the gaseous phase and elimination of gas from the ingot. The slowest stage of the process is phase 1. The carbon oxidation process with O_2 supplied to the mother liquor of the ingot as a result of segregation, is composed of the following phases: 1) redistribution of the O and C content between the solid and liquid portions of the ingot being molded; 2) chemical reaction between the C and O content with the formation of C oxides; 3) nucleation and growth of gas bubbles and their separation out of the ingot. The restricting phase of the process is phase 1. The intensity of carbon oxidation with O_2 , supplied from without, can be regulated as follows: 1) by full or partial covering of the mold top butt to regulate the air inflow to the liquid metal surface; 2) by addition of scale and other solid oxidizers to the metal surface in the mold; 3) by O_2 or oxygen blowing of the metal surface; 4) by production of a slag cover on the liquid metal surface.

[Abstracter's note: Complete translation]

P. Arsent'yev

Card 2/2

MT

PROSVIRIN, K.S.; BAPTIZMANSKIY, V.I.; KUZNETSOV, M.P.; UMNOV, V.D.

Using magnesium in converter steel production. Metallurg 2 no.1:16-17 Ja '57. (MIRA 10:4)

1. Dnepropetrovskiy metallurgicheskiy institut (for Prosvirin, Baptizmanskiy) 2. Zavod im. Dzerzhinskogo (for Kuznetsov, Umnov)
(Bessemer process)
(Magnesium)

PROSVIRIN, K.S.

СЛНТОК И СВОЙСТВА СТАЛИ

Д.Ф.Черного	Исследования влияния амплитуды света облучения при облучении слитков нержавеющей стали на поведение металла и свойства металла.
К.С.Павлов Л.И.Кручин	Распределение химических элементов в слитках шихтовой стали.
Ю.А.Нозович Н.П.Гаринский В.Я.Виня	Качество изготовления и свойства продукции слитков в печах, метал- лургических и металлургических форм ма.
В.Г.Гуров	Структурообразование и зависимость от температурного цикла ших- товой стали.
С.А.Медведева В.К.Новиков А.С.Лобан	Влияние температуры нагрева на качество слитков из стали на шихтовой основе.
В.Г.Кузнец С.М.Гуров	Поведение окислов в слитках и слитках свободной стали.
В.М.Тареев Ю.Д.Смирнов	О связи структуры и химической чистоты слитков и процесса кристал- лизации стали.
В.М.Тареев Ю.Д.Смирнов	Влияние выжига слитков при про- тавлении стали на качество продукции слитков и слитков.
А.И.Мерзлов В.С.Родченко	Механизм образования слитков при облучении и слитков шихтовой стали.
Ю.А.Морозов В.П.Морозов	Поведение металла слитков при облучении шихтовой стали.

report submitted for the 5th Physical Chemical
Conference on Steel Production, Moscow-- 30 Jun 1959.

L 27702-66 JJ
ACC NR: AFG018407

SOURCE CODE: UR/0286/65/000/017/0069/0069

22
B

INVENTOR: Markin, S. V.; Prosvirin, K. V.

ORG: Central Scientific Research Institute of Technology and Machine Building
(Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)

TITLE: Die steel, Class 40, N6 174367

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 69

TOPIC TAGS: die, steel, solid mechanical property

ABSTRACT: A new die steel with improved mechanical properties is proposed which has the following chemical composition: 0.4-0.5 C, 0.4-0.6 Si, 0.4-0.6 Mn, 2.0-2.5 Cr, 0.8-1.2 Mo, 1.8-2.5 W, 0.6-0.8 V, 0.03 S, 0.03 P. [JPRS]

SUB CODE: 11, 13, 20 / SUBM DATE: none

Card 1/1 CC

UDC: 669.14.018.254

AUTHORS: Markin, S. V.; Prosvirin, K. V.; Shevelev, A. Ye.

410
43
B

TITLE: New high strength die steels for hot forming.

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 7, 1965, 1-5

TOPIC TAGS: die steel, tool steel, steel alloy, steel property / 45Kh2SV2MF steel alloy, 40Kh2SVMFYu steel alloy, 3KhV4SF steel alloy, 25Kh2M2FIN steel alloy, 3Kh2V8 steel alloy, 4Kh2V5FM steel alloy

ABSTRACT: Results are presented of laboratory and industrial tests of die steels 40Kh2SVMFYu and 45Kh2SV2MF developed by the authors based on steels 3KhV4SF, 4Kh2V5FM and 25Kh2M2FIN. Seven different alloys (12 kg of each) were prepared and tested at the Moskovskiy avtozavod im. Likhacheva (Moscow Motorcar Factory) as dies for hot forging of automobile valves made of 40Kh steel. After testing these seven alloys, five new alloys (based on the previous results) were prepared and tested. Chemical composition of steels: 40Kh2SVMFYu (0.43% C, 0.5 Si, 0.5 Mn, 2.8 Cr, 1.28 W, 0.9

L 64371-65

ACCESSION NR: AP5018543

3

$\sigma_b = 164, 178, \sigma_s = 149, 159, \gamma = 8.6, 14.2\%, \delta = 4.6, 5.0\%, a_k = 4.3, 5.1$ at 650C - 102, 88; 85, 83; 43, 37; 8.7, 7.0; 4.3, 4.3 for $\sigma_b, \sigma_s, \gamma, \delta, a_k$

respectively (after quenching in oil from 1100C and two-hour annealing at 580C).

Hardness after nitriding was found to be 340 and 363 RC at 650C and 187 and 187 RC at 700C

Abstractor's Note: These values seem unreasonable but are given in Table 6 in the paper. These steels were found to be superior to steel 3Kh2V8 which is 2-3 times more expensive than the experimental alloys. Orig. art. has: 6 tables and 2 figures.

ASSOCIATION: none

SUBMITTED: 00

EXCL: 00

SUB CODE: MK

NO REF 800: 000

OTHER: 000

L 2774-66 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(h)/EWA(c)/ JD/HW

ACCESSION NR: AP5022012

UR/0286/65/000/014/0080/0080

669.14.08.258

AUTHOR: ^{44,55}Markin, S. V.; ^{44,55}Tutov, I. Ye.; ^{44,55}Prosvirin, K. V.; ^{44,55}Shevelev, A. Ye.; ^{44,55}Belkov, G. M.; ^{44,55}Zemnukhov, I. F.

49
B

^{44,55}TITLE: ^{44,55}A steel for ^{44,55}pressing, ^{44,55}Class 40, ¹⁰No. 173007

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 80

TOPIC TAGS: alloy steel, tungsten steel, chromium steel

ABSTRACT: This Author's Certificate introduces a steel for pressing which contains carbon, silicon, manganese, chromium, molybdenum, vanadium, tungsten and aluminum. The mechanical properties of the steel are improved by using the following composition (in %): 0.37-0.45 carbon; 0.4-0.6 silicon; 0.5-0.7 manganese, 2.5-3.0 chromium; 0.9-1.2 molybdenum; 0.6-0.8 vanadium; 1.0-1.4 tungsten; 0.4-0.6 aluminum.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya (Central Scientific Research Institute of Technology and Machine Building)

SUBMITTED: ^{44,55}07Feb64

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card1/1 *ndk*

S/197/63/000/002/001/005
B104/B186

AUTHORS: Prosvirin, V., Ozolin, Ya.

TITLE: The influence of initial tensions on the impact strength of some plastics

PERIODICAL: Akademiya nauk Latvyskoy SSR. Izvestiya, no. 2 (187), 1963, 37-40

TEXT: The influence of initial tensions produced by prestressing and precompressing on the variation of the impact strength at 20°C of polymethylmethacrylate and K-17-2 (K-17-2) phenoplast samples was investigated. The samples were prestressed by a lever system and precompressed by an elastic system. Impact strength was determined by means of a Charpy impact machine with a power of 0.825 kg·cm; the systems producing the tensions were so devised that the tensions do not vary during the bending process caused by the impact. The samples (5.4 cm, 5.50 cm) were cut out mechanically. All samples had a cup-shaped groove 0.3 mm deep. Results: The external compressive and tensile forces produce a tension field in the sample under the influence of which the molecule

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The influence of initial tensions on the ... S/197/63/000/002/001/005
B104/B186

segments become reorientated. The oriented position of the molecules in the plastics increase the impact strength within the limits of elastic deformation. If the initial tension in polymethylmethacrylate is 3 kg/cm^2 the impact strength increases for 110%. If the initial tension is higher, the impact strength decreases. Similar results are obtained with compressed samples of polymethylmethacrylate and with K-17-2 samples. There are 4 figures.

ASSOCIATION: Institut avtomatiki i mekhaniki AN Latv. SSR
(Institute of Automation and Mechanics AS LatSSR)

SUBMITTED: October 22, 1962

Card 2/2

20963

18.7520 1145, 1555

S/197/61/000/002/003/005
B117/B212

AUTHORS: Prosvirin, V., Mortikov, V.

TITLE: Structure of a compounded solid solution that has been heated to high temperatures

PERIODICAL: Izvestiya Akademii nauk Latviyskoy SSR, no. 2, 1961, 65-70

TEXT: The structure of a solid solution has been investigated on a nickel-base alloy that has been heated to high temperatures and consisted of the following 8 elements: 0.08% C, 14.8% Cr, 1.93% Ti, 1.85% Al, 3.65% Mo, 5.71% W, 0.32% Mn, 0.14% V. All specimens have been annealed at 950°C for 7 hours and subsequently at 850°C for 10 hours. After the treatment the structure of the alloy consisted after such treatment of a solid γ -solution and small amounts of secondary phases. The effect of a continuous heating on the internal structure of the solid solution has been studied at 1200°C in intervals of 1, 3, 6, 12, 24, 36, 48, and 96 hr and at 1300°C in intervals of 1, 3, 6, and 12 hr. The heterogeneity of the solid solution which appeared due to heat treatment has been estimated according to microhardness and the change of the crystal

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S/197/61/000/002/003/005
B117/B212

Structure of a compounded ...

lattice parameter. In order to estimate the microhardness, the method of statistical evaluation of measurements has been applied. The microhardness has been measured with an instrument of the type ПМТ-3 (PMT-3) using a load of 50 grams. It has been found that the rules governing the changes of frequency response curves of the microhardness distribution, which are caused by high temperatures, may be observed even in more complicated systems than C - Fe - Cr - Ni. The frequency response curve which characterizes the distribution of the hardness level of the ground state (7 hours at 950°C + 10 hours at 850°C) has a maximum at 385 kp/mm² and represents a normal form of the statistical distribution of levels of microhardness. The heterogeneity of the phases during the ground state of the alloy is characterized by high values on the frequency response curve, which correspond to the maximum of the curve. Heating to temperatures up to 1200-1300°C brings about a softening of the solid solution, and at the beginning of the heating process the frequency response curve will be shifted toward smaller values of microhardness. Heating for more than one hour brought about three characteristic changes of the frequency response curves: 1) Occurrence of a second and a third maximum; 2) change of the curve width; 3) shift of the frequency

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S/197/61/000/002/003/005
B117/B212

Structure of a compounded ...

response curve with hardness. The occurrence of several maxima may be explained by the existence of several qualitatively different types of concentration complexes. The change of width of the frequency response curve may characterize the degree of inhomogeneity of the solid solution. A shift of frequency response curves toward higher values of microhardness is connected with a redistribution of alloying elements. While this takes place, conditions are established in certain microvolumes, which are very suitable for the origin and growth of new phase seeds. It has been shown that a number of alloying elements will escape from the solid solution into the zones of origin of concentration complexes if the heating to high temperatures is continuous. The diffusion mobility of these atoms is largely restricted. Their concentration in certain volumes influences the change of the crystal lattice parameter of the basic solution. Measurement of the lattice parameter (K_x) of the solid solution in the alloy to be investigated at 20°C has shown that the maximum value of the parameter corresponds to a heating of one hour at 1200°C, if the main portion of the secondary phase has been dissolved in the solid solution. Any longer heating will bring about a continuous

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Structure of a compounded ...

S/197/61/000/002/003/005
B117/B212

decrease of the parameter. It seems that a certain portion of the elements which expand the crystal lattice of the solid solution escape from it and concentrate in zones of accumulation. There are 8 figures and 11 Soviet-bloc references.

ASSOCIATION: Institut avtomatiki i mekhaniki AN Latv. SSR
(Institute of Automation and Mechanics AS Latviyskaya SSR)

SUBMITTED: April 4, 1960

Card 4/4

PROSVIRIN, V. Prof. Dr.

"What Does the Institute for Technical and Economic Data Do," Trud., 1 Sep 55.

PROSVIRIN, V.; OZOLIN', Ya. [Ozolins, J.]

Effect of initial stresses on the impact strength of certain
plastics. Izv.AN Latv.SSR no.2:37-40 '63. (MIRA 16:4)

1. Institut avtomatiki i mekhaniki AN Latviyskoy SSR.
(Plastics--Testing)

PROSVIRIN, V. (Riga); TARASOV, B. (Riga)

Nitration of iron using high frequency current for heating. Vestis
Latv ak no.11:29-35 '59. (ZEAI 9:11)

1. Akademiya nauk Latvyskoy SSR, Institut mashinovedeniya.
(Nitration) (Iron) (Electric currents)

L 61195-65 EWT(m)/EPR/EAP(t)/EAP(b)/EWA(h) Pa-4/Psb LP(c) JD
ACCESSION NR: AP5018996 UR/0286/65/000/012/0021/0021
621.78
621.793.6

24
B

AUTHOR: Prosvirin, V. I.; Lotsmanov, G. S.

TITLE: Paste method of thermochemical treatment of metals and alloys. Class 18,
No. 171876

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 21

TOPIC TAGS: metal treatment, thermochemical treatment, alloy treatment

ABSTRACT: This Author Certificate introduces a method of thermochemical treatment of metals and alloys which uses a paste as the source of heated surface-impregnating elements. The paste consists of heat-supplying components such as aluminum, magnesium, and calcium, substances supplying oxygen, and diffusion-active components. In a variant of the method, heat-supplying components are prepared with paraffin oil lubricant. [ND]

ASSOCIATION: none
SUBMITTED: 30Apr64
NO REF SOV: 000
Card 1/1 287

ENCL: 00
OTHER: 000

SUB CODE: MM, FP
ATD PRESS: 4052

PROCESS AND PROPERTIES INDEX

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ca

Investigation of the fracture of dies of "Krasnyj Putilover" used for wire-drawing. V. I. PROKHYRIN. *Metallurg.* 6, 00-3(1931); *Chem. Zentr.* 1931, 11, 3255-6. -- The dies used for the manuf. of wire and nails, which contain C 1.8-2, Si 0.4, Mn 0.5, S 0.03, P 0.03, Cr 10-3 and Ni 1.8-2.5%, frequently break upon the corrosion of a crack in the direction of the grain of the material. Study of the microscopic structure indicates large carbide aggregations and non-uniform distribution of the carbide. The fractures are due to internal tension. M. G. MOORR

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

CA

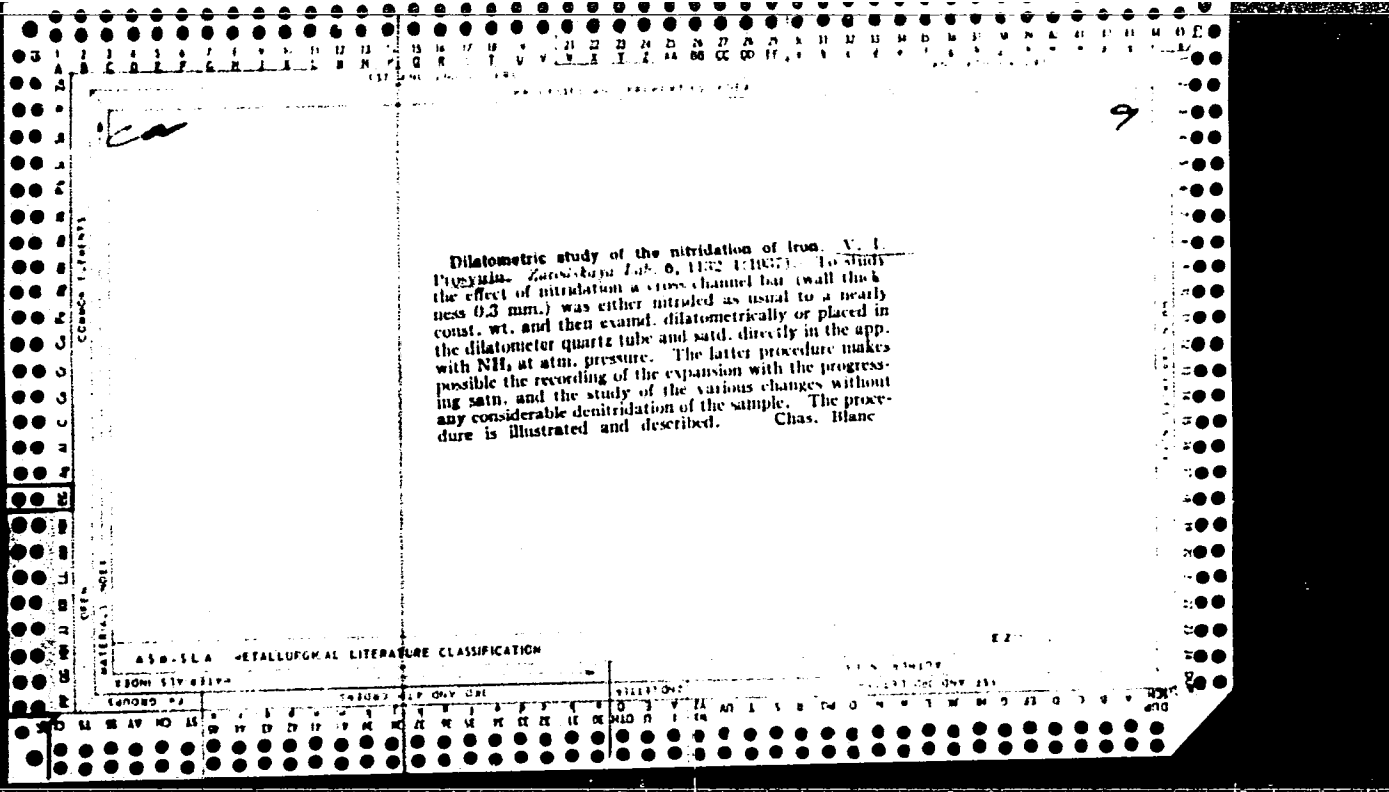
PROCESSES AND PROPERTIES INDEX

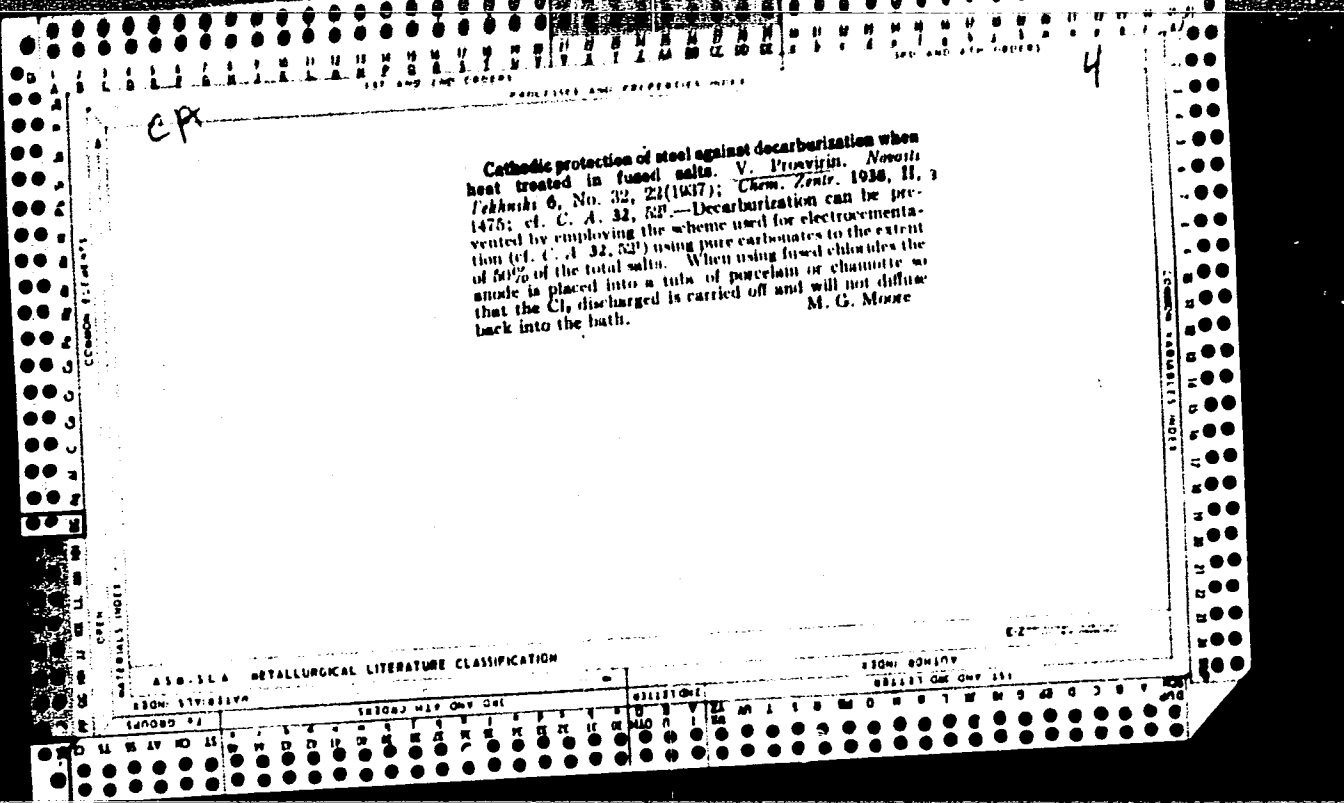
New method of electrocementation of steel and its protection against decarburization when heated in fused salts. V. I. Pruvotin. *Vestnik Metallprosv.* 10, No. 10, 66-70(1936); *Chemie & Industrie* 30, 226. By d. c. electrolysis in fused salts Fe and steel, as cathodes, can be case-hardened in carbonates and in mixts. of carbonates and chlorides. The bottom of the crucible serves as anode. The depth of cementation in Na_2CO_3 is 0.6 mm. at the end of 1 hr., 0.9 mm. at the end of 2 hrs. and 1.1-1.2 mm. after 3 hrs. Na_2CO_3 is suitable especially for short cementation at high temps.; BaCO_3 in admixt. with chlorides can be used for longer treatments. The steel can easily be protected against decarburization during electrolysis by adding small amts. of Cu to the salt bath. A protective film of Cu plates out on the steel.

A. Papiraru-Couture

ASS. S.L.S. METALLURGICAL LITERATURE CLASSIFICATION

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

9

ABSTRACT AND PROPERTIES

The use of water containing algae as a cooling liquid in the hardening of steel. V. I. Prosvirin and V. N. Novikov. *Vestnik Metalloproiz.* 17, No. 10, 92-101 (1977); *Chem. Zentr.* 1938, II, 1851-2. -Expts. on the hardening of steel with an algae contg. water emulsion as the quenching liquid indicated that the same values of hardness were obtained by quenching in such an emulsion as by quenching in oil. The emulsion has the advantage over oil of producing no smoke. It is also cheaper. M. G. Moore

AS 6 51 4 METALLURGICAL LITERATURE CLASSIFICATION

22

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES UNIT

9

CA

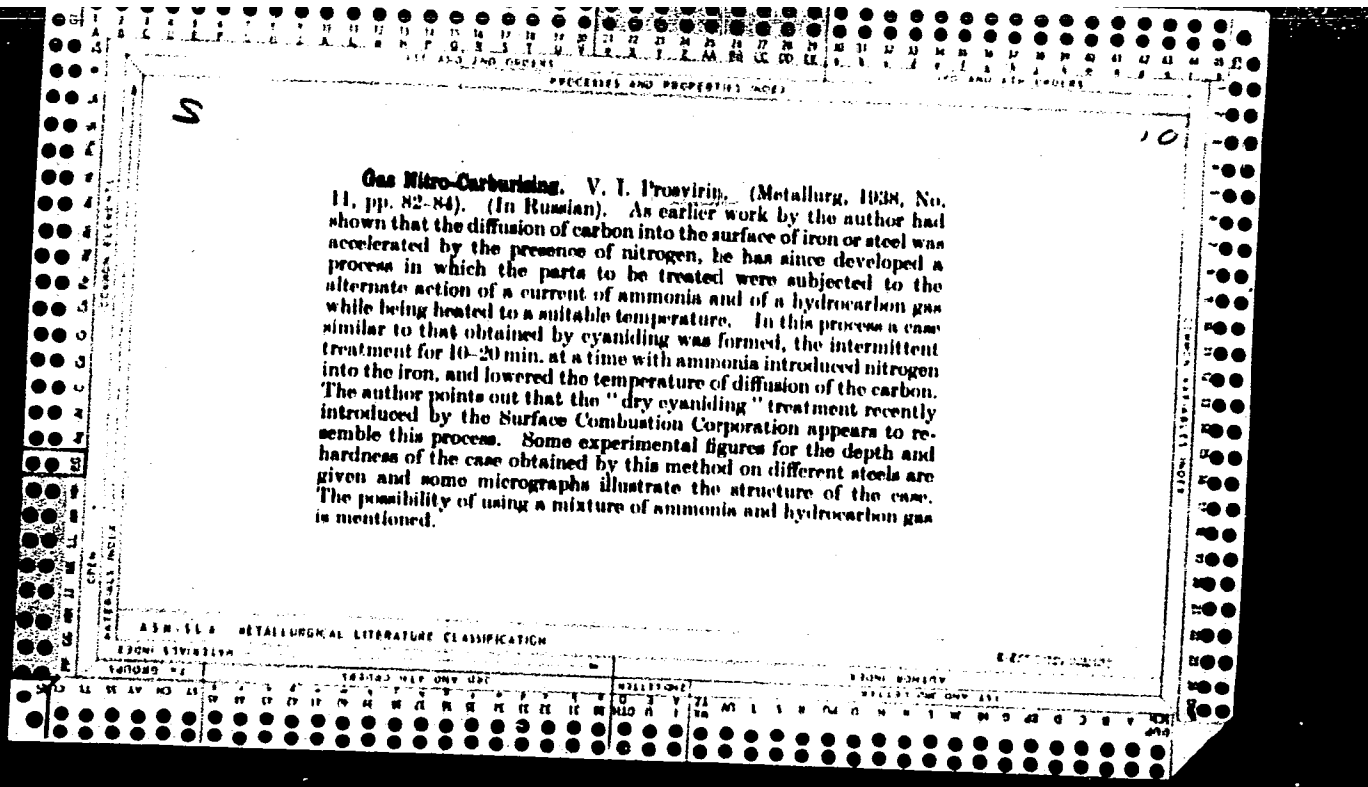
Electrolytic theory of decarburizing and eroding steel in molten salts. V. I. Pruvirin and P. F. Bel'mer. *Vestnik Metalloprum.* 1938, No. 8-9, 115-17. -- The dissociated mols. of the molten salt are neutralized when they come into contact with the steel surface to form gases, such as Cl, CO₂, CO and O, and these gases then react with the metal at its surface. S. L. Madorsky

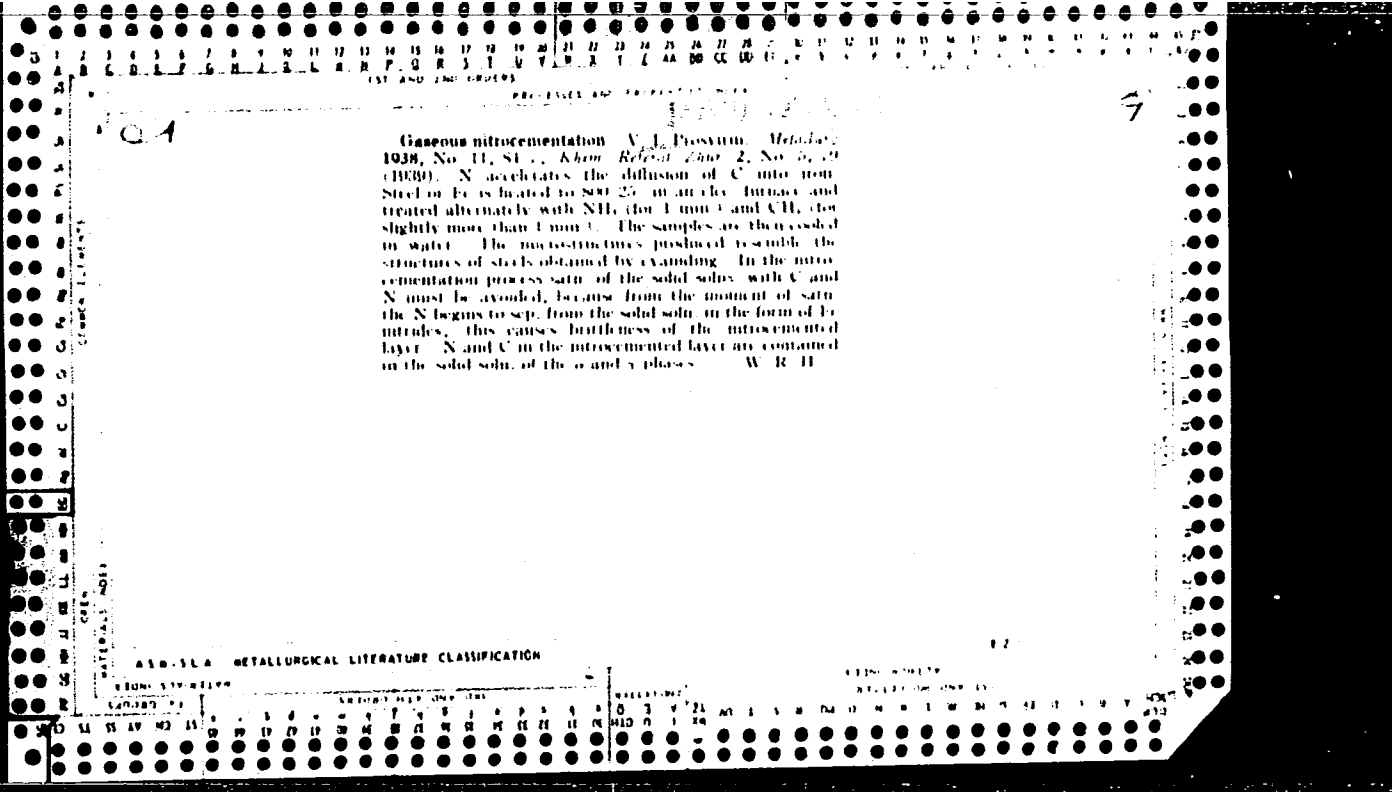
METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS





157 AND 2ND ORDERS PROCESSES AND PROPERTIES INDEX 157 AND 4TH ORDERS

GA 9

Denitrizing steel. V. I. Prosvirin. *Metallurg* 13, No. 5, 34-8(1938); *Chimie & Industrie* 41, 1891. — Elimination of excess N from the nitrified layer by thermal denitrizing exerts a very favorable influence on the mech. properties of steel, decreasing its fragility and the deformation of the nitrified layer. Denitrization begins at a temp. that decreases with the temp. at which the steel was satd. with N. In practice it would be interesting to denitrize steel above 750°.

A. Papineau-Couture

ASME-ISA METALLURGICAL LITERATURE CLASSIFICATION

COMP. ELEMENTS OPEN MATERIALS INDEX

157 AND 2ND ORDERS 157 AND 4TH ORDERS

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

RECEIVED AND PREPARED BY

Effect of nitrogen content of titanium-aluminum steel on subsequent hardening during nitriding. V. I. Prosvirin. *Metallurg* 13, No. 2, 85-90(1938).—Preliminarily nitrided specimens of steel contg. C 0.23, Cr 1.45 and Al 1.13% were subjected to a 2nd nitriding at 525-625° for 10 hrs. The hard zones softened owing to the lowering of the Cr and Al contents in the solid soln. by the formation of Cr and Al nitrides. H. W. Rathmann

9

COMMON ELEMENTS

MATERIALS INDEX

ASME-ISA METALLURGICAL LITERATURE CLASSIFICATION

ALPHABETIC INDEX

NUMERICAL INDEX

GROUPS

LETTERS

1ST AND 2ND GROUPS

PROCESSES AND PROPERTIES INDEX

9

Handwritten: N

Nitriding surgical needles for corrosion protection
V. I. Prosvirin. *Metallurg* 13, No. 2, 91-4 (1958).—Needles nitrided with NH_3 at 840° for 20-30 sec., oil-quenched and drawn at 425° had good mech. properties and good resistance to corrosion in tap water. H. W. Rathmann

ASST. 31A METALLURGICAL LITERATURE CLASSIFICATION

ALPHABETICALLY

GROUPS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

1ST AND 2ND CODES

3RD AND 4TH CODES

PROCESSES AND PROPERTIES -EE-

ca

Reciprocal action of nitrogen and aluminum during their diffusion in iron. V. I. Prosvirni and B. S. Gendler. *Vestnik Metallopram.* 18, No. 4, 101-6 (1968).--Samples of Fe contg. 0.1-0.15% C, nitrated and non-nitrated, were subjected in one series of expts. to cementation in a powder consisting of 49% Al, 49% Al₂O₃ and 2% NH₄Cl, at 900° for 5 hrs. In another series, the samples were immersed in liquid Al at 840° for 4 hrs. The results of the first series of expts. showed that there was no difference between nitrated and non-nitrated samples, evidently because of the escape of N from the nitrated samples at the high temp. of the expts. In the second series of expts. the nitrated samples had a smoother surface, the Al having penetrated the metal uniformly, while the non-nitrated samples had an irregular rough surface, due to the solvent action of the Al on the Fe. S. L. Madorsky

7

Common Elements

Common Variables

MATERIALS NOTE

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CODES

3RD AND 4TH CODES

5TH AND 6TH CODES

7TH AND 8TH CODES

9TH AND 10TH CODES

11TH AND 12TH CODES

13TH AND 14TH CODES

15TH AND 16TH CODES

17TH AND 18TH CODES

19TH AND 20TH CODES

21ST AND 22ND CODES

23RD AND 24TH CODES

25TH AND 26TH CODES

27TH AND 28TH CODES

29TH AND 30TH CODES

31ST AND 32ND CODES

33RD AND 34TH CODES

35TH AND 36TH CODES

37TH AND 38TH CODES

39TH AND 40TH CODES

41ST AND 42ND CODES

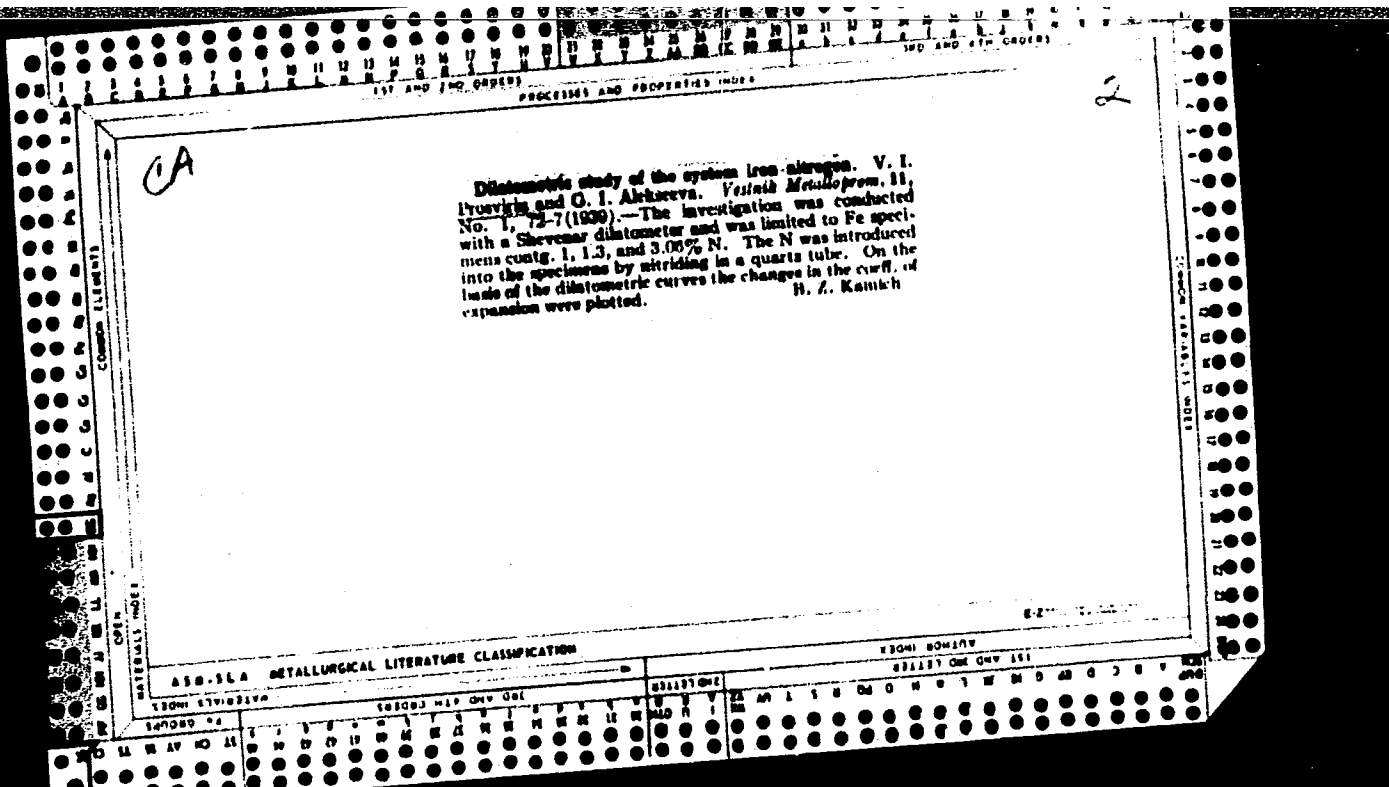
43RD AND 44TH CODES

45TH AND 46TH CODES

47TH AND 48TH CODES

49TH AND 50TH CODES

51ST AND 52ND CODES



10

PROCESSES AND PROPERTIES INDEX

Influence of the cemented layer upon the hardening of the core of steel specimens. V. I. Prosvirin. *Vestnik Metalloprof.* 19, No. 10-11, 109-7 (1959).—Cemented steel specimens were hardened and then cut in half and the hardness of the cut surfaces was detd. The hardness was higher than for specimens which were not cemented. The increased hardness may be due to the compressive effect of the cemented layer, in cooling to the martensite metal. The cemented layer, under the compressive forces exert their effect on the inner metal. If the av. C content in the cemented layer is 0.9-1.0% then the pressure of the cemented layer will continue up to 220-200°. Below this temp. the pressure is weakened owing to the formation of martensite and the expansion of the cemented layer. The same occurs in the core of the specimen. In the interval of martensite transformation the inner voids expand.

B. Z. Kamich

ASS-51A METALLURGICAL LITERATURE CLASSIFICATION

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

20

The Corrosion-Resistance of Heat-Treatment Pots. V. I. Prosvirin and G. I. Alekseev. (Vestnik Metallopromyshlennosti, 1939, No. 10-11, pp. 108-109). (In Russian). The authors report on some tests on various metals and alloys the object of which was to find the best material to resist the attack of molten salts used for salt-bath carburising. Specimens of stainless steels, alloy steels, Ni-chrome, nickel and iron were tested in molten barium chloride at 1200° C. The loss-in-weight determinations showed that nickel and Ni-chrome offered the best resistance; next came the high-nickel alloy steels, in particular steel *EYaZS* containing 0.30-0.40% of carbon, 2.3-2.6% of silicon, 0.40-0.70% of manganese, 0.020% of sulphur, 0.030% of phosphorus, 1.6-2.0% of chromium and 23-27% of nickel.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX	METALS INDEX	NON-FERROUS METALS INDEX	ALLOYS INDEX
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

9

CA

Effect of pressure on transformations in high-speed steel. V. I. Prosvirin. *Vysok Metalloprof.* 20, No. 7, 53-61 (1940). There is a rise in the temp. of high-speed transformation in cooling (during tempering) of high-speed steel which had been subjected to unilateral pressure after hardening. Changes in the duration of this pressure and also pressures at const. temp. do not produce a noticeable rise or drop of temp. of martensite transformation. The martensite point rises with a rise in temp. under pressure. Tools of high-speed steel showed a large increase in stability when subjected to the following heat- and pressure treatment: heating to 1270°, forging at 300° under a pressure of 12,500 kg./sq. cm. and tempering at 250° for 1 hr.; heating to 1270°, quenching in oil, subjecting to unilateral pressure at 250° under 12,500 kg./sq. cm. and tempering for 1 hr. at 500°. Comparison was made with tools quenched from 1270° in oil and thrice-tempered at 500° for 1 hr. Hardening of the high-speed steel under pressure produces highly strained residual austenite which decomps. when heated and greatly augments the primary temper martensite. This decreases the drop in hardness in tempering at 300-400° and increases the heat resistance and the secondary hardness. Analogous results are obtained by tempering under pressure. B. Z. K.

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

Evaluation B-5884

PROSVIRIN, V. I.

"Increasing the Heat Resistance of Iron Carbide Alloys by Aluminum Coating,"
Moscow, 1944

PROSVIRIN, V. I., Dr.; ZUDIN, I. F.; VERSHINSKAYA, A. D., Engineer

Mbr., TsNII TMASH (Central Scientific-Research Institute of Technology and Machine Bldg.)
(-1945-)

Candidate in Technical Sciences

"Cast Nitrogenous Steel Cutter," Stanki I Instrument, 16, No. 3, 1945

BR-52059019

PROSVIRIN, V. I.

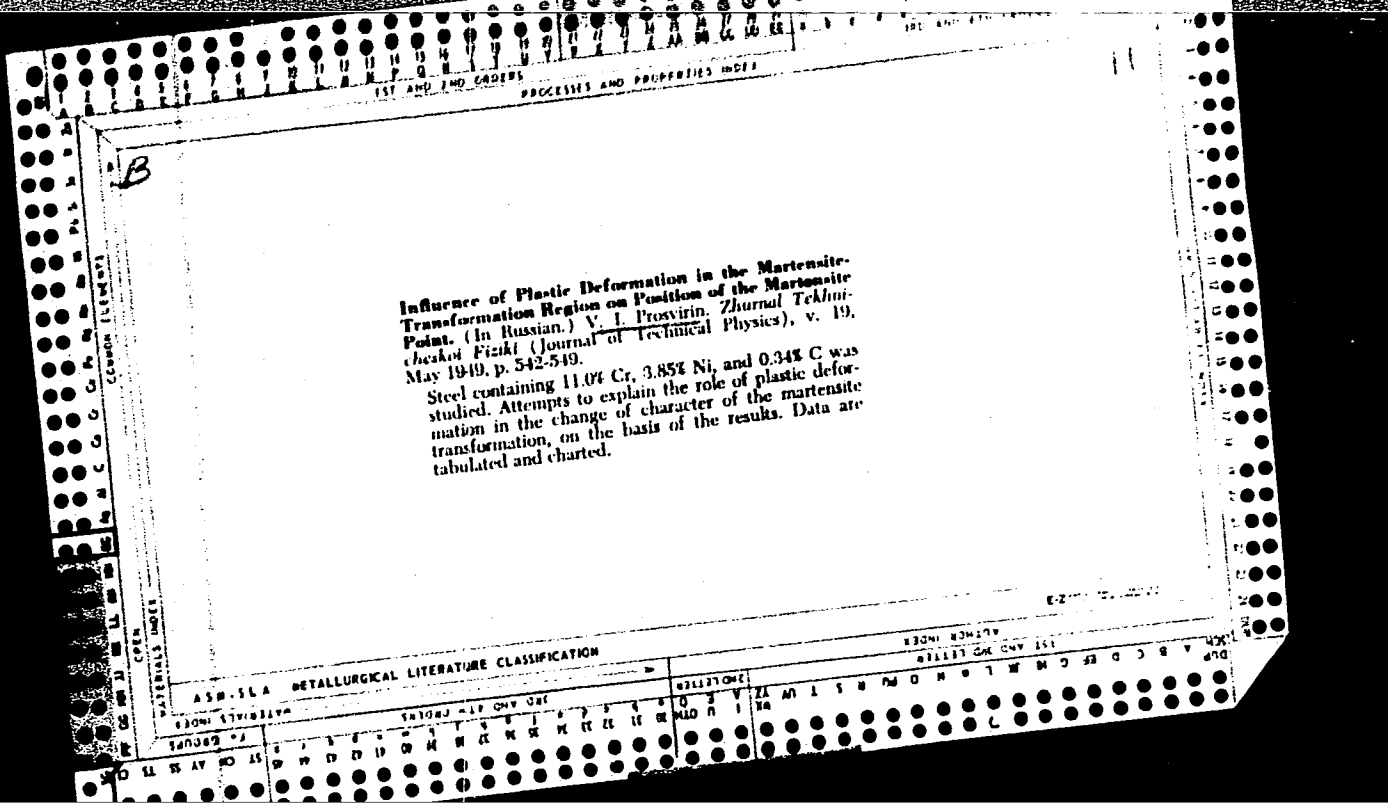
The effect of external pressure on phase changes in steel and cast-iron. Moskva,
Gos. nauch. tekhn. izd-vo mashinostroit. lit-ry, 1948 118 p. (49-53757)

TN693. I7P75

PROSVIRIN, V. I.
25583

Azotirovaniye stali v solyanykh vannakh. V sb: Korroziya, zashchita ot korrozii i elektroliz M., 1948, s. 58-76--Bibliogr: 7 Nazv.

SO: LETOPIS NO. 30, 1948



PROSVIRIN, V.I.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 342 - I

BOOK

Call No.: TN672.V8

Author: PROSVIRIN, V. I. and ENTIN, S. D.

Full Title: ISOTHERMAL TRANSFORMATION OF AUSTENITE TO MARTENSITE

Transliterated Title: Izotermicheskoye prevrashcheniye austenita v martensit

Publishing Data

Originating Agency: All-Union Scientific Engineering and Technical Society of Machine Builders. Urals Branch

Publishing House: State Scientific and Technical Publishing House of Machine Building Literature ("Mashgiz")

Date: 1950 No. pp.: 15 No. of copies: 3,000

Text Data

This is an article from the book: VSESOYUZNOYE NAUCHNOYE INZHENERNO-TEKHNICHESKOYE OBSHCHESTVO MASHINOSTROITELEY. URAL'SKOYE OTDELENIYE, THERMAL TREATMENT OF METALS - Symposium of Conference (Termicheskaya obrabotka metallov, materialy konferentsii) (p. 96-110), see AID 223-II

Coverage: The information on mechanism of transformation of overcooled austenite in steel at the present time serves as guidance in the technology of heat treatments of different steel products. The author presents the results of his study of this subject, initiated by Shteynberg and Kurdyumov. In scope,

Izotermicheskoye prevrashcheniye austenita v martensit AID 342 - I

this study relates to the following problems: Products of the isothermal transformation of austenite to martensite below the point M_s ; stabilization of austenite based on analysis of concentration of atoms and variation of statistical distribution with temperature and isothermal exposure; variation of mechanical properties with the temperature, time of exposure, and resilience; and the problems of variation of general conditions of transformation of austenite to martensite. 12 charts, 1 table.

Purpose: For scientific workers

Facilities: None

No. of Russian and Slavic References: 9 Russian (1941-50)

Available: Library of Congress.

2/2

2491 Nitrogen-Alloyed High Speed Steel. V. I. Prosvirin
and I. H. Dzherski. Henry Brucher, Allazana, Ed. Trans-
lation no. 2931, 18 p. (From AZOT V STALI. ("NITROGEN
IN STEEL"), 1950, p. 140-160.)
Study of experimental steels for influence of N on austenite
grain size, quantity of retained austenite, secondary hardness,
martensite transformation during tempering, and cutting per-
formance. Tables, micrographs, graphs.

PROSVIRIN, V.I.

Vliianie termicheskoi obrabotki na strukturu zharoprochnykh stalei. Sbornik statei [Effect of heat treatment on the structure of heat resistant steels]. Moskva, Mashgiz, 1951. 71 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 2, May 1953

PROSVIRIN, V. I. (Dr. Tech. Sci.) and MORGUNOVA, N. N. (Engineer)

"Instrument for Determination of Relative Vibration Damping," pp. 127-133
of the book "Studies on the Strength of Steel," Mashgiz, 1951

Translation W-23621, 21 Aug 52

PROSVIRIN V. I.

Dissociation of a solid supersaturated solution of deformed austenite.
G. I. Babushkina, N. F. Lashko, and V. I. Prosvirin. Izvest. Akad. Nauk SSSR, Ser. Fiz. 15, 76-9(1951).-- A Steel of the compn. C 0.47, Ni 15 Cr 13.5, Si 0.5 and Mo 0.3% was homogenized for 5 hrs. at 1200° and quenched with H₂O. Metallographic examn. by the method of oxide formation on samples deformed by pressures up to 300 kg./sq. mm. show that the decomn. of austenite is faster than on nondeformed samples. Trigonal carbides gradually are transformed into cubic carbides. The time of appearance of cubic carbides is given by the formula $t = AE^{-Q/RT}$ where $Q = 47,700$ cal./degree for unstrained, 75,600 for strained lattices. On ageing the γ - phase loses Cr which leads to a sepn. of the γ -phase into layers and the appearance of a new line in the x-ray diagram corresponding to a changed parameter of the γ -phase.

S. Pakswar

Central Sci. Res. Inst. Tech. + Mech. Construction

ACCESSION NR: AT4040798

S/2685/63/000/002/0067/0076

AUTHOR: Prosvirin, V. I.; Ozolin', Ya. K.

TITLE: Effect of stresses produced by external loads on impact toughness of plastics

SOURCE: AN LatSSR. Institut avtomatiki i mekhaniki. Prevrashcheniya v splavakh i vzaimodeystviye fas, no. 2, 1963, 67-76

TOPIC TAGS: plastic, alloy 40K60V, rosin beeswax plastic, prestressed plastic, plastic impact toughness, tensile stress, bending stress, compression, deformation, impact toughness

ABSTRACT: Serial samples of organic alloy 40K60V (40% rosin, 60% beeswax) and three modifications (i. e., 20, 40 and 80% beeswax) were tested for effects of compressive prestressing (60 sec., 0.5 kg/cm²), compression (0 -- 1.5 kg/cm²), composition, impact velocity (1.56 -- 3.02 m/sec), bending stresses (0 -- 1.0 kg), as well as tensile prestressing (60 sec., 0.2 -- 3.0 kg/cm²) and plastic predeformation (0 -- 7.5%) on the material's impact toughness. It was found that impact toughness is significantly affected by the

Card 1/2

ACCESSION NR: AT4040798

presence of such stresses and their gradual increase (peak effect values given). Stresses related to elastic or plastic deformation produced an internal structurally-molecular orientation which resulted in increased impact toughness of the material. Orig. art. has: 13 figures.

ASSOCIATION: Institut avtomatiki i mekhaniki AN Lat SSR (Institute of Automation and Mechanics, AN Lat SSR)

SUBMITTED: 00

DATE SEL: 15Jul64

ENCL: 00

SUB CODE: MT

NO REF SOV: 004

OTHER: 000

Card 2/2

ACCESSION NR: AT4033979

S/0000/63/000/000/0011/0017

AUTHOR: Prosvirin, V. I.; Molchanov, Yu. M.

TITLE: Modification of the polycaproamide structure by heat treatment

SOURCE: Geterotsepnny*ye vy*sokomolekulyarny*ye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 11-17

TOPIC TAGS: polymer, polymer structure, polycaproamide, polycaproamide structure, heat treated polymer, heat treated polycaproamide, quenched polymer, quenched polycaproamide, polymer structural analysis

ABSTRACT: A structural analysis of polycaproamide (I) was carried out to study the effects of heat treatment and quenching on polymer properties and structure. Cast specimens (diam., 20 mm; heated to 240C; slow-cooled at 1C/min) were used for the microstructural, microhardness and X-ray analysis and molded specimens (from grains, 160C, 100 kg/cm²) for thermal analysis. All test pieces were heated in a CO₂ atmosphere. Crystallization of 1 tends to significant supercooling. The crystallization temperature drops by 3-4C for the range 1-15C/min., when the rate of cooling is increased by 7C/min. Crystallization in a supercooled state significantly affects the microstructure. An exothermic effect attributable to low-temperature crystallization in Card 1/2

ACCESSION NR: AT4033979

view of increased mobility of paraffin groups, is observed when partially crystallized polymer (I) is heated (60-110C). Rapid cooling can stabilize the high temperature structure of the polymer's crystalline lattice. Analysis of microhardness curves points to a markedly heterogeneous structure, the presence of widely varying local microhardness and the presence of various structural elements. Orig. art. has: 4 graphs, 1 table and 1 illustration.

ASSOCIATION: Institut avtomatiki i mekhaniki AN LatvSSR (Institute of Automation and Mechanics AN Latv. SSR)

SUBMITTED: 28Apr62

ENCL: 00

SUB CODE: OC, MT

NO REF SOV: 013

OTHER: 011

Card 2/2

ACCESSION NR: AP4020245

S/0129/64/000/003/0029/0033

AUTHOR: Prosvirin, V. I.; Yevtikhov, G. V.

TITLE: Rapid high-temperature cyaniding by the application of case-hardening pastes and induction heating

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1964, 23-33, and insert facing p. 40

TOPIC TAGS: case hardening paste, potassium ferrocyanide, carbon, barium carbonate, case hardening, cyaniding, induction heating, high-frequency heating, cyanide hardening, surface hardening

ABSTRACT: The authors investigated the effect of case-hardening mixtures, composed of various amounts of potassium ferrocyanide, carbon, a hydrolyzed ethyl-silicate bond and barium carbonate, in small machine parts. The paste was applied to the degreased surface of 25mm long pure iron and steel specimens with a 16 mm diameter. The specimens were dried for 10-20 min at 20 C and for 60 min at 70 C. Air cooling proveded secure adhesion to the surface. The optimal thickness of the coating was 1.5 mm. Induction heating at 1200 C resulted in the formation of a

Card 1/2

ACCESSION NR. AP4020245

0.3 mm thick diffusion layer within 30-35 seconds. Despite a high hardness, the case remained ductile and microcracks were not identified. Corrosion resistance was greatly improved. The distribution of carbon and nitrogen in the diffusion layer was found to depend on the composition of the paste. The carbon contents increased in proportion to an increase of cyanide in the mixture. Microhardness reached a maximum $H_v \approx 1100$. Grain coarsening was not observed after a short heating up to 1200 C. Orig. art. has 8 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 31 Mar 64

ENCL: 00

SUB CODE: ML

NO. REF. SOV: 003

OTHER: 000

Card 2/2

ИРО ВИРИНА, В. И.

Voprosy metallovedeniia avstenitnykh staley [Problems of metallurgy of austenite steels]
Moskva, Mashgiz, 1952. 248 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 5, August 1953

PROSVIRIN, V. I.

PA 233178

USSR/Metallurgy - Nitrogen in Steel Sep 52

"On the Problem of Melting Austenitic Chrome-Nickel Steels Alloyed With Nitrogen," V.I. Prosvirin, Dr Tech Sci, N. S. Kreshchanovskiy, Cand Tech Sci, R.P. Zaletayeva, Engr

"Litey Proizvod" No 9, pp 22, 23

Establishes 0.3% as max Ni concn in steel under condition of obtaining sound castings. Optimum Ni content in steel with 15-17% Cr is 0.15-0.20%. Steel retains 50-60% of Ni introduced into melt in form of nitrated ferrochromium. Studies denitriding of steel

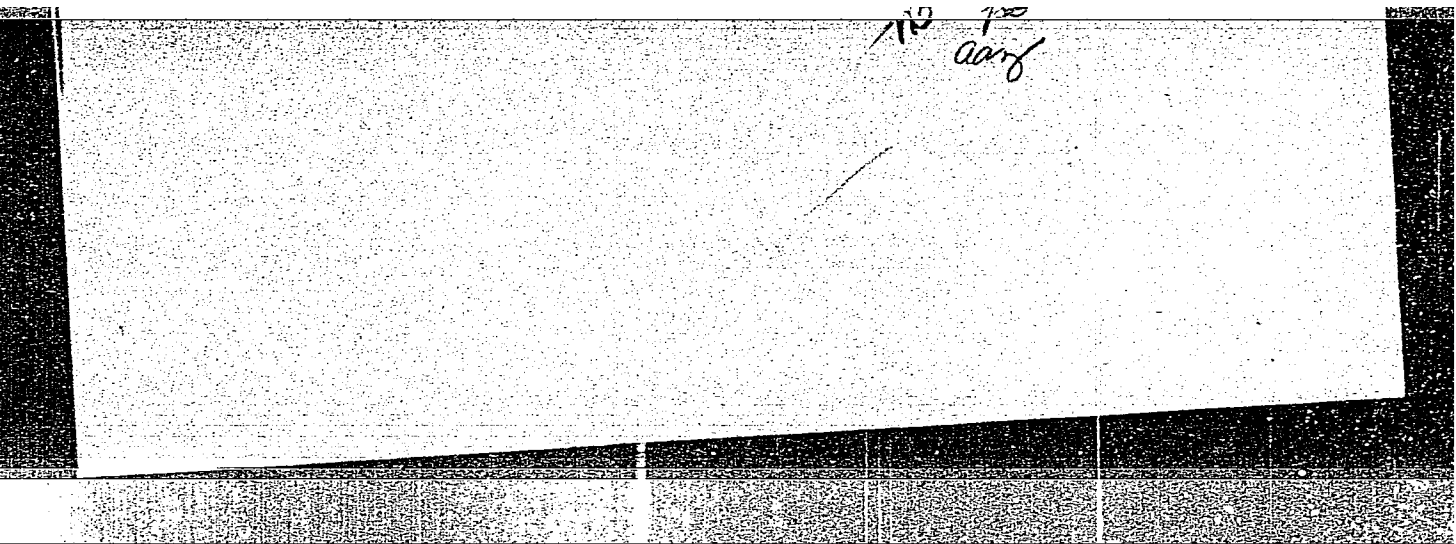
233178

in liquid state under various conditions of heating. Concludes that holding of nitrogen steel at temps of melt and pouring, i.e., 1,550-1,480°, does not decrease considerably amt of N dissolved in steel.

233178

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PROSVIRIN, V.I.

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 333 - I

BOOK

Call No.: TN731.P75

Author: PROSVIRIN, V. I., Prof., Doc. of Tech. Sci., and
ENTIN, S. D., Kand. of Tech. Sci.

Full Title: ISOTHERMIC FORMATION OF MARTENSITE

Transliterated Title: Izotermicheskoye obrazovaniye martensita

Publishing Data

Originating Agency: None

Publishing House: State Scientific and Technical Publishing House
of Machine-Building Literature

Date: 1953

No. pp.: 103

No. of copies: 3,000

Editorial Staff

Editor: None

Tech. Ed.: Kolli, A. Ya.,
Engineer

Editor-in-Chief: None

Appraiser: Tseytlin, V. Z.,
Kand. of Tech.
Sci.

Text Data

Coverage: This book is a critical review of recent research on the mechanism and kinetics of the isothermal transformation of austenite into martensite and factors affecting the TTT curve. The literature studied is almost exclusively Russian in origin.

1/5

Izotermicheskoye obrazovaniye martensita

AID 333 - I

The book is of interest as a detailed statement of Russian thinking on problems of the isothermal transformation of austenite.

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Purpose: For engineers and technical personnel, and for workers in scientific research institutions.	

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Izotermicheskoye obrazovaniye martensita

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Facilities: Many names of Russian scientists are mentioned in the
text

No. of Russian and Slavic References: 48 of 49

Available: Library of Congress.

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1. PROSVIRIN, V. I., Prof.
2. USSR (600)
4. Metals - Heat Treatment
7. Plasticity under creep conditions, and the dispersion mechanism in hardening.
Vest mash. No 1 . 1953.

9. Monthly List of Russian Accessions, Library of Congress April 1953, Uncl.

*Abstracts; "A Review of the World Literature on the Creep of
April 53 To Dec, 54, Metals at Elevated Temperatures; In Library.*

BOLOKHOVITINOV, N.F. [author]; PROSVIRIN, V.I. [reviewer].

"Metallography and heat treatment." N.F. Bolkhovitinov. Reviewed by V.I.
Prosvirin. Sov.kniga no.8:49-50 4g '53. (MLA 6:8)
(Metallography) (Bolkhovitinov, N.F.)

PROSVIRNITSYN, D.D., inzh. (Leningrad); PRONKIN, Ye.V., inzh. (Leningrad)

Mechanizing the inspection of curves. Put' i put.khoz. 4 no.2:
32-33 F '60. (MIRA 13:5)
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PROSVIRNIISYN, N. P.

"Contribution of the veterinarians in the Spassk region, Ryasan district,
~~that~~ into the rise of production of animal products."

Veterinariya, Vol. 37, No. 4, 1960, p. 20

PROSVIRIN, V. I.

Plasticity

About plasticity under creep conditions and the strengthening mechanism of dispersion. Vest. mash. 33, No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

PROSVIRIN, V. L.

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Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Metallurgy and Metallography

~~Some properties of powdered iron obtained by atomization.~~
~~V. L. Prosvirin and A. E. Silayev. Vestnik Mashinostroeniya~~
~~33, No. 9, 80-81 (1953).—Of the 2 methods for the production~~
~~of powd. Fe, centrifugal atomization and atomization~~
~~of molten Fe or steel by compressed air, the latter is prefer-~~
~~able. Powders contg. 0.2-4.4% C were prepd. by the com-~~
~~pressed air method. The powders were subjected to a re-~~
~~ducing heating, the fraction above 0.3 mm. was screened~~
~~out, and the specimens for testing were prepd. by pressing.~~
~~The pressed specimens were then fired at 1100° for 2 hrs.~~
~~and tested. Pressed under 12,000 kg./sq. cm. the com-~~
~~pressed air specimens had a tensile strength of 32.5 kg./sq.~~
~~mm. The centrifugally pulverized powders could not be~~
~~pressed above 10,000 kg./sq. cm. because they sepd. into~~
~~layers. Under all pressures the tensile strength of specimens~~
~~made from compressed air atomized powders was greater~~
~~than of specimens made from centrifugally atomized~~
~~powders.~~
M. Hosh

PROSVIRIN, V. I.

SILAYEV, A.F.; PROSVIRIN, V.I., professor, doktor tekhnicheskikh nauk;
RAKOVSKIY, V.S., Kandidat tekhnicheskikh nauk.

Production of iron, steel and iron alloy powders by pulverization.
[Trudy] TSNIITMASH no.56:124-147 '53. (MLRA 7:6)
(Powder metallurgy)

PROSVIRIN, V. I.

USSR/Miscellaneous-Metallurgy

Card 1/1

Authors : Kreshchanevskiy, N.S., Prosvirin, V. I., and Zaletayeva, R. P.

Title : Effect of nitrogen on the surface tension and crystallization of austenite steel

Periodical : Lit. Proizv. 1, 23 - 24, Jan-Feb 1954

Abstract : The effect of nitrogen on the surface tension and crystallization of austenite nickel-chrome steel was investigated by means of a special but simple device. Surface tension originates as result of different attraction forces of molecules situated on the surface of phase separation and between molecules within the phase. The presence of nitrogen in austenite steel has practically no effect on primary crystallization. The dimension of the grain and the depth of expansion of the acicular crystallization zone in nitrous and nitrogenless steel remain unchanged. Six references. Table, graph, photo.

Institution:

Submitted : Evaluation B-78539, 8 Sep 54

Effect of boron on the properties of cast austenitic steel of the 15% Cr-25% Ni type. N. S. Kraschinnovskii, V. I. Prosvirin, and E. S. Ginzburg. *Lit. Rev. Progress* 1958, 19: 1-19. — Steels contg. C 0.09-0.19, Cr 14.56-15.04, Ni 24.69-26.17, Si 0.44-0.64, Mn 0.14-0.66% were melted in an acid crucible in a high-frequency furnace and alloyed with 0.007-0.15% B. Boron-free ingots were completely dendritic; 0.007% B appreciably decreases dendrites. 0.03% B sharply limits the dendritic zone, and 0.095% B produces finely cryst. structure unaffected by the rate of cooling. Boron addn. above 0.15% brings back dendrites and large grains. On heating at 1000 and 1250° for 24 hrs., 0.03% B increases grain size from no. 2 to no. 1/2 in the cast state and from 3.5 to 1/2 in the forged state. As little as 0.025% B leads to thinner sharp grain boundaries without affecting the quantity and the character of carbides. With B concns. up to 0.15% B, first a thickening of the boundaries is observed and then a separate B-rich phase is noted. More than 0.40% B causes the formation of a complex eutectic composed of austenite and a solid soln. of Fe borides and carbides. It melts at around 1250°, and the excess of the B-bearing phase passes into soln. above this temp. Carbide ppt. sept. from steels quenched from 1000 to 1300° was 0.22-0.02% for B-free and 2.33-2.87% for steel contg. 0.15% B, both decreasing with higher temps. The ppt. obtained from annealed samples showed on x-ray analysis

the presence of Cr₂C₃ and of gamma solid soln. in B-free steels, while in 0.15% B steels besides it were found Fe₃B and FeB. Quenching from 1250°C fully dissolves Cr₂C₃, partially dissolves Fe₃B, but does not affect FeB. The 0.15% B specimens quenched from 1250° and aged at 570-750° for 5-3000 hrs. showed that B lowers the effect of hardening and that no structural changes occurred in 0.15% B steel while in the B-free one carbides easily pptd. at the grain boundaries. Heat tinting in vacuum developed in 0.15% B steel a light-blue austenitic matrix and a bright-orange phase at the grain boundaries composed probably of a solid soln. of B in γ-Fe. Boron addn. lowers the impact strength of these steels, 0.1% B drops it from 28 to 5 kg. m sq. cm. Surface tension of C 0.04, Si 0.26, Mn 0.10, Cr 15.44, Ni 29.09, S 0.028, P 0.021% steel increases with the B content, suggesting that B is surface active and can be adsorbed at the phase boundaries. It is adsorbed in surface layers during cryst. which det. cryst. structure of the solidified metal.

J. D. Gut

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PROSVIRIN, V.I., and KVASHNINA, Ye. I.

"The Effect of Alloying Elements on the Temper Brittleness of Structural Steels." From the book, "Heat Treatment and Properties of Cast Steel." edited by N. S. Kreshchanovskiy, Mashgiz, Moscow 1955

PROSVIRIN, V. I.

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14146 Internal Friction of Steel and Temper Brittleness.
E. I. Kvashina and V. I. Prosvirin. Henry Brucher Translation No. 3533, 6 p. (From *Izvestiya Akademii Nauk SSSR*, 1955, no. 1, Jan., p. 157-159.) Henry Brucher, Altadena, Calif. Previously abstracted from original. See item 10605, v. 4, Aug. 1955.

of 2

PROSYRIN V.I.

1431* Isothermal Hardening of High-Strength Spheroidal Cast Iron, Izotermicheskaia zakalka vysokoprochnogo chuguna s sharovidnym grafitom. (Russian.) V. I. Prosyirin and N. A. Patrino, Metallovedeniia i obrabotka metallov, 1955, no. 2, Aug., p. 42-50. M6
Isothermal transformation of austenite; hardness, wear resistance, fatigue strength, and other mechanical properties of high-strength cast iron in relation to temperature of quenching medium and time. Variations of heat treatment, including tempering, soaking, normalizing, ferritic and perlitic cast irons. Tables, graphs.

2/1/58 (1)

PROSVIRIN, V.I.

USSR/ Engineering - Structural tests

Card 1/1 Pub. 128 - 14/23

Authors : Prosvirin, V. I., and Kvashnina, E. I.

Title : ~~The effect of carbide forming elements on the brittleness of tempered steel.~~
The effect of carbide forming elements on the brittleness of tempered steel.

Periodical : Vest. mash. 2, 58 - 67, Feb 1955

Abstract : The influence of manganese, molybdenum, tungsten and titanium admixtures on the brittleness of tempered steels at various temperatures, was investigated. Technical data are presented on testing temperatures, types of steel and admixtures used, and the chemical composition of various grade steels. Ten references: 2 German (1933 and 1942); 1 French (1946); 2 USA (1920 and 1950). Tables; graphs; illustrations.

Institution:

Submitted:

Translation 563714

PROSVIRIN, V.I.

Category : USSR/Solid State Physics - Mechanical properties of crystals and poly-crystalline compounds E-9

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1368

Author : Prosvirin, V.I., Kvashnina, Ye.I.

Title : Position of the Cold-Shortness Threshold in the Tempering Brittleness

Orig Pub : Metallovedeniye i obrabotka metallov, 1955, No 3, 17-20

Abstract : When tempering beittleness is produced in steel, one observes a shift in the threshold of the cold-shortness towards high temperatures. Prolonging the heating time in high-temperature tempering shifts the cold-shortness threshold towards the lower temperatures, and increasing the grain dimension shifts it towards higher temperatures. No shift in the cold-shortness threshold is observed in stages that are not prone to tempering brittleness.

Card : 1/1

PROSVIRIN, V. I.

FD-2935

USSR/Engineering - Metallurgy

Card 1/1

Pub. 41-16/17

Author : Prosvirin, V. I., Moscow

Title : On the stages of decomposition of solid solutions

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 6, 149-150, June 1955

Abstract : A theoretical discussion on the stages of crystallization of solid solutions. Discusses the formation of the initial crystals and concludes with the diffusion of the crystals in the last stage. Graphs, diagrams.

Institution :

Submitted : August 11, 1954

FD-3230

USSR/Engineering - Physical Metallurgy

Card 1/1

Pub. 41-11/22

Author : Prosvirin, V. I. and Sigolayev, S. Ya., Moscow

Title : Paramagnetic Properties of Austenitic Alloys with Various Chromium Content

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 7, 96-100, Jul 55

Abstract : Gives chemical compositions of 5 alloys used in the investigation. Describes apparatus for determining the magnetic susceptibility. Discusses influences of the quenching temperature, duration of tempering period at 800°C, and the hysteresis of magnetic susceptibility of austenite. One table; seven graphs. One reference, USSR.

Institution :

Submitted : 11 August 1954

✓ Fractional analysis of secondary phase. V. I. Prosvirin. *Zavatskaya Lab. 21. 51-60 (1955).* - Chem. and X-ray analysis of secondary phases (formed by a dispersional breaking-down of solid solns.) gives no information on the crystal size and gives only av. values. In the proposed method, the different phases are obtained by electrolytic etching in ams. sufficient for chem. analysis. The deposit is washed until free from the electrolyte. The complete settling time is carefully detd., the sample resuspended, 25-50-ml. fractions are taken after different sedimentation times, and analyzed. Another method recommended consists in settling the solids for some definite time from the soln. obtained during electrolytic etching, siphoning off the solids in suspension, and continuing the settling and siphoning off; thus a series of fractions of particles is obtained. As an example, the analysis of the carbides of an alloy composed of C 0.19%, Cr 20.1, Ni 18.7, balance Fe, is described. W. M. S.

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PROSVIRIN, V. I.

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USSR.

8348 Influence of Carbide-Forming Elements on the Annealing Brittleness of Steel. Vlianiye karbidoobrazuiashchikh elementov na otpusknuiu khrupkost' stali. (Russian.) V. I. Prosvirin and E. I. Kuzmina. Vestnik Mashinostroeniia, v. 35, no. 2, Feb. 1955, p. 58-67.

Experimental data on the effects of Cr, Mn, Mo, W, Nb, V, and Ti carbides. Graphs, diagrams, tables, micrographs. 10 ref.

7 82

PROSVIRIN, V. I.

USSR/ Engineering - Metals testing

Card 1/1 Pub. 128 - 14/28

Authors : Silayev, A. F., Cand. of Mech. Sc.; and Prosvirin, V. I., Dr. of Mech. Sc., Prof.

Title : Granulometric composition and the form of powder particles obtained with an atomization method

Periodical : Vest. mash. 35/6, 61 - 64, Jun 1955

Abstract : Various types of metallic powders were tested to determine the influence of physical characteristics of liquified metal and its atomization methods, on the granulometric composition and form of powder particles. Individual tests are briefly described, and technical data is given. Illustrations; table; graphs.

Institution :

Submitted :

PROSVIRIN, V.I.

Category : USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds E-9

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3986

Author : Prosvirin, V.I., Chernov, L.I.

Title : Kinetics of Thermal Brittleness in Certain Austenitic Steels

Orig Pub : Issledovaniya po zharoprochnym splavam. M., AN SSSR, 1956, 76-83

Abstract : The thermal brittleness of austenitic steel, connected with changes in the composition of the secondary phases, manifests itself both in the period of preparation of the alloy for use (during the tempering period), as well as during the process of subsequent heating at working temperatures. The development of thermal brittleness depends on the temperature and on the soaking time during the hardening and tempering. An investigation confirms the hypothesis that the properties of chrome-nickel austenitic steel supplementary alloyed with strong carbide-forming elements are quite unstable at working temperatures. In spite of the higher tempering, carried out in the 700 -- 800° range, the ultimate strength, the yield point, and particularly the impact viscosity, change to a considerable degree in the subsequent lower heating temperature (at the working conditions and conditions close the them).

Card : 1/1

PROSVIRIN, V. I. and CHERNOV, L. F.

"The Kinetics of the Thermal Brittleness of Some Austenitic Steels," an article in the book Investigations of Heat-Resistant Alloys, publ. by AS USSR, Moscow, pp. 84-90, 1956. 160 pages.

Sum. No.1047, 31 Aug 56

8136* Nature of Tempering Brittleness of Pearlitic Steels. O prirode otupskanoi khrupkosti perlitnykh stali. (Russian.) V. L. Frosvirin and E. I. Kvashina. *Metallovedeniye i Obrabotka Metallov*, 1956, no. 2, Feb., 1956, p. 34-40.

MC
Chemical compositions of steels used. Change in quantity of carbides in steels passing into brittle state. Micro-structure of brittle and nonbrittle specimens. Effect of heat-treatment conditions, including tempering time and high-temperature tempering on secondary phases and internal friction. Role of Mo in checking tempering brittleness. Effect of quenching temperature on grain size and impact strength. Graphs, tables, micrographs. 36 ref.

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D205/D301

AUTHORS: Vinogradskaya, Ye.L., Molchanova, G.A., and
Prosvirin, V.I.

TITLE: Peculiarities of phase transformations in steels of
the transition class

SOURCE: Akademiya nauk Latvviyskoy SSSR. Institut avtomatiki i
mekhaniki. Prevrashcheniya v splavakh i vzaimodeyst-
viye faz. Riga, 1961, 3 - 49

TEXT: The present work is concerned with the phase transformations occurring in high resistance, low carbon steels lying between the martensitic and austenitic types. A critical survey of the published work on the subject precedes the presentation of the performed investigation. Two groups of alloys have been studied. The first group includes alloys having constant Cr and Mo contents, (15.0 and 2.5 % respectively) and variable Ni and Al contents (in ranges 5.9 - 7.75 and 1.2 - 0.7 % respectively). The second group includes alloys having a lower Cr content - 12.5 %, Ni from 7.88 to 9.57 %; Al from 1.4 to 0.9 % and Mo - 2.5 % as in the first group. The carbon
Card 1/4