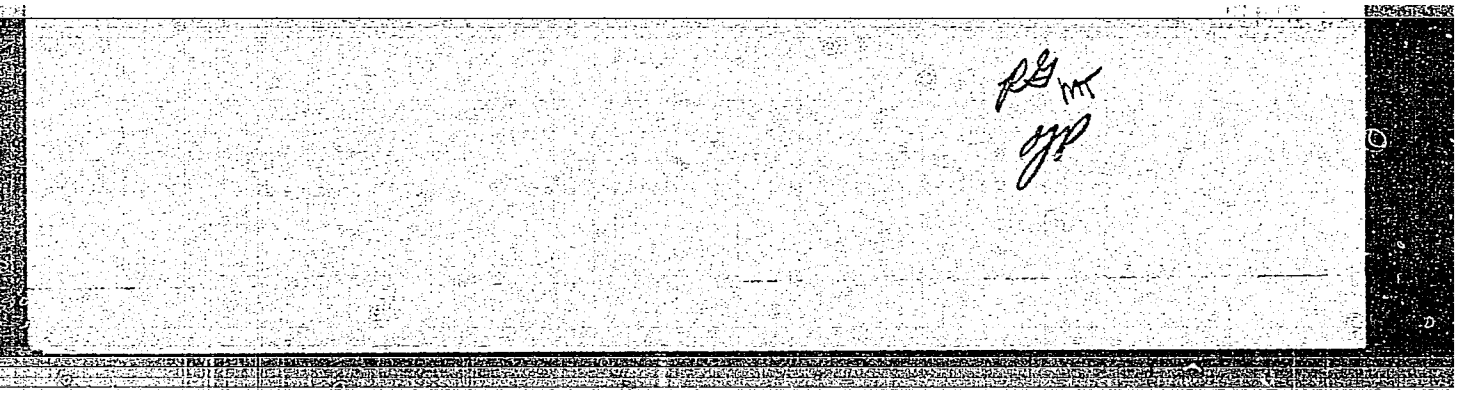

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031810018-8"

AUTHOR: Malinkina, Ye.I., Candidate of Technical Sciences.

TITLE: On the influence of residual austenite on the properties of steel. (K voprosu vliyaniya ostatochnogo austenita na svoystva stali.) 129-4-9/17

PERIODICAL: "Metallovedenie i Obrabotka Metallov" (Metallurgy and Metal Treatment) 1957, No. 4, pp. 44 - 47 (U.S.S.R.)

ABSTRACT: In a paper by A.L. Nemchinskiy, N.M. Fokina and I.L. Shimelevich (same journal, No. 1, 1956) the authors attempted to prove that the influence of residual austenite in low, medium and high carbon steels differs; that increase of the residual austenite in the first mentioned steel reduces the strength, whilst in the second and third mentioned steels it improves the strength. On the basis of published information the author of this paper disputes the correctness of the relations claimed to be valid by the authors of the first mentioned paper.

There is 1 table and 4 Slavic references.

ASSOCIATION: All-Union Tool Research Institute MS and IP. (Vsesoyuznyy nauchno-issledovatelskiy Instrumentalnyy Institut MS i IP.)

Card 1/1

AVAILABLE:

MALINKINA, Ye. I.

The third prize (imeni N. A. Minkevich) was awarded to Candidate of Technical Sciences Ye. I. Malinkina (VNII) for her book "Formation of Cracks During Heat Treatment of Steel", Mashgiz, 1958. Very brief summaries are given of all these papers.

Results of the 1958 Competition for Obtaining imeni D. K. Chernov and imeni N. A. Minkevich Prizes, Metallovedeniye i termicheskaya obrabotka metallov, 1959, No. 6, pp 62-64

PHASE I BOOK EXPLOITATION 1063

Malinkina, Yevdokiya Il'inishna, Candidate of Technical Sciences

Obrazovaniye treshchin pri termicheskoy obrabotke stali (Crack Formation During Heat Treatment of Steel) Moscow, Mashgiz, 1958. 159 p. 5,200 copies printed.

Ed.: Shrayber, G.K., Docent; Tech. Ed.: Model', B.I.; Managing Ed. for Literature on Metal Working and Tool Making (Mashgiz): Beyzel'man, R.D., Engineer.

PURPOSE: This book is intended for engineers and technicians in industrial plants and in scientific research institutes dealing with thermal treatment of steel.

COVERAGE: In this book the author deals with the causes of internal stresses in steel during heat treatment which result in cracks. The relationship between the nature of the crack pattern and the conditions of stress in studied, and the various metallurgical factors causing the formation of cracks are studied and analyzed. The analysis of the cause of crack formation is followed by a discussion of various preventive measures. No personalities are mentioned. There are 95 references, of which 83 are Soviet, 7 English, and 5 German.

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AVAILABLE: Library of Congress

Card 3/3

GO/sfm
1-27-59

S/137/61/000/005/050/060
A006/A106

AUTHOR: Malinkina, Ye. I

TITLE: Checking the performance properties of instrument steels and alloys

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 5, 1961, 16, abstract 5I109 (V sb. "Metallovedeniye i term. obrabotka metallov" [Tr. Sektsii metalloved. i term. obrabotki metallov. Tsentr. pravl. Nauchno-tekhn. o-va mashinostroit. prom-sti, no. 2, Moscow, 1960, 160-178)

TEXT: This is a review of methods for checking the properties of instrument materials. The author describes methods for determining the brittleness of instrument materials to crumbling and failure, the strength of instruments and specimens, the wear resistance of instruments and specimens, of evaluating the wear resistance from the hardness, and of determining the heat resistance. The author analyzes the effect of different properties of the instrument material on the tool strength. There are .. references.

I. F

[Abstracter's note: Complete translation]

Card 1/1

SOV/28-58-6-20/34

AUTHORS: Geller, Yu.A., Professor, Doctor of Technical Sciences, Malinkina, Ye.I., Candidate of Technical Sciences, Lomakin, V.N.

TITLE: Supplementing the State Standard GOST 5950-51 With the Method for Controlling Steel by Its Annealing Property (Dopolnit' GOST 5950-51 metodikoy kontrolya stali na prokalivayemost')

PERIODICAL: Standartizatsiya, 1958, Nr 6, pp 65-69 (USSR)

ABSTRACT: The annealing property of instrumental steel is defined as the property to obtain a martensite structure and high hardness after tempering. The annealing capacity is determined by the methos of butt tempering as specified by GOST 5657-51. If the samples are kept up to 30-35 sec/mm in the salt tank, the annealing property increases (Figure 1). A longer period does not increase the annealing property beyond the value reached at 35 sec/mm. Changes in this

Supplementing the State Standard GOST 5950-51 With the Method for Controlling Steel by Its Annealing Property

property among the different smeltings are not due to the chemical composition, because only slight changes are correlated with a 2-3 times higher annealing property (Tables 1 and 2, Figure 2). Metallurgical factors, like smelting, rolling, are the causes of the changes. The comparison of the curves of distribution of hardness over the length of the sample is the basis for the nomograms showing the distribution of the annealing property of alloyed instrumental steels (Figures 4 and 5). These nomograms may be applied to steel to types KhVG, 9KhS, Kh, and similar types. During grinding, the layer of annealed steel in an instrument may be reduced. In the samples, the obtained values may be reduced therefore by 2 mm. The results of these calculations are shown in Table 6.

Supplementing the State Standard GOST 5950-51 With the Method for Controlling Steel by Its Annealing Property

There are 6 tables and 6 graphs.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut (All-Union Scientific Research Instrument Institute)

S/123/61/000/012/011/042
A004/A101

AUTHORS: Geller, Yu. A.; Malinkina, Ye. I.; Lomakin, V. N.

TITLE: Hardenability of alloyed tool steels

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 12, 1961, 80-81, abstract 12B575 (V sb. "Metallovedeniye i term. obrabotka metallov". [Tr. Sektsii metalloved. i term. obrabotki metallov. Tsentr. pravl. Nauchno-tekhn. o-va mashinostroit. prom-sti, no. 2]. Moscow, 1960, 197-219)

TEXT: The authors studied the hardenability of industrial melts of the steel grades 9XC (9KhS) (18 melts), XBГ (KhVG) (16 melts) and X (Kh) (5 melts). It is expedient to determine and check the hardenability of these steel grades by the face end hardening method according to ГОСТ (GOST) 5657-51. The authors established a dependence between the distribution of hardness over the length of the face end specimen and over the cross section of cylindrical specimens of alloyed hyper-eutectoid steels. The data of face end hardening according to the suggested nomogram being available it is possible to determine the hardenability of cylindrical specimens up to 100 mm in diameter. In order to obtain more homo-

Card 1/2

geneous and higher properties of cutting tools and dies of large profile it is necessary to rate the mentioned alloyed hyper-eutectoid steels according to their hardenability by the face end hardening method taking into account the nomogram of the critical diameter and the distribution of hardness over the cross section. There are 17 figures and 10 references.

N. Il'ina

[Abstracter's note: Complete translation]

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031810018-8"

MALINKINA, Ye.I., kand. tekhn.nauk, nauchnyy red.; LESNICHENKO, I.I., red. izd-va; UVAROVA, A.F., tekhn. red.

[Methods and practice of the metallographic investigation of tool stee] Metodika i praktika metallograficheskogo issledovaniia instrumental'noi stali; sbornik rabot metallograficheskoi laboratorii VNII. Pod nauchn. red. E.I.Malinkovoi. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 227 p. (MIRA 14:8)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut.

(Tool steel--Testing)

S/137/62/000/003/140/191
A052/A101

AUTHORS: Malinkina, Ye. I., Badayeva, A. S.

TITLE: The method of chemical and electrolytic etching

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 66, abstract 3I429 ("Metodika i praktika metallogr. issled. instrum. stali.", Moscow Mashgiz, 1961, 20-35)

TEXT: To detect martensite and residual austenite in hardened untempered steel, 3 reagents were selected after having been tested on Р 9 (R9) and Р 18 (R18) high-speed steel. It has been found out that martensite is detected most completely by the reagent of the following composition: 5ml hydrochloric acid, 1 g picric acid, 95 ml ethyl alcohol. The regions containing residual austenite are determined by the magneto-metallographic method. To detect the grain boundaries in hardened R18 steel a number of reagents have been tried. Three reagents have been selected; as the most successful has been proved a 10% hydrochloric acid solution used for electrolytic etching. To separate carbides observed under microscope, the authors have chosen the method of chemical etching of carbides with the differently coloring reagents. It has been

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S/137/62/000/003/140/191
A052/A101

The method of chemical and electrolytic etching

established that the only reagent coloring carbon steel carbides is Na picrate (Fe_3C is colored dark brown). On the other hand the effect of the alcohol solution of nitric acid or of the electrolytic etching in 1% chromic acid consists in detecting just the boundaries of carbides. The detection of trigonal carbides Cr_7C_3 by etching in adopted reagents was carried out on X 12 M (Kh12M) steel samples. $(Fe, Cr)_7C_3$ carbides are colored bright orange when etched in the reagent with potassium ferricyanide and bright yellow when etched with potassium permanganate. The etchability of Fe_3W_3C carbides was tested on R18 steel; these carbides are colored dark brown when etched with Na picrate, the reagent with potassium ferricyanide or potassium permanganate. The effect of the reagents on VC carbides was investigated on P 9K5 (R9F5) steel. These carbides are colored black only at electrolytic etching in chromic acid. There are 9 references.

G. Tolmacheva

[Abstracter's note: Complete translation]

Card 2/2

S/123/62/000/014/007/020
A004/A101

AUTHORS: Malinkina, Ye. I., Geller, Yu. A., Lomakin, V. N.

TITLE: Hardenability of alloyed steel

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1962, 27, abstract 14B151 (In collection: "Metodika i praktika metallogr. issled. instrum. stali". Moscow, Mashgiz, 1961, 94 - 108)

TEXT: The authors present the results of investigating the possibility of using the face hardening method to determine the hardenability of alloyed tool steel, and also nomograms for the conversion of the hardenability obtained on face samples into the hardenability of cylindrical specimens subjected to volumetric hardening with oil-quenching at 20°C and in hot media. The steel grades 9 XC (9KhS), XBГ (KhVG) and X (Kh) were investigated. It was found that the face hardening method is fully applicable for determining the hardenability of alloyed tool steel. The nomograms for determining the hardenability, plotted for the case of quenching in oil and in molten salts, make it possible according to the given face test, to determine the hardness in the center and in any spot

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Hardenability of alloyed steel

S/123/62/000/014/007/020
A004/A101

of the specimen cross section of any diameter, the magnitude of the critical diameter and thickness of the hardened layer on specimens of any diameter, and also the necessary hardenability depth according to the face test, in order to obtain the required depth of the hardened layer and the required core hardness on components of a given diameter. There are 12 figures.

E. Spivak

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/003/131/191
A052/A101

12 1120

AUTHOR: Malinkina, Ye. I.

TITLE: The connection between the microstructure and mechanical properties of annealed steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 42, abstract 3I260 (V sb. "Metodika i praktika metallogr. issled. instrum. stali". Moscow, Mashgiz, 1961, 111-132)

TEXT: The mechanical properties of annealed tool steel were investigated at 15 - 20°C, the temperature at which all technological operations of tool manufacturing, except forging and rolling, were performed. By their properties and ductility annealed tool steels can be classified in 4 groups: 1) steels with the highest ductility - У 10 (U10), У 11 (U11), У 12 (U12), У 11Х (U11Kh); 2) alloyed steels 9ХС (9KhS), ХВГ (KhVG), 95ХГСВ (95KhGSV), Х6ВФ (Kh6VF) with a slightly reduced but still sufficiently high ductility; 3) steels Р9 (R9), ЭИ-347 (EI-347) with a considerably lowered ductility; 4) steels of Р18 (R18), Х12 (Kh12) type with the lowest ductility. At present the possibility of raising the ductility of annealed tool steel is utilized in operations of punching

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The connection between the microstructure ...

slitting cutters out of hot-rolled sheets which makes it possible to avoid spallings and to obtain precise dimensions of blanks. The increase of steel ductility by means of additional tempering at 720 - 740°C with a subsequent quick cooling improves the machinability in respect of the surface quality. There are 12 references.

T. Rumyantseva

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/003/130/191
A052/A101

AUTHOR: Malinkina, Ye. I.

TITLE: The relation between the structure of steel after tempering and mechanical properties

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 42, abstract 3I259 (V sb. "Metodika i praktika metallogr. issled. instrum. stali". Moscow, Mashgiz, 1961, 133-158)

TEXT: The connection between the structure, mechanical properties and the quality of tools made of various tool steels is considered. A poor endurance of the cutting edge in the presence in martensite of residual austenite or coarse carbides is explained by a low resistance to plastic deformation. With an increase of C content in martensite the ductility of steel decreases as well as the tear resistance. However, the effect of C over 0.9% is of no practical importance since tool steels containing 0.8 - 1.2% C are hardened at the same temperature and consequently in the martensite of hardened tool carbon steels the same quantity of C is contained. The tempering of hardened steel raises the tear resistance and consequently the endurance of the cutting edge of the tool

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S/137/62/000/003/130/191
A052/A101

increases. In spite of the fact that in the martensite of carbon steel tempered at 180 - 200°C ~0.4% C is contained, its strength is higher than that of tempered steel with 0.4% C. This is explained by the effect of submicroscopic carbides precipitating from the martensite with > 0.4% C at tempering. With the increase of the grain, the tear resistance of martensite decreases. The amount of residual austenite in hardened tool steel should not exceed 3 - 5%. In high-speed steel the presence of angular carbides impairs the red hardness and mechanical properties of steel. The carbide liquation in high-speed steel should be within 3 - 4 marks.

N. Kalinkina

[Abstracter's note: Complete translation]

MASLOV, N.N.; SYCHEV, A.T. (Mordovskaya ASSR); GELLER, Yu.A., doktor tekhn.nauk, prof.; DRAZNIN, inzh.; MALINKINA, Ye.I., kand.tekhn. nauk

Answering letters from our readers. Metalloved. i term. obr. met. no.11:60-63 N '61. (MIRA 14:12)
(Nickel plating)
(Steel--Heat treatment)
(Tool steel)

MALINKINA, Ye.I., kand.tekhn.nauk

Consultation on the control of carbide heterogeneity and ways to reduce it. Metalloved.i term.obr.met. no.4:63-64, 3 of cover Ap '62. (MIRA 15:4)

(Tool steel)

S/028/63/000/001/001/002
D217/D308

AUTHOR: Malinkina, Ye.I.

TITLE: Requirements of the tool industry with respect to high-speed steels

PERIODICAL: Standardisatsiya, no. 1, 1963, 18-24

TEXT: In order to ensure maximum mechanical properties for a tool steel, the following requirements must be satisfied: 1) The fracture of the steel in the annealed and in the quenched condition must be fine-grained and crack-free; 2) Microsections must not reveal any porosity, cracks or dendritic inhomogeneity after etching with hot aqueous solutions of H_2SO_4 and HCl; 3) A certain degree of carbide inhomogeneity (No. 3 on the ГОСТ 5952-51 (GOST 5952-51) scale) must not be exceeded; 4) The structure must be free from stable carbides of polygonal shape; 5) After quenching and subsequent heating to specified temperatures, the grain size should be No. 10-11 or 9-11 (on tempering, a steel of grain size 9-11 will exhibit a fine acicular structure); 6) The steel must be relatively free from nonmetallic

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inclusions; 7) The cutting edges and auxiliary surfaces of tools must not be decarburized. A detailed review of the subject, based on Soviet-bloc publications is given. There are 4 figures, 2 tables and 6 Soviet-bloc references.

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L 16998-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD

S/028/63/000/004/001/002

54

AUTHOR: Malinkina, Ye. I.

TITLE: Operating and technological requirements for alloy tool steel 16

PERIODICAL: Standartizatsiya, no. 4, 1963, 27-30

TEXT: The article reviews the operating and technological requirements for alloy tool steel and the available test methods for these properties. The active All-Union State Standard specification GOST 5950-51, for alloy tool steel provides many indicators characterizing the operating and technological needs of the machine tool industry. However, in this standard many methods of analysis and standard requirements are absent for a series of properties of the steel. There is no method for exposure of the decarbonized layer, there is no method for the determination of the hardenability of alloy steel and there are no standard requirements for this property, there is no scale for carbide segregation for certain types of steels, there is no scale for

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L 16998-63

Operating and technological... S/028/63/000/004/001/002

macrodefects exposed by pickling in sulfuric and hydrochloric acids, and there are no standard microphotographs or scale for characterizing the microstructure of annealed steel. Since the adoption of GOST 5950-51 information has been accumulated for supplementing the existing classifications with new requirements. The decarbonized layer may be exposed in alloy steel of certain types utilizing the method of interval of bainite conversion, and for alloy steels of other types by methods of martensite conversion and perlite conversion. Detailed instructions are given for the determination of the decarbonized layer by the different methods. Proposed new methods of determining the hardenability of alloy steels and developing a scale of carbide segregation are also described. There are 8 Russian references and 1 table.

Card 2/2

MALINKINA, Ye.I.; LOMAKIN, V.N.; PADYUKHINA, M.N., BADAYEVA, A.S.

Effect of a carbide lattice on the properties of hypereutectoid steel. Standartizatsiia 27 no.12:29-31 D '63. (MIRA 17:1)

MALINKINA, Ye.I., kand. tekhn. nauk; GOLUBYATNIKOV, V.A., kand. tekhn. nauk, retsenzent; POTAK, Ya.M., doktor tekhn. nauk, red.

[Crack formation during the heat treatment of steel parts] Obrazovanie treshchin pri termicheskoi obrabotke stal'nykh izdelii. Izd.2., perer. i dop. Moskva, Mashinostroenie, 1965. 174 p. (MIRA 18:2)

MALINKINA, Ye.I.

Connection between hardenability and tendency toward crack formation. Metalloved. i term. obr. met. no.8:53-55 Ag '65. (MIRA 18:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

LOMAKIN, V.N.; MAL[illegible]KIN[illegible]

Determining the hardenability of alloy steels by diagrams of isothermal transformation in austenite. Metalloved. i term.obr.met. no.9:57-64 S '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy instrumental'nyy institut.

27

MALINKINA S/E M

PHASE I BOOK EXPLOITATION SOV/5457

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Sektsiya metallovedeniya i termicheskoy obrabotki metallov.

Metallovedeniye i termicheskaya obrabotka metallov; trudy Sektsii metallovedeniya i termicheskoy obrabotki metallov (Physical Metallurgy and Heat Treatment of Metals; Transactions of the Section of Physical Metallurgy and Heat Treatment of Metals) no. 2. Moscow, Mashgiz, 1960. 242 p. 6,000 copies printed.

Sponsoring Agency: Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Tsentral'noye pravleniye.

Editorial Board: G. I. Pogodin-Alekseyev, Yu. A. Geller, A. G. Rakhshtadt, and G. K. Shreyber; Ed. of Publishing House: I. I. Leonchenko; Tech. Ed.: B. I. Model'; Managing Ed. for Literature on Metalworking and Machine-Tool Making: V. I. Mitin.

PURPOSE: This collection of articles is intended for metallurgists, mechanical engineers, and scientific research workers.

COVERAGE: The collection contains articles describing results of research conducted by members of NTO (Scientific Technical Society) of the machine-building industry in the field of physical metallurgy, and in the heat treatment of steel, cast iron, and nonferrous metals and alloys. No personalities are mentioned. Most of articles are accompanied by Soviet and non-Soviet references and contain conclusions drawn from investigations.

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Compounds of zirconium and hafnium with trichloroacetic acid. Zhur. neorg. khim. 9 no.2:312-319 F'64. (MIRA 17:2)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

MALINKO, S.V.

Uralborite and pentahydroborite, new minerals of boron. Zap.Vses.-min.ob-va 90 no.6:673-681 '61. (MIRA 15:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya (VIMS), Moskva.

(Boron)

LISITSYN, A.Ye.; MALINKO, S.V.

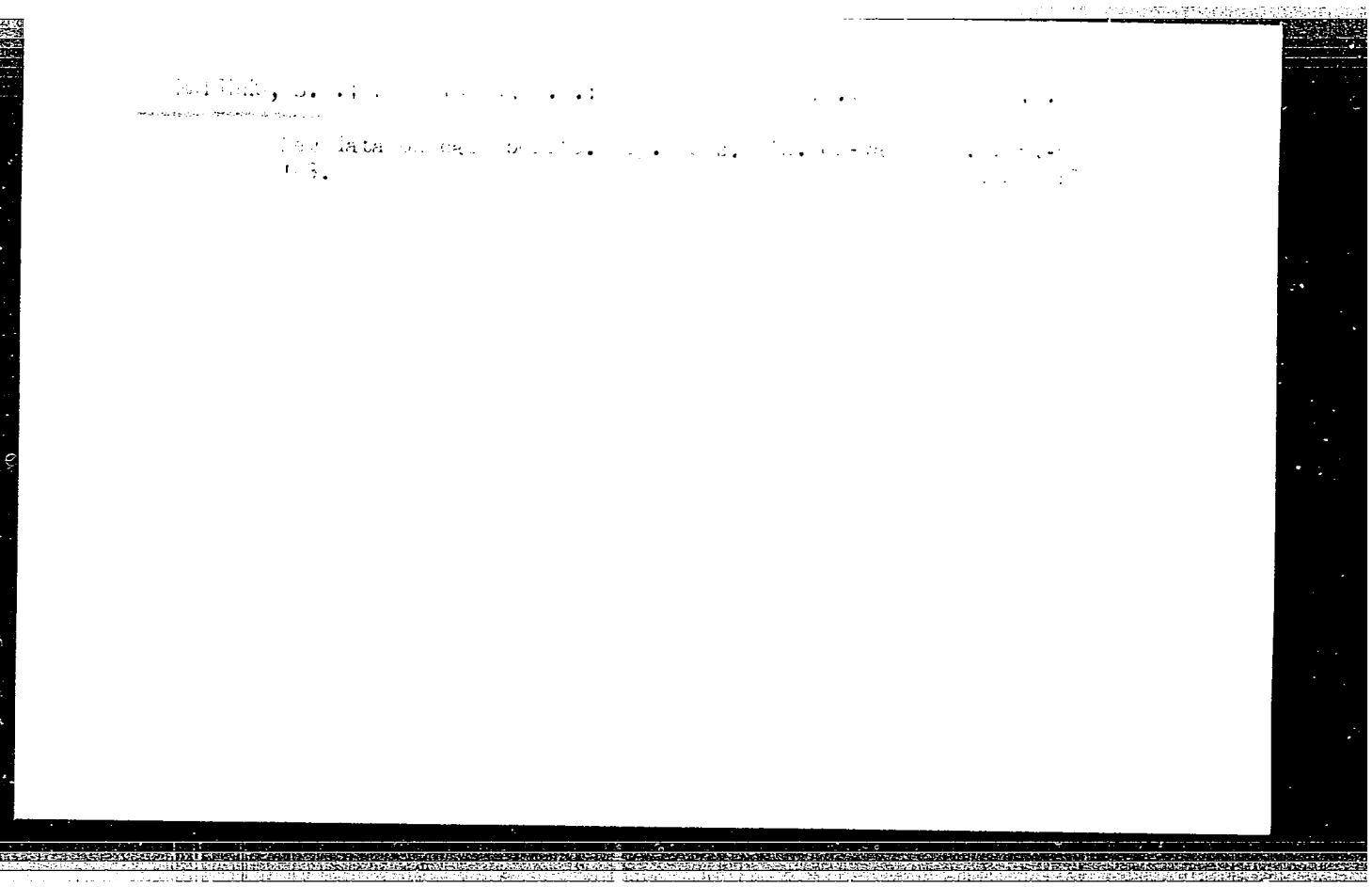
Genesis of endogenetic boron mineralization in the Urals. Min.syr'ye no.8:34-44 '63. (MIRA 17:9)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031810018-8"

MALINKO, S.V.

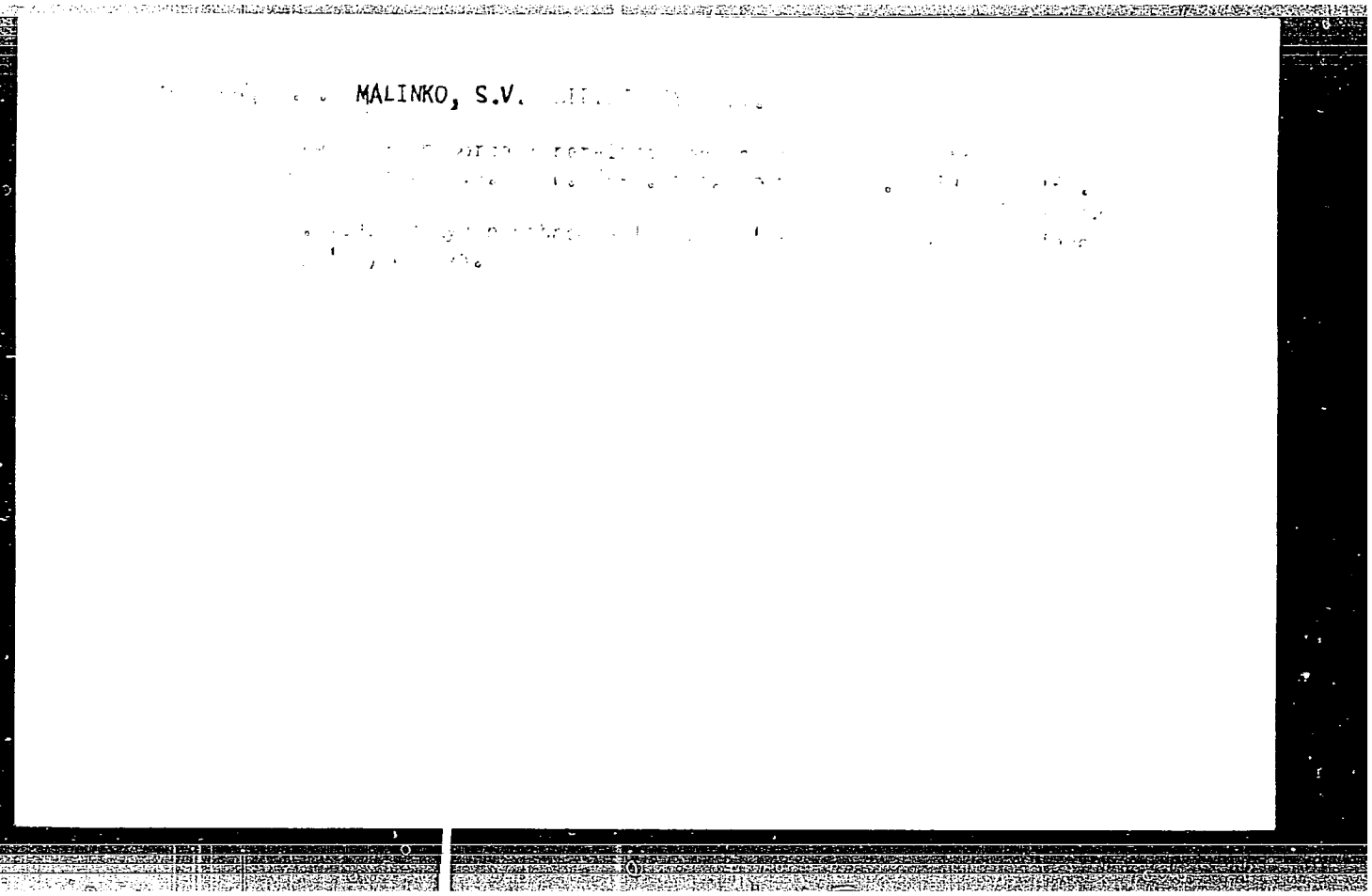
New type of endogenetic sor. mineralization and some problems of the genesis of borates in hydrothermal process. Geol. rud. mestorozh. 5 no.[illegible] N.D.'63. (MIRA [illegible])

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moskva.



SHABYNIN, L.I.; PEKTSEV, N.N.; MALINKO, S.V.;

[Mode of occurrence finding and diagnostic indications of boron minerals in skarn deposits] Usloviia nakhozhdeniia i diagnosticheskie priznaki bornykh mineralov skarnovykh mestorozhdenii. Moskva, Nedra, 1964. 97 p. (MIRA 17:12)



MALINKO, S.V.

First find of cahnite in the U.S.S.R. Dokl. AN SSSR 166 no.3:695-697 Ja '66. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya. Submitted October 2, 1965.

LISITSYN, A.Ye.; MALINKO, S.V.

Composition of liquid inclusions in rock crystals of the Southern Urals. Trudy VNIIP 1 no.2:161-163 '57. (MIRA 12:3)
(Ural Mountains--Quartz crystals)

LISITSYN, A.Ye.; MALINKO, S.V.

Characteristics of mineral-forming solutions based on studies of liquid inclusions in quartz. Geokhimiia no.9:789-795 '61. (MIRA 15:2)

1. All-Union Scientific Research Institute of Mineral Raw Material, Moscow.

(Ural Mountain region--Quartz)

MALINKO, V.M.

AUTHORS: Lisitsa, M.P., Malinko, V.M. 129-3-13/40

TITLE: Quantitative Spectral Absorption Studies of Liquids in the Fields of Strong Vibrational Bands (Kolichestvennyye spektroabsorbtsionnyye issledovaniya zhidkostey v oblastyakh intensivnykh kolebatel'nykh polos)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, Nr 3, pp.52-54 (USSR)

ABSTRACT: There is not much information on the infrared absorption of liquids, particularly in those parts of the spectrum where the coefficient of absorption, k, reaches tens of thousands cm^{-1}. This is mainly due to experimental difficulties which occur when one tries to use the law $I = I_o \exp(-kd)$ directly. Already at $k = 10^4 cm^{-1}$, d is of the order of a μ for $kd \sim 1$. No one has managed to obtain such small thicknesses. In the present paper a possible way of removing this difficulty is considered. If the absorption of the liquid is large, then, instead of a container of the usual type, it is possible to use one which does not include spacers, i.e., the thin layer of liquid is held between the plates by surface tension forces. Such a method has already been used in transmission measurements (Ref. 3). By regulating the degree of closeness of the plates it

Card 1/2

Quantitative Spectral Absorption Studies of Liquids in the Fields of Strong Vibrational Bands.

is easy to change the thickness of the layer. Furthermore, the effect of reflection must be excluded. This method was used to obtain the absorption curve for liquid CCl_4 near 12 μ. The thickness of the layer was varied between 0.5 - 1.5 μ. Results of measurements are shown in Fig. 2. The curve consists of two components with maxima at 762 and 784 cm-1. The splitting is equal to 22 cm^{-1} and is due to Fermi resonance. There are 2 figures and 6 references, of which 1 is Russian, 5 English, 1 German and 1 French.

ASSOCIATION: Kiyev State University im. T.G.Shevchenko(Kiyevskiy gosudarstvennyy universitet im T.G.Shevchenko)

SUBMITTED: December 5, 1956.

AVAILABLE: Library of Congress.

Card 2/2 1. Liquids-Infrared absorption-Analysis

MALINKO, V. N.

01-3-14/14

AUTHORS: Lisitsa, M. P. and Malinko, V. N.

TITLE: An Interference-cum-Graphical Method of Calibration of Infrared Prism Spectrometers. (Interferentsionno-graficheskiy metod graduirovki infrakrasnykh prizmennykh spektrometrov.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.III, Nr.3, pp.294-296. (USSR)

ABSTRACT: If a sufficiently thin plane-parallel layer of a transparent or weakly absorbing substance is placed in front of a spectrometer slit, interference bands are obtained in the continuous spectrum of the light source. A layer of air is suitable for calibration of infrared spectrometers. The authors show that the order N' of the interference maximum observed is proportional to the wave-number ν. Using known emission or absorption spectrum, up to 10 points are found on the straight line $N'(\nu)$. This straight line can then be extra-polated in both directions (see Fig.2). Since to each maximum there corresponds a definite position of the spectrometer

Card 1/2

An Interference-cum-Graphical Method of Calibration of Infrared Prism Spectrometers.

drum, using a graph such as Fig.2 a calibration curve relating the spectrometer drum position n to wavelength λ can be constructed. Such a calibration graph for a lithium fluoride spectrometer ИКС-6 is given in Fig.3. Precision of this calibration method depends on many factors, above all on the precision of determination of the experimental points on the $N'(\nu)$ line and on the precision of determination of positions of maxima. There are 3 figures and 12 references, 1 of which is Slavic.

ASSOCIATION: Kiyev State University imeni T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko.)

SUBMITTED: March 23, 1957.

AVAILABLE: Library of Congress

LISITSA, M.P. [Lysytsia, M.P.]; MALINKO, V.N. [Malynko, V.M.]

Effect of aggregate state on the intensity and structure of certain absorption bands of carbon tetrachloride in the presence of Fermi resonance [with summary in English]. Ukr.fiz.zhur. 3 no.4:482-487 Jl-Ag '58. (MIRA 11:12)

1. Kiyevskiy gosudarstvennyy universitet.
(Carbon tetrachloride--Spectra) (Molecules)

LISOTSA, M.P. [Lysytsia, M.P.]; MALINKO, V.N. [Malynko, V.M.]

Temperature dependence of the infrared absorption of carbon tetrachloride in a gaseous state [with summary in English]. Ukr. fiz. zhur. 3 no.6:773-778 N-D '58. (MIRA 12:6)

1.Kiyevskiy gosudarstvennyy universitet.
(Carbon tetrachloride) (Absorption of light)

Sov/51-4-4-5/24

AUTHORS: Lisitsa, M.P. and Malinko, V.N.

TITLE: Frequencies and Intensities of the Infra-red Spectrum of Carbon Tetrachloride (Chastoty i intensivnosti v infrakrasnom spektre chetyrekhkhloristogo ugleroda)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 4, pp 455 - 467 (USSR).

ABSTRACT: The present paper reports results of measurements of the infra-red absorption by liquid CCl_4 in the region of 470 - 12 500 cm^{-1} and identification of all the observed frequencies. For the fundamental band ν_3 and its first harmonic spectra of vapours were also obtained. The absorption spectra were measured using an autocollimating spectrophotometer IKS-6 at room temperature. Precision of measurement of the wave numbers and the absorption maxima is limited primarily by the precision of calibration of the spectrophotometer (see Table 1). To exclude the effects of reflection, the measurements were made using pairs of cells; thickness of one cell in such a pair was approximately double the thickness of the other cell. Thicknesses of cells for liquid CCl_4 were between 0.8 - 1.5 μ in the region of the fundamental

Frequencies and Intensities of the Infra-red Spectrum of Carbon Tetrachloride

absorption band (about 12 μ) and up to 10 cm in the regions of very weak absorption bands. Very thin layers of CCl_4 liquid for studies in the regions of very intense absorption were obtained by compressing a drop of liquid between two well-polished plates of rock-salt. To obtain the coefficient of absorption of the CCl_4 vapour, the authors measured absorption of a cell filled with gas and absorption of an empty (evacuated) cell. In the region of pressures used in the studies of vapours (up to 7 mmHg) the effect of pressure on absorption does not exceed the experimental error. The error in determination of the absorption coefficient for the majority of bands and harmonics does not exceed 7-10%. For the fundamental band ν_3 the error reaches 15-20% and at the longest wavelengths, the error increases to 30%. Figure 1 shows the absorption of CCl_4 in the region of the fundamental band ν_3; Curve 1 represents liquid and Curve 2 - vapour. Figure 2 shows the structure of the long-wavelength component of Fermi resonance doublet for gaseous CCl_4. Figure 3 shows the

Frequencies and Intensities of the Infra-red Spectrum of Carbon Tetrachloride

splitting in the region of the fundamental band ν_3. Figures 4 - 7 show absorption by liquid CCl_4. Figure 8 shows absorption by liquid (Curve 1) and gaseous (Curve 2) CCl_4 in the region of the first harmonic of the ν_3 vibration. Table 2 gives splitting of vibrational levels due to the presence of CCl_4 molecules with difference isotopic composition and difference symmetries. Table 3 gives the structure of the Fermi resonance doublet in the 750-800 cm^{-1} region for liquid and gaseous CCl_4 at 293 ^oK. Table 4 gives the frequencies of fundamental vibrations of CCl_4 used by various authors in the identification of the CCl_4 spectrum. The present authors use the tetrahedral model of the CCl_4 molecule in identification of its infra-red absorption frequencies. This identification is given in Table 5, together with the results given in Refs 7, 10 and 14. The present authors obtained the absorption coefficients for all

Frequencies and Intensities of the Infra-red Spectrum of Carbon Tetrachloride

the frequencies observed and for some frequencies, they calculated the integral absorption and the band half-widths (Table 6). There are 8 figures, 6 tables and 35 references, 20 of which are in English, 6 Soviet, 4 German, 3 French, 1 Dutch and 1 translation of a Western work into Russian.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko (Kiyev State University imeni T.G. Shevchenko)

SUBMITTED: May 4, 1957

Card 4/4 1. Carbon tetrachloride--Spectra

AUTHORS: Lisitsa, M. P., Malinko, V. N. SOV/48-22-9-23,41

TITLE: Influence of Temperature and of the State of Aggregation on the Infrared Absorption of Carbon Tetrachloride (Vliyaniye temperatury i agregatnogo sostoyaniya na infrakrasnoye pogloshcheniye chetyrekhkhloristogo ugleroda)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1117 - 1121 (USSR)

ABSTRACT: Such investigations are of paramount importance for the determination of the factors which influence the intensity, the half-width, the shape, and the structure of the oscil ation bands. Individual absorption bands of carbon tetrachloride were chosen by the authors as vehicles of their investigation. They were studied at different states of aggregation and at temperatures near the point of transformation. The spectrum of CCl_4 is at present thoroughly investigated and the majority of frequencies has already been identified (Refs 1,2). A method which was developed already earlier was used in the quantitative measurement in the range of an extremely

Card 1/4

intensive absorption (Ref 3). First the very intensive double band was investigated as to its temperature dependence. One of the components of this band (ν = 784 cm^{-1}) corresponds to the treble degenerated fundamental oscillation ν_3 and the second (ν = 762 cm^{-1}) corresponds to the compound oscillation $\nu_1 + \nu_4$. Owing to a Fermi resonance this oscillation band attains an intensity comparable to that of the fundamental oscillation. For the temperature investigation two isolated doublets were chosen from several dozens of compound bands. A Fermi resonance was found to occur between its components. The separation of the doublets into their components is not difficult if both components are assumed to have a symmetrical shape. The data known at present are by far insufficient for an explanation of the temperature dependence of the intensities of the bands of infrared absorption and are even more inadequate for a construction of a theory which agrees with the experimental evidence.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R001031810018-8"

The only statement which can be made must be limited to the fact that in this case a temperature reduction leads to decrease of the matrix elements of the transitions. The magnitude of the latter is not only dependent upon the type of molecule but also upon its surroundings. Supplementary investigations were carried out in order to determine the influence of the state of aggregation upon the intensity of the compound absorption bands. A computation of integral intensities has shown that $\int K_\nu d_\nu$ is reduced by almost to half its original value for the long-wave component of each doublet at the transition from liquid to vapor. With short-wave components and in particular with the band $\nu_1 + \nu_3$ this reduction is insignificant. The weakened resonance interaction leads to a more pronounced reduction of the intensity of the relatively weaker component in the case of oscillations $\nu_1 + \nu_4$ as well as in the case of ν_3.

Card 3/4 The circumstance that the half-width of each component

Influence of Temperature and of the State of Aggregation on the Infrared Absorption of Carbon Tetrachloride SOV/48-22-9-29, 40

remains practically constant in the phase transition in question is a characteristic feature, although the maximum of the long-wave component changes to an isotopic structure by splitting into 2-3 components. There are 3 figures, 2 tables, and 7 references, 4 of which are Soviet.

ASSOCIATION: Kiyevskiy gos. universitet im. T.G.Shevchenko (Kiyev State University imeni T.G.Shevchenko)

Card 4/4

24(7) SOV/51-6-5-23/34

AUTHORS: Lisitsa, M.P. and Malinko, V.N.

TITLE: On the Temperature Dependence of Intensities of the Combination Frequencies $\nu_1 + \nu_3$ and $\nu_1 + (\nu_1 + \nu_4)$ of Gaseous CCl_4 (O temperaturnoy zavisimosti intensivnostey sostavnykh tonov $\nu_1 + \nu_3$ i $\nu_1 + (\nu_1 + \nu_4)$ gazoobraznogo CCl_4)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 694-696 (USSR)

ABSTRACT: Vol'kenshteyn, Yel'yashevich and Stepanov's theory (Ref 1) of the temperature depedence of intensities of vibrational absorption bands has not yet been verified, because of great experimental difficulties. The present note reports the first attempt at verification of this theory for the combination frequencies $\nu_1 + \nu_3$ and $\nu_1 + (\nu_1 + \nu_4)$ of gaseous CCl_4. The theoretical temperature coefficients for these vibrations are given by Eq (1). The expressions of Eq (1) can be used to construct theoretical curves but their comparison with experiment is difficult because the bands $\nu_1 + \nu_3$ and $\nu_1 + (\nu_1 + \nu_4)$ overlap strongly forming a close doublet. For this reason the total integral absorption of the doublet was determined and compared with the corresponding calculated curves. The absorption curves of the doublet were obtained between 20 and 200°C; three of these curves obtained at 20, 135 and 200°C

are given in Fig 1. Fig 1 shows that increase of temperature leads to a slight increase of the total intensity, broadening of each component of the doublet and a fairly strong rise of the absorption maximum of the long-wavelength component. The curves or Fig 1 show only a qualitative agreement of theory with experiment. This is confirmed by the data of Fig 2, where curve 1 was obtained experimentally and curve 2 theoretically. Although curves 1 and 2 of Fig 2 are similar in appearance, the theoretical curve indicates a stronger temperature dependence of the total integral absorption than that found empirically. The authors could not suggest a reason for the difference between curves 1 and 2. They did establish, however, that the increase of the partial pressure of CCl_4 vapour with temperature cannot explain this disagreement. There are 2 figures and 4 Soviet references.

SUBMITTED: October 8, 1958

[illegible]LINEC, V.N., Cand Phys-Math Sci — ([illegible]) "The [illegible] aggregate condition on [illegible] oscillating [illegible] [illegible] rides [illegible]," [illegible], 1 [illegible], 1[illegible] pp ([illegible] Council of the Institute [illegible], AS UkrSSR) (KL, [illegible], 1[illegible])

MALINKOVICH, A. N.

"Determining the Temperature Coefficient of the Elastic Module in Lamina Subjected to Bending Stress,"

SO: Zavod. Lab., 14, No. 7, 1948.

L 37744-66 EWT(m)/EWP(t)/ETI IJP(c) JD/GD/JH

ACC NR: AT6016417 (A) SOURCE CODE: UR/0000/65/000/000/0109/0115

AUTHOR: Malinkovich, A. N.

ORG: none

TITLE: Investigation of alloys for internal combustion engine pistons

SOURCE: AN SSSR. Institut metallurgii. Metallovedeniye legkikh splavov (Metallography of light alloys). Moscow, Izd-vo Nauka, 1965, 109-115

TOPIC TAGS: ENGINE PISTON, HEAT RESISTANT ALLOY, internal combustion engine, aluminum alloy, fatigue strength, high temperature strength / AK4-1 aluminum alloy, V300 aluminum alloy, VAL-1 aluminum alloy, SAP aluminum alloy, ~~IR5 test machine, 8B-1 test machine, Ya-8M test machine~~

ABSTRACT: The salient characteristics of piston alloys for internal combustion engines are reviewed. Four alloys were selected and evaluated for their performance as piston material: a deformable alloy AK4-1; two high-temperature cast alloys V300 and VAL-1; and a high-temperature alloy SAP with 8% Al_2O_3. All four alloys are aluminum base and, with the exception of the SAP alloy, were heat-treated. The properties for which the alloys were tested are: tensile strength under elevated temperatures; 400-hr of fatigue test at 300--350C; high-temperature strength at 400C for 500 hrs; coefficient of linear expansion; and a metallographic analysis. The results of the tests are given in graphical and tabular form, and it is shown that the best heat resistance characteristics were obtained from the SAP alloy. The cast aluminum alloys V300 and VAL-1 were more heat resistant than the AK4-1 alloy, especially in fatigue strength. Orig. art. has: 5 figures and 3 tables.

Card 1/1 vmb SUB CODE: 11, 21/ SUBM DATE: 16Sep65/ ORIG REF: 002

MALINKOVICH, Ye.M.

Device for testing specimens by an alternating cycle in unilateral pulse machines. Zav.lab. 28 no.3:363-364 '62. (MIRA 15:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy.

(Testing machines)

KOBRIN, M.M.; MALINKOVICH, Ye.M.

Thyratron deive of fatigue testing machines with inertia excitation. Zav.lab. 29 no.5:616-617 '63. (MIRA 16:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy.

(Fatigue testing machines)

MALINKOVSKIY, N.M.

N.I.Kashin, 1825-1872. Moskva, [Medgiz] 1957. 152 p. (MIRA 10:11)
(KASHIN, N.I., 1825-1872)

MALINKOVSKIY, N.N. (Moskva)

Medical bibliography in the scientific and practical work of an obstetrician-gynecologist. Akush. i gin. 40 no.5:140-145 S-O '64. (MIRA 18:5)

MALINKOVSKIY, V. V.

Fruit nursery Moskva, Gos. izd-vo sel'khoz. lit-ry, 1952. 363 p. (54-21359)

SB357.M25

KURYNDIN, Ivan Ivanovich; MALINKOVSKIY, V.V.; VEN'YAMINOV, A.N.; BELOKHONOV, I.V.; KRAVCHENKO, Z.I., redaktor; PEVZNER, V.I., tekhnicheskiy redaktor

[Fruit culture] Plodovodstvo. Izd. 5-oe, perer. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 464 p. (MLRA 9:11)
(Fruit culture)

MALINKOVSKIY, V.V.; KOZLOVA, Ye.D.; MORSKOY, G.I.; KUZNETSOV, G.V.; KASHAYEV, G.T.

Increasing the yield of wild rose thickets. Trudy VNIVI 8:89-93 '61. (MIRA 14:9)

1. Sel'skokhozyaystvennyy otdel Vsesoyuznogo nauchno-issledovatel'skogo vitaminnogo instituta i Shchelkovskiy i Ufinskiy vitaminnyye zavody.

(Roses)

POLAND

AUGUSTYNOWICZ, L.; MALINKOWSKI, W.; MARKIEWICZ, Z., POLUJANSKI, P.; STANKIEWICZ, W.; and TOMICKI, Z., Section of Small Animal Diseases of the Department of Veterinary Medicine of the College of Agricultural Economics (Zaklad Chorob Zwierzat Malych Wydz. Wet. SGGW) Head (Kierownik) Prof. Dr. Wladyslaw Stankiewicz, [Warsaw]

"Suitability of the Preparation "Mepatar - Polfa" in the Treatment of Domestic Animals"

Lublin, Medycyna Weterynaryjna, Vol 22, No 9, Sep 1966; p. 550-551

Abstract [English summary modified]: Study of Mepatar Polfa (medicated feed supplement containing 5% oxytetracycline) in dogs, evaluating the blood level, adequacy, and safety; therapeutic use in dogs with nephritis and in minks with enteritis or urinary tract infections, and in poultry with upper respiratory disease, was rather uniformly successful.

1/1

MALINNIKOV, V.I., mostovoy obkhodchik

Improve the quality of bridge maintenance. Put' i put.khoz. 5 no.4: 30 Ap '61. (MIRA 14:?)

1. Stantsiya Mankent, Kazakhskoy dorogi.
(Railroad bridges--Maintenance and repair)

MALINNIKOV, V.V.

Pre-assembly of equipment at electric interlocking centers. Avtom. telem. i sviaz' 4 no.11:24-26 N '60. (MIRA 13:11)

1. Nachal'nik Leningradskogo stroitel'no-montazhnogo uchastka tresta "Transsignalstroy."
(Railroads--Signaling--Interlocking systems)

KALINOCHKA, A.N.

Changes in arterial pressure in brain tumors. Vrach.delo no.7: 62-64 Jl '60. (MIRA 13:7)

1. Kafedra nervnykh bolezney (zav. - dotsent F.Ya. Roze) Dnepropetrovskogo meditsinskogo instituta.
(BLOOD--PRESSURE) (BRAIN--TUMORS)

KRASNOVA, V.G.; YARTSEVA, I.M.; SAKOVICH, I.V.; MALINOCHKA, A.N.

Pathogenesis of influenza. Zhur.mikrobiol., epid. i immun. 32 no.11: 140 N '61. (MIRA 14:11)

1. Iz Dnepropetrovskogo instituta epidemiologii, mikrobiologii i gigiyeny imeni Gamalei i Dnepropetrovskogo meditsinskogo instituta. (INFLUENZA)

MALINOCHKA, YA. N.

Malinochka, Ya. N. "On the structure of white iron," Nauch. trudy (Dneproptr. metallurg. in-t im. Stalina), Issue 15, (supplement), 1948, p. 3-20

SO: U-3264, 10 April 1953, (Letopis 'Zhurnal 'nykh Statey, No.3, 1949)

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 338 - I

BOOK

Author: MALINOCHKA, YA. N. Call No.: TN672.V8

Full Title: FORMATION OF QUASI-EUTECTIC AND QUASI-EUTECTOID STRUCTURES

Transliterated Title: Ob obrazovanii kvazievtekticheskikh i kvazievtektoidnykh struktur

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.: 11 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. 37-47), see AID [illegible]-II

Coverage: The author in this paper considers only eutectic transformation. The structure and property of the eutectics generally determine the structure and property of an alloy of the eutectic type. Eutectic crystallization of two components with overcooling or oversaturation is discussed

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with a schematic phase diagram (Fig. [illegible], p. [illegible]). The problems of the rate of crystallization of eutectics and of the dispersion of products of the eutectic transformation are thoroughly investigated. The shift of the "eutectic point" to the side of the more overcooled component and the spread of the quasi-eutectic region is studied in relation to the overcooling of pre-eutectic and post-eutectic alloys and to the boundary of metastability. The boundary of metastability is determined by the temperature, below which an alloy can not be overcooled. The quasi-eutectic region is the maximum region which cannot be enlarged either by overheating or by rapid cooling.

Significance of oversaturation of the eutectic liquid at crystallization is discussed and related to the liquid layer at moment of formation of the second phase. The mechanism of the eutectic transformation in white cast iron is outlined and connected with the longitudinal growth of grains in the same direction as the intensive growth of flat dendrite-cementite in the leading phase. Two charts and 8 Russian references (1935-48).

Ob obrazovanii kvazievtekticheskikh i kvazievtektoidnykh struktur

AID 338 - I

Purpose: For scientific workers
Facilities: None
No. of Russian and Slavic References: 8 (19[illegible])
Available: Library of Congress.

3/3

MALINOCHKA, Ya. N.

PA 197T91

USSR/Metals - Cast Iron, Structure Sep 51

"On Graphitization of Iron-Carbon Alloys," Docent Ya. N. Malinochka, Cand Tech Sci, Dneprodzerzhinsk Metallurgical Inst

"Litey Proiz" No 9, pp 28-32

Reviews paper, published by N. G. Girshanovich, Dr Tech Sci, in "Litey Proiz" No 1, 1951, which paper distorted certain aspects of graphitization, developed by Dnepropetrovsk group of metal scientists. Demonstrates insufficient substantiation of attempt to explain different shape of graphite inclusions in Fe-C alloys by unlike ratio between rates of diffusion and crystn.

197T91

MALINOCHKA, Ia. N.
PHASE I

BOOK

Call No.: [illegible]

Author: MALINOCHKA, Ia. N., IVANTSOV, [illegible], and [illegible], [illegible]

Full Title: STRUCTURE OF CAST IRON

Transliterated Title: Struktura chuguna

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of Scientific-Technical [illegible] Literature (Ukrainian)

Date: 1952. Kiev. No. pp.: 161 No. copies: [illegible]

Editorial Staff

Editor: Prof. V. N. Gridnev Tech. Ed.: None

Ed.-in-Chief: V. K. Serdiuk, [illegible] Appraiser: Prof. [illegible] [illegible]

Text Data

Coverage: The work treats the basic principles of cast iron metallurgy. Processes of crystallization and recrystallization of austenite, graphite, and carbide and structural changes are explained in terms of molecular physics. 97 diagrams.

Purpose: The work is written for metallurgical engineers and foundry personnel. Asst. Prof. Ia. V. [illegible] and [illegible] Danil'chenko. Engineers: [illegible], L. A., Kozyrev, I. F., Krientsl, M. [illegible], Turan, Iu. M., and [illegible]

Facilities:

No. Russian and Slavic References: [illegible]

Available: Library of Congress.

MALINOCHKA, Ya. N.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. [illegible] Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Bunin, K.P. Ivantsov, G.I. Malinochka, Ya. N.	"Structure of Cast Iron"	Dnepropetrovsk Metallurgical Institute

[illegible], July 1954

Structure of austenite-graphite eutectic grains. K. P. Bunin, Va. N. Malinochka, and S. A. Nedorova. *Liteinoe Proizvodstvo* 1953, No. 12, 25.—Microscopic study of undercooled eutectic colonies of hypoeutectic cast irons under high magnification and with repolishing practice showed that all small graphitic inclusions are connected with each other. Grains of fine austenite-graphite eutectic obtained by strong undercooling of the melt may consist of austenitic matrix permeated by a single graphitic inclusion growing from a single nucleus during the eutectic decompn., which opposes the general assumption of small isolated graphite inclusions. A model of such an inclusion is presented.

J. D. Gat

BUNIN, K.P.; MALINOCHKA, Ya.N.; KUNYAVSKIY, M.N., redaktor; GORDON, L.M., redaktor; PETROVA, N.S., tekhnicheskiy redaktor.

[Introduction to metallography] Vvedenie v metallografiiu. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 190 p. [Microfilm]
(Metallography) (MLRA 7:12)

Wear resistance of metal alloys for glass grinding. Ya. N. Malinochka (*Steklo i Keram.*, 1954, **11**, No. 8, 14; *Glass Ind.*, 1956, **37**, 386).—The coeff. of abrasion of the metal (i.e., wt. of glass abraded/wt. of metal abraded) and the profile of the surfaces were studied for cast irons, steels, and Al alloys. The hardness is not related to the wear resistance and the depth of the groove in the glass is the same for all metals. The resistance was reduced by increase of C and Si content and increased by increase of S, P, and Mn content. The white cast iron composition C 3·2—3·4 (especially if globular), Mn 0·7—0·9, P 0·3—0·4, Si 1·5—1·7, S 0·2—0·3% is recommended. Hardened steels had a high wear-resistance which was reduced by annealing at 400—500° but was recovered at 650°. Normalized steels gave the best results but were no better than the best cast irons. An alloy Al 93·6, Zn 4·85, Fe 0·78, Si 0·28 and Cu 0·1% was better than the best plastic.

J. A. SUGDEN.

BUNIN, K.P.; MALINOCHKA, Ya.N.; TARAN, Yu.N.

Graphite formation in gray magnesium cast iron. Lit.proizv. no.1:22-23 Ja '57. (MLRA 10:3)
(Cast iron--Metallography) (Magnesium alloys--Metallography)

BUNIN, K.P.; MALINOCHKA, Ya.N., kand.tekhn.nauk; TARAN, Yu.N., kand.tekhn.nauk.

Cast iron cooling curves. Lit.proizv. no.8:3 of cover Ag '57. (MIRA 10:10)

1.Chlen-korrespondent AN USSR (for Bunin).
(Cast iron--Cooling)

AUTHOR: Gulyayev, B.B. SOV/24-58-4-37/39

TITLE: Conference on Crystallisation of Metals (Soveshchaniye po kristallizatsii metallov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 153 - 155 (USSR)

ABSTRACT: This conference was held at the Institut mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 28-31, 1958. About 400 people participated and the participants included specialists in the fields of foundry, metallurgy, crystallography, physics, welding, heat, physical chemistry, mathematical physics and other related subjects. In addition to Soviet participants, foreign visitors included Professor D. Czikl (East Germany and N.I. Chvorinov (Czechoslovakia). This conference on crystallisation of metals was the fourth conference relating to the general problem of the theory of foundry processes.

Conference on Crystallisation of Metals SOV/24-58-4-37/39

Crystallisation of Cast Iron. I.A. Stapranov and E.V. Petrova, in their paper "Investigation of the Crystallisation of magnesium-inoculated iron", reported on experimental data relating to the conditions of solidification and the structure of castings made of magnesium-inoculated iron; they presented a theory of crystallisation of magnesium-inoculated iron.
B.B. Mil'man, in his paper "Investigation of the Process of Formation of Spheroidal Graphite in Iron", considered the influence of various factors and characteristics of the metal on the formation of graphite inclusions.
Professor D. Czikl (East Germany) presented a paper on crystallisation of graphite in cast iron, which was illustrated by extensive metallographical information.
Ya.N. Malinochka and A. Zhukov dealt with the problem of intracrystalline liquation of silicon and its influence on the structural diagram of cast iron.
I.I. Khoroshev and I.Ye. Lev dealt with the mechanism of germination of centres of crystallisation of graphite in castings made of white iron and the influence of the speed of crystallisation on the distribution of alloying elements between the individual phases of iron-carbon alloys. I.V. Salli proposed a method of hardening of alloys from the liquid state using an extremely high speed of cooling; investigations relating to this method enabled conservation of saturated solutions of carbon in iron which correspond to the liquid state.
N. Ya. Khrapkovskiy dealt with the investigation of crystallisation, the primary structure and the properties of quasi-eutectic grey iron.

BUNIN, K.P.; GRECHNYY, Ya.V.; MALINOCHKA, Ya.N.; TARAN, Yu.N.; BEL'CHENKO, G.I.; POGREBNYY, E.N.; DANIL'CHENKO, N.M.; YATSENKO, A.I.; REPIN, A.K.; BARANOV, A.A.; SHPAK, T.M.

Is metastable austenite possible at a point higher than A_1? Izv.vys.ucheb.zav.; chern.met. no.10:143-144 O '58. (MIRA 11:12)

1. Dnepropetrovskiy metallurgicheskiy institut i Institut chernoy metallurgii AN USSR.

(Austenite) (Phase rule and equilibrium)

AUTHOR: Malinochka, Ya.N. SOV/133-58-12-15/19

TITLE: Dendritic Segregation of Silicon in Steels (Dendritnaya likvatsiya kremniya v stalyakh)

PERIODICAL: Stal', 1958, Nr 12, pp 1130-1132 (USSR)

ABSTRACT: It appears from the ternary diagram of the Fe-C-Si system that on crystallisation of silicon steel intercrystalline (dendritic) segregation of silicon is possible, whereupon the axial sectors of the dendride could be poorer in silicon than the peripheral ones crystallising at the end of the solidification process. For the experimental investigation of this problem an increase in Al point by silicon was utilised. The chemical composition and the initial structure of steels used for the investigation is shown in the table. By investigating the microstructure of partly austenised and hardened steel a considerable dendritic segregation of silicon was established, (Figs 2 and 3). The degree of segregation of silicon increases with decreasing velocity of cooling.

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Dendritic Segregation of Silicon in Steels

The above method of investigation can be apparently used for detecting the segregation of other alloying elements which substantially increase or decrease Al point.

There are 3 figures, 1 table and 2 references (1 Soviet, 1 English)

ASSOCIATION: Institut Chernoy metallurgii AN USSR (Ferrous Metallurgy Institute of the Academy of Science of the UkrSSR)

MALINOCHKA, Ya.N.

Intercrystalline segregation of silicon in gray cast iron. Lit. proizv. no.1:32-36 Ja '59. (MIRA 12:1)
(Cast iron--Metallography)

SOV/21-59-12-8/20

AUTHORS: Malinochka, Ya. N., Osada, N. G., Koval'chuk, G. Z

TITLE: Physical Metallurgy. Peculiarities of a Certain Type of Pearlite in Iron-Carbon-Silicon Alloys

PERIODICAL: Dopovidi Akademii nauk Ukrains'koy RSR, 1959, Nr 12, pp 1330-1335 (USSR)

ABSTRACT: In the course of studying the microstructure of cast hypereutectoid silicon steels and low-carbon cast irons, the authors discovered a peculiar type of pearlite and pearlite colonies (which have heretofore probably not been described). Along with regular inclusions of lamellar pearlite, they identified pearlite colonies where the carbide phase forms a continuous matrix, and ferrite distributed in it in the form of differently shaped inclusions. In a slowly cooled laboratory steel Nr 1 casting (C, 1.40%; Si, 0.64; Mn, 0.069; S, 0.041; P, 0.005; Cu, 0.14%) such pearlite was observed at the joints of dendrite branches of austenite and at the carbide lattice along the austenite grains. This pearlite can be called "honeycomb pearlite." After pickling with nitric acid, honeycomb pearlite is brighter in color than lamellar pearlite, and bright lattice seems to be thicker than that of carbide. Therefore, it can be easily observed with minor magnification. When pickling

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with sodium picrate, the dark areas of honeycomb pearlite were observed along the carbode lattice. In steel Nr 2 castings (C, 1.35; Si, 3.03; Mn, 0.10; S, 0.041; P, 0 002; Cu, 0.15%) honeycomb pearlite is formed not only along the lattice of hypereutectoid carbide but also at the carbide laminae which precipitate within the austenite grains. These colonies of honeycomb pearlite are similar to those of honeycomb ledeburite in hypereutectoid cast iron. Usually, the colonies of honeycomb pearlite grow far beyond the boundaries of the carbide lamina but maintain the shape of the latter and its orientation in respect to austenite grain. It is noteworthy, that with the presence of a carbide lattice along the austenite grain boundaries, the honeycomb pearlite colonies are formed as laminae within the grains only and at some distance from the former. Under the microscope, the appearance of honeycomb pearlite in lamellar colonies is greatly affected by the angle at which this colony is intersected by a specimen plane With a small angle (the colony plane almost coincides with the intersecting plane) the structure of honeycomb pearlite appears to be similar to that of granular pearlite. Honeycomb pearlite

Physical Metallurgy. Peculiarities of a Certain Type of Pearlite in Iron-Carbon-Silicon Alloys

SOV/21-54-12-8/20

is also observed in low-carbon cast iron with a high silicon content when cooling rates after solidification are such that carbide lattice and laminae of hypereutectoid carbide are formed. However, it is not yet clear why the increased silicon content in the alloy leads to the formation of honeycomb pearlite. The article was recommended for publication by Academician V. M. Svechnikov, Academy of Sciences UkrSSR. There are 5 figures; and 1 Soviet reference.

ASSOCIATION: Institute of Ferrous Metallurgy of the Academy of Sciences UkrSSR (Institut chernoy metallurgii ANURSR)

SUBMITTED: April 10, 1959

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SOV/32-25-4-27/71

18(7)

AUTHORS: Malinochka, Ya. N., Osada, N. G.

TITLE: Generation of the Primary Structure and Intercrystalline Liquation in Steels and Cast Iron by the Method of Austenitization (Vyyavleniye pervichnoy struktury i vnutrikristallicheskoy likvatsii v stalyakh i chugunakh metodom austenizatsii)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 446-447 (USSR)

ABSTRACT: A method is suggested which serves the generation of the macrostructure and intercrystalline liquation of cast steel, and works by a partial austenitization. At the crystallization of alloyed steels, a dendrite liquation of the alloying elements is generated. If in the interaxial dendrite segments the element which raises point A_1 enriches, those segments will first austenitize, at a slow heating of such a steel, which are poor in the alloying element, i.e. the middle segments of the dendrite faces. An intense heating converts the austenite of these middle segments to a badly staining martensite (or martensite and residual austenite). Thus, already a usual staining can generate the primary dendritic structure of the steel. The method of austenitization was applied to investigations of sili-

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Generation of the Primary Structure and Intercrystalline Liquation in Steels and Cast Iron by the Method of Austenitization

con in steels and cast iron. At the crystallization of steel the peripheral dendrite segments are enriched with silicon whereas at the crystallization of cast iron the silicon liquation is reversed. In order to test this by experiment, 5 cast-steel samples (Si 0.72-1.95%, 0.7% C, 0.45% Mn, 0.044% S and 0.025% P) were examined. The primary macrostructure of all steel types was practically the same (Fig 2). The microstructure of a type of steel with 0.72% Si, hardened at 760° for 30 minutes shows - between the middle segments of the dendrite branches - a perlite structure (Fig 3) which was not austenitized by the enrichment of silicon at 760°. The austenitization of a perlite cast iron begins at the peripheral segments of the dendrite (Fig 4) while the middle segments become poorer in cementite. There are 4 figures and 1 Soviet reference.

ASSOCIATION: Institut chernoy metallurgii Akademii nauk USSR (Institute of Ferrous Metallurgy of the Academy of Sciences UkrSSR)

PHASE I BOOK EXPLOITATION SOV/4344

Soveshchaniye po teorii liteynykh protsessov, 4th

Kristallizatsiya metallov; trudy soveshchaniya (Crystallization of Metals; Transactions of the Fourth Conference on the Theory of Casting Processes) Moscow, Izd-vo AN SSSR, 1960. 325 p. 3,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya tekhnologii mashinostroyeniya.

Resp. Ed.: B. B. Gulyayev, Doctor of Technical Sciences, Professor; Ed. of Publishing House: V. S. Rzheznikov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This book is intended for metallurgists and scientific workers. It may also be useful to technical personnel at foundries.

COVERAGE: The book contains the transactions of the Fourth Conference (1958) on the Theory of Casting Processes. [The previous 3 conferences dealt with hydrodynamics of molten metals (1955), solidification of metals (1956), and shrinkage processes in castings (1957)]. General problems in the crystallization of metals, including the crystallization of constructional steels, alloy steels with special properties, cast iron, and of nonferrous alloys, are discussed. Recognition is given to D. K. Chernov and N. T. Gudtsov and their students, B. B. Gulyayev and A. G. Spasskiy, for their contributions to the understanding of the basic problems involved in the theory of crystallization of ferrous and nonferrous metals and alloys. Academician A. V. Shubnikov is also mentioned in connection with his work on the planning of research on crystal formation. References accompany several of the articles.

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Malinochka, Ya. N.

MALINOCHKA, Ya.N.; OSADA, N.G.

Structure of the phosphide eutectic in cast iron. Lit.proizv. no.7:21-24 Je '60. (MIRA 13:7)
(Cast iron--Metallography)

S/129/60/000/010/010/012/XX
E073/E335

AUTHORS: Malinochka, Ya.N., Candidate of Technical Sciences, Osada, N.G. and Koval'chuk, G.Z., Engineers

TITLE: Particular Type of Pearlite in Iron-carbon-silicon Alloys

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No. 10, pp. 19 - 21 + 2 plates

TEXT: In investigating the microstructure of hypereutectoidal silicon steels and low-carbon steels, the authors discovered pearlite formations in which the carbide phase formed a continuous matrix and the ferrite was distributed in the form of inclusions of various shapes. In a slowly cooled casting of a steel containing 1.40% C, 0.64% Si, 0.069% Mn, 0.041% S, 0.005% P and 0.14% Cu, such pearlite was observed at the junctions of austenite dendrites and along the carbide network which separated out along the grain boundaries of the austenite. This pearlite can be called "honeycomb" pearlite. If etched with nitric acid honeycomb pearlite etches brighter than the lamellar pearlite and therefore the brighter network along the grain boundaries appears to be considerably thicker

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E073/E335

Particular Type of Pearlite in Iron-carbon-silicon Alloys

than the carbide network and can be detected even at low magnifications. In the case of etching by sodium picrate frequent sections of dark-etching honeycomb pearlite can be observed in the neighbourhood of the carbide network. In castings of a steel containing 1.35% C, 3.03% Si, 0.10% Mn, 0.041% S, 0.002% P and 0.15% Cu, honeycomb pearlite forms not only along the network of hypereutectoidal carbide but also around the carbide lamellae which separate inside the austenite grains. These formations of honeycomb pearlite are morphologically similar to the formation of honeycomb ledeburite in hypereutectoidal iron described by K.P. Bunin, G.I. Ivantsov and Ya.N. Malinochka in their book "Structure of Cast Iron", Mashgiz, 1952. It can be assumed that in honeycomb pearlite the ferrite is essentially a one-branched crystal. This is possible in spite of the fact that at the beginning of the formation of honeycomb pearlite the ferrite crystals occurred independently at the surface of the

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Particular Type of Pearlite in Iron-carbon-silicon Alloys

carbide plate. It appears that colonies of honeycomb pearlite form first in the austenite and this is followed by ordinary eutectoidal decomposition. Honeycomb pearlite can also be observed in low-carbon cast iron with increased silicon contents if the cooling speed after solidification is high enough to bring about separation of a carbide network and of lamellae of excess carbide. There are 6 figures.

ASSOCIATION: Institut chernoy metallurgii AN UkrSSR
(Ferrous Metallurgy Institute of the AS Ukrainian SSR)

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