ZAYKOV, S.T., kand.tekhn.nauk; KRAVTSOV, P.Ya., inzh.

Using ore-lime briquets in converter process. Izobr.v SSSR 2 no.9:16-17 S '57. (MIRA 10:10)
(Bessemer process)
(Briquets)

ZAYKOV, S.T., kand. tekhn. nauk; NIKIFOROV, B.V.; KOVAL', V.Yo.; RUBINSKIY, P.S.

Working out nomograms for the calculation of additions during the converter smelting process. Met. i gornorud. prom. no.4: 25-29 Jl-Ag '65. (MIRA 18:10)

SANDLER, N.I.; DOBRUSKINA, Sh.R.; ZAYKOV, S.T.; FEL'DMAN, Z.N.; ASNIS, A.Ye.; NAZARENKO, A.N.

Converter low-alloys steel with niobium for welded structures. Avtom. svar. 17 no.2:43-48 F '64. (MIRA 17:9)

1. Ukrainskiy institut metallov (for Sandler, Dobruskina, Zaykov, Fel'dman). 2. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR (for Asnis, Nazarenko).

ZAYKOV, S.T., kand.tekhn.nauk

Role of manganese in oxygen-blown cast iron during the converter process. Met. i gornorud. prom. no.3:17-21 My-Je '63. (MIRA 17:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov.

ZAYKOV, S.T., kand.tekhn.nauk

Making pipe steel in converters with top oxygen feed. Met. i gornorud. prom. no.3:17-18 My-Je '62. (MIRA 15:9)
(Bessemer process)
(Oxygen--Industrial applications)

FUDIKOV, Dmitriy Vsevolodovich; RUBINSKIY, Petr Samoylovich; BEL'MAN, Mikhail L'vovich; ZAYKOV, S.T., otv. red.; LIBERMAN, S.S., red.izd-va; ANDREYEV, S.F., tekhn. red.

[Operation of steel pouring ladles with rammed lining] Ekspluatatsiia stalerazlivochnykh kovshei s nabivnoi futerovkoi. Khar'kov, Metallurgizdat, 1962. 62 p. (MIRA 15:7)
(Open-hearth furnaces--Equipment and supplies)

ZAYKOV, Solomon Tevovich; CHUMACHENKO, T.I., red.; SHAFETA, S.M., tekhn. red.

[New technology in converter steelmaking] Novaia tekhnologiia v konvertornom proizvodstve stali. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1961. 157 p. (MIRA 15:1)
(Bessemer process)

S/137/61/000/010/001/056
A006/A101

AUTHORS: Zaykov, S. T., Kravtsov, P. Ya., Lifshits, S. I.

TITLE: Assimilation of melting new steel grades in converters with oxygen blast

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 10, 1961, 36, abstract 10V240. ("Metallurg i gornorudn. prom-st'", Nauchno-tekhn. sb.", 1960, no. 4, 25 - 27)

TEXT: At the plant imeni Petrovskiy and "Krivorozhstal'" the following rimming steel grades are now being melted in converters with O_2 blast: T - for telegraph wire; OB-08 (SV-08) and OB-08A (SV-08A) for electrode wire (S up to 0.040%, and up to 0.030%), K-2, K-3, K-0 for small iron ware; K-5 and KP-62 (KR-62) for crane rails; 25G2C (25G2S) low-alloy steel for reinforcement wire of variable profile. Further enlargement of the assortment was studied, namely the melting of high-quality OB-08A (SV-08A), K-10 and K-20 pipe steel. It was found that when converting cast iron with S < 0.05%, steel with S < 0.030% can be obtained, if the slag is removed twice and fluorspar (2 kg/t of steel) is added. The repeated slag removal extends the melting time by 15 - 20% and reduces the

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S/137/61/000/010/006/056
A006/A101

Assimilation of melting new steel grades in...

yield by 0.7 - 1.2%. Further investigations showed that SV-08A steel can be melted from cast iron with S < 0.05% and Mn > 1.5% if only fluorspar is used without removing the primary slag. K-10 and K-20 pipe steel was melted. Teeming was performed by the syphon method into molds with risers. The ingot weight was 4.20 - 4.45 t. The steel contained 0.0091% [O], 0.0065% [N] and 4.69 ml/100 g [H]. All the mechanical and technological tests of the pipe specimens yielded satisfactory results.

P. Arsent'yev

[Abstracter's note: Complete translation]

Card 2/2

ZAYKOV, G. I

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PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

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Physicochemical Bases of (Cont.) SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

ZAYKOV, S.T.; KRAVTSOV, P.Ya.; LIPSHITS, S.I.

Mastering the making of new brands of steel in acid converters. Metallurg 5 no.8:15 Ag '60. (MIRA 13:7)

1. Ukrainskiy institut metallov i zavod im. Petrovskogo.
(Bessemer process)

Zaykov, S.T.

S/130/60/000/008/007/009

AUTHORS: Zaykov, S.T., Kravtsov, P.Ya., Lifshits, S.I.

TITLE: Putting Into Production New Steel Grades Melted in Oxygen Converters

PERIODICAL: Metallurg, 1960, No. 8, p. 15

TEXT: The following steel grades are now being produced in oxygen converters at the Plant imeni Petrovskiy and the Krivoy Rog Plant: rimming "T", Cv0 8 (Sv08), KCT.2 (KSt.2), KCT.3 (KSt.3), KCT. 0 (KSt.0) steel and killed 25Г 2C (25G2S), 35 ГС (35GS), KCT.5 (KSt.5), KP62 (KR62), Cv0 8 A (Sv08A), K10 and K20 pipe steel. In Sv08A steel the permissible sulfur and phosphorus content is not over 0.030%. The production of oxygen converter steel with a low P and S content is not particularly difficult. It was established by experimental investigations that steel with a sulfur content below 0.03% may be obtained cf cast iron containing 0.05% S. This is attained by repeated removal of the slag and the addition of fluorspar in an amount of 2 kg/t of metal. However, the repeated drawing-off the slag increases the melting time by 15-20% and reduces the yield by 0.7-1.2%. K10 and K20 pipe steel was melted in an oxygen converter. The

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Putting Into Production New Steel Grades Melted in Oxygen Converters

finished product met the requirements to standards and the gas content was low. The rolling of the blanks into seamless pipes was easily possible. The pipe tests proved satisfactory.

ASSOCIATION: Ukrainskiy institut metallov (Ukrainian Institute of Metals), Zavod imeni Petrovskogo (Plant imeni Petrovskiy)

Card 2/2

ZAYKOV, S.T.; KRAVTSOV, P.Ya.; NIKIFOROV, B.V.; KOVAL', V.Ye.; ZHIGULIN, V.I.; RUBINSKIY, P.S.; LIFSHITS, S.I.; YEVSTAF'YEV, Ye.I.; NIKONOV, V.F.; VOZLINSKIY, A.G.

Using oxygen-blown converter steel in automobile manufacture. Met. i gornorud. prom. no.4:26-31 Jl-Ag '64. (MIRA 18:7)

GALATON, Yevgeniy Georgiyevich; ZAYKOV, S.T., otv.red.; SINYAVSKAYA, Ye.K., red.izd-va; ANDREYEV, S.P., tekhn.red.

[Slag removal from open-hearth furnace slag pockets] Udalenie shlaka iz shlakovikov martenovskikh pechei. Khar'kov, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 157 p. (MIRA 13:7)
(Open-hearth furnaces--Equipment and supplies)

ZAYKOV, S. T.

18(5); 25(5) PHASE I BOOK EXPLOITATION SOV/1574

Kyyiv. Ukrayins'kyy naukovo-doslidnyy instytut metaliv

Vprovadzhennya novoyi tekhniky i tekhnologiyi na metalurhiynykh zavodakh Ukrayiny; zbirnyk, t. 3 (Introduction of New Techniques and Technology in Ukrainian Metallurgical Plants; Collection of Articles, Vol. 3) Kyyiv, Derzhtekhvydav URSR, 1958. 192 p. 1,000 copies printed.

Exec. Ed.: [illegible] Afanas; Tech. Ed.: F. Patsalyuk.

PURPOSE: The book is intended for metallurgists employed in rolling and slabbing operations.

COVERAGE: This is a collection of 11 Ukrainian articles, compiled by 22 authors, some of whom are referred to as eminent specialists. The subjects dealt with in the articles are: use of limestone-fluxed slag in making pig iron, use of blast-furnace gas under increased pressure, use of oxygen in making steel in open-hearth and Bessemer furnaces, description of a new method of "intensified" squeezing of slabs in blooming mills. Some design details, with direct references to actual plants and certain operational practices are also featured. Introduction of full mechanization of rolling processes at steel-works is taking place. Numerous diagrams accompany the text. Some articles have bibliographic entries, mainly Soviet.

TABLE OF CONTENTS:

Introduction of New Techniques (Cont.) SOV/1574

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ZAYKOV, S. T.

GONCHARENKO, N.I.; ZAYKOV, S.T.; KRAVTSOV, P.Ya.; UMNOV, V.D. (Khar'kov).

Using ore-limestone briquettes in a converter process. Izv. AN SSSR. Otd. tekh. nauk no.12:78-80 D '57. (MIRA 11:1)
(Bessemer process)

ZAYKOV, S.T., kand. tekhn. nauk; KOROBOV, I.I., inzh.; KOSTENETSKIY, O.N., inzh.; KRAVTSOV, P.Ya., inzh.; LIFSHITS, S.I., kand. tekhn. nauk; RUBINSKIY, P.S., inzh.; UMNOV, V.D., inzh.

Using limestone-ore briquettes during oxygen blast through pig iron in convertors. Biul. TSNIICHM no. 10:15-21 '58. (MIRA 11:7)
(Bessemer process)

Zaykov, S.I.

24-12-17/24

AUTHORS: Goncharenko, N.I., Zaykov, S.T. Kravtsov, P.Ya., Umnov, V.D. (Khar'kov).

TITLE: Use of ore-limestone briquettes in convertors. (Primeneniye rudoizvestnyakovykh briketov v konverternom proizvodstve).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.12, pp.78-80 (USSR).

ABSTRACT: Use of oxygen in convertors with basic lining permits processing of open hearth pig containing up to 0.30% P and up to 0.08% S. Therefore, acceleration of the process of formation of liquid lime-iron slag during the blowing, which lasts only 12 to 15 minutes, is of great importance. On the suggestion of the Ukrainian Institute of Metals (Ukrainskiy Institut Metallov) several series of experiments were made in the shops of the imeni Petrovskiy Works and the Yenakiyevo Works substituting iron ore and limestone by ore-limestone briquettes. The speeding up of the process of slag formation if such briquettes are used is attributed to the larger specific surface and the good mixing of the limestone and ore which, before briquetting, are crushed to a size of 1 to 3 mm. For making the briquettes, rich powdery iron ore with a low

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content of silica is used. In one of the Works two series of experimental melts were made (60 melts, melting temperature 1250°C) with ore-limestone briquettes of the following composition: 27.12% Fe, 38.74% Fe_2O_3, 2.55% SiO_2, 21.44% CaO, 0.72% MgO, 0.95% Al_2O_3, 0.12% MnO, 0.02% P, 0.022% S. The slag formation is so rapid that slag specimens taken from the convertor three minutes after the beginning of the blowing period were perfectly homogeneous in spite of the fact that they contained 32% CaO; the data given in Table 3 indicate that the basicity of the slag after three minutes blowing remained almost constant and this proves the full and rapid dissolution of the limestone in the slag. Rapid slag formation and a high reaction ability was also proved in the experiments at the Yenakiyevo Metallurgical Works. Due to the higher fluidity of the slags obtained with a briquette variant, the bauxite consumption is reduced by 55 to 60% and the specific consumption of liquid pig-iron is also lower, resulting in an increase in output of 1 to 1.6% and a reduction of the specific oxygen consumption. Thus, ore-lime briquettes substituting

Use of ore-limestone briquettes in convertors. 24-12-17/24

all the admixtures used at present represent fundamentally a slag forming mixture and a cooling agent and such a substitution leads to simpler and easier operation of convertor shops.
There are 3 figures and 4 tables.

SUBMITTED: April 19, 1957.

AVAILABLE: Library of Congress.

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ZAYKOV, Solomon Tevovich, kand. tekhn. nauk; LIFSHITS, Saveliy Iosifovich, kand. tekhn. nauk; MAL'KOV, B.G., inzh., retsenzent; CHUMACHENKO, T.I., red.izd-va; BEREZOVYY, V.N., tekhn. red.

[Steelmaking in oxygen-blown converters] Vyplavka stali v kislorodnykh konvertorakh. Kiev, Gostekhizdat USSR, 1963. 181 p. (MIRA 17:2)

ACC NR: AR6035198 (N) SOURCE CODE: UR/0124/66/000/009/B075/B076

AUTHOR: Gofman, A. D.; Zaykov, V. I.; Semenova-Tyan-Shanskaya, A. V.

TITLE: Calculation of ship maneuverability in wind conditions

SOURCE: Ref. zh. Mekhanika, Abs. 9B509

REF SOURCE: Tr. Leningr. in-ta vodn. transp., vyp. 81, 1965, 21-36

TOPIC TAGS: ship, wind, navigation equipment, ship navigation

ABSTRACT: Two maneuvers of a ship exposed to wind conditions are examined: the movement of a ship along a straight course, and the turning of the ship on the same spot. In the first case, the problem is to determine the dangerous wind direction, the maximum velocity of the wind blowing from the dangerous direction, and during which the ship can still move along the given route; the reversal angle of the steering unit, the drift angle and the sailing speed needed to achieve this. It is furthermore assumed that the characteristics of the above-water part of the ship are given as coefficients of the aerodynamic forces in the coupled coordinate ship's system. It is also assumed that the hydrodynamic characteristics of the ship are presented in the form of position hydrodynamic forces in the coupled

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coordinate systems. The performance characteristics of the ship's propeller and helm unit are given in the form of a load factor of the complex from the useful haulage $\sigma_x = P_x/(\rho V_a^2/2)F$, as a function of the relative action $\lambda = V/Dn$; in the form of the load factor of the complex for the transverse force $\sigma_y = Y/(\rho V_a^2/2)F$, as a function of σ_x, (the reversal angle β and the drift angle α having constant value) and in the form of the haulage drop coefficient of the complex q, as a function of the reversal angle β. Certain recommendations are presented concerning the approximate determination of the aerodynamic characteristics of the above-water parts of the hull, the hydrodynamic characteristics of the hull and also of the propeller and helm aggregate. The solution of the problem presented in a dimensionless form. The method of calculating the maneuver if given. The second case examines the maneuver during which the ship does not advance, but must turn against the action of the wind, with the assistance of propellers and helms. It is then supposed that the propellers eliminate for the ship the longitudinal motion, and that the angle of the wind drift is $\alpha = -90$ degrees. When formulating the equations for the ship's equilibrium, the value of the speed of drift V in compression with the absolute wind velocity V_a is disregarded. It is considered that the absolute and relative wind velocities are equal, i. e. $V_a = V_k$. In the first approximation, the equations of equilibrium of the ship are

ACC NR: AR6035198

solved in the assumption that the drift speed of the ship in log movement is low, and that the propeller and helm aggregate are performing under mooring conditions, while the value of its maximum transverse force is known. In this case the maximum velocity of the endured wind V_a, the most dangerous driftangle φ_{dan}, and the drift speed V are determined. Calculations are then made in tabular form for the entire range of angles φ from O to 180 degrees. As a result, the dangerous angle φ_{dan} is determined, which corresponds to the minimum speed of the wind endured by the ship. In the second approximation, with the angles of reversal and the performance conditions of the propeller and helm aggregate being known, the equation of the longitudinal movement of the ship is solved. An example is given of the calculation of maneuvers examined in the case of a loaded serial vessel 570 is presented as an example. V. Ye. Pyatetskiy. [Translation of abstract] [GC]

SUB CODE: 13, 04/

Card 3/3

GETOPANOV, V.N.; ZAYKOV, V.I.

Testing the durability of parts of cutter chains. Nauch. trudy Mosk. inst. radioelek. i gor. elektromekh. no.41:33-40 '62. (MIRA 16:10)

ZAYKOVA, E.F. (Omsk)

Enzyme spectrum of the blood in Botkin's disease. Vop.med.virus. no.9:351-355 '64. (MIRA 18:4)

SHAPOVALOV, V.P.; ZAYKOVA, L.A.

Use of mineral fertilizers in the gray forest soils of Novosibirsk Province. Trudy Biol. inst. Sib. otd. AN SSSR no.12:108-116 '64. (MIRA 18:7)

ZAYKOVA, L.A.; MASLOVA, I.Ya.

Group composition of phosphates in gray forest soils and leached Chernozems of the Ob' Plateau. Izv. SO AN SSSR no.6. Ser. biol.-med.nauk no.[illegible] '65. (MIRA 18:9)

1. Biologicheskiy institut Sibirskogo otdeleniya AN [illegible], Novosibirsk.

ZAYKOVA, M.V., kand.med.nauk

Method for restoring the eyebrows following extensive burns. (MIRA 15:5)
Khirurgiia no.8:82-86 Ag '61.

1. Iz Sverdlovskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii (dir. - kand.med.nauk Z.P. Lubegina).
(BURNS AND SCALDS) (FACE--SURGERY)

ZAYKOVA, M.V.

Iridocyclitis in ankylosing spondylitis. Vest. oft. 73 no. 2:15-17 Mr-Ap '60. (MIRA 14:1)
(SPINE—ANKYLOSIS) (SPONDYLITIS ANKYLOSING)
(IRITIS)

ZAYKOVA, M.V., kand.med.nauk

New advances in methods for reconstructing the eyelid and conjunctival sac following traumas. Vest.oft. no.3:17-22 '61. (MIRA 14:9)

1. Sverdlovskiy nauchno-issledovatel'skiy institut travmatologii i ortopedii Ministerstva zdravookhraneniya RSFSR.
(EYE--WOUNDS AND INJURES) (TISSUES--TRANSPLANTATION)

ZAYKOVA, M.V.

Reconstruction of the eyelid with acutely formed pediole flap graft. Acta chir. plast. 5 no.2:133-146 '63.

1. Sverdlovsk Scientific Research Institute for Traumatology and Orthopedics, Sverdlovsk (U.S.S.R.) Director: Z.P. Lubegina, Cand. Med.Sc.

(EYELIDS) (SKIN TRANSPLANTATION) (EYE INJURIES)

ZAYKOVA, M.V.

State of the fundus oculi in spastic paralysis and athetosis. Eksp. issl. po fiziol., biokhim. i farm. no.3:79-82 '61 (MIRA 16:12)

1. Sverdlovskiy nauchno-issledovatel'skiy institut travmatologii i ortopedii Ministerstva zdravookhraneniya RSFSR.

ZAYKOVA, M.V., kand. med. nauk

Method of penetrating single-stage blepharoplasty by means of Filatov's round tube graft and free mucosa. Oft. zhur. 18 no.7:439-440 '63 (MIRA 17:4)

1. Iz Sverdlovskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii Ministerstva zdravookhraneniya RSFSR.

ZAYKOVA, M.V.

Reconstruction of eyelids, conjunctival sac and orbit with a tubod Filatov flap. Acta chir. plast. (Praha) 6 no.2:133-145 '64

1. Sverdlovsk Scientific Research Institute of Traumatology and Orthopaedics, Sverdlovsk (U.S.S.R.) Director: Z.P. Loobeghina, Cand.Med. Sc.

ZAYKOVA, M.V., kand.med.nauk

Clinical use in ophthalmology of homocartilage preserved by deep refrigeration. Vest.oft. no.6:77-80 '61. (MIRA 14:12)

1. Sverdlovskiy nauchno-issledovatel'skiy institut travmatologii i ortopedii.
(CARTILAGE—TRANSPLANTATION) (OPHTHALMOLOGY)

ZAYKOVA, M.V., kand.med.nauk

One-step operation to correct ptosis and strabismus following trauma. Oft. zhur. 17 no.1:56-58 '62. (MIRA 15:3)

1. Iz Sverdlovskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii.
(EYE--SURGERY)
(EYE--WOUNDS AND INJURIES)

ZAYKOVA, M.V., klinicheskiy ordinator

Bilateral fat embolism of the central artery of the retina in fractures of the long shaft bones. Vest.oft. 69 no.5:91-92 S-O '56. (MLRA 9:12)

1. Iz Sverdlovskogo nauchno-issledovatel'skogo instituta vosstanovitel'noy khirurgii, travmatologii i ortopedii (dir. - nauchnyy rukovoditel' chlen-korrespondent Akademii meditsinskikh nauk SSSR F.R.Bogdanov.

(EMBOLISM) (RETINA--DISEASES) (FRACTURES)

ZAYKOVA, M. V., Cand Med Sci -- (diss) "Methods of the surgical treatment of traumatic dacryocystitis." Sverdlovsk,1958. 15 pp (Min of Health RSFSR. Omsk State Med Inst) 200 copies. (KL, 12-58, 102)

TOMASHEVSKAYA, A.G., kandidat meditsinskikh nauk; ZAYKOVA, M.V., klinicheskiy ordinator.

Canaliculorhinostomy used as an effective method in treating traumatic dacryocystitis. Vest. oft. 70 no.1:32 Ja-F '57 (MLRA 10:5)

1. Sverdlovskiy nauchno-issledovatel'skiy institut vosstanovitel'noy khirurgii, travmatologii i ortopedii (dir.-nauchnyy rukovoditel' chlen-korrespondent AMN SSSR prof. F.R. Bogdanov)

(DACRYOCYSTITIS, surg.
traum., canaliculorhinostomy) (Rus)
(NOSE, surg.
canaliculorhinostomy in traum. dacryocystitis) (Rus)

ZAYKOVA, M.V.

Surgical treatment of traumatic dacryocystitis combined with simuitis. Oft. zhur. 13 no.6:354-358 '58. (MIRA 12:1)

1. Iz Sverdlovskogo nauchno-issl. instituta vosstanovitel'noy khirurgii, travmatologii i ortopedii.
(DACRYOCYSTITIS)

ZAYKOVA, M.V., kand.med.nauk

Late results of blepharoplasty using the Filatov circular flap. Oft.zhur. 16 no.6:364-369 '61. (MIRA 14:10)

1. Iz Sverdlovskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii.

(EYELIDS--SURGERY)

KROL', N.G., dotsent, ZAYKOVA, N.V., nauchnyy sotrudnik

Physiological investigation of the "old" and "new" functions of a salivary gland following transplantation of Stensen's duct to the conjunctival sac in xerophthalmia. Oft.zhur. 13 no.3:175-178 '58 (MIRA 11:6)

1. Iz laboratorii klinicheskoy fiziologii Sverdlovskogo nauchno-issledovatel'skogo instituta vosstanovitel'noy khirurgii, travmatologii i ortopedii.
(SALIVARY GLANDS--TRANSPLANTATION)

ZAYKOVA, V. A., Candidate of Biol Sci (diss) -- "Changes in certain meadow phytocenoses of Karelia under the influence of measures of surface treatment". Leningrad, 1959. 21 pp (Acad Sci USSR, Botanical Inst im V. L. Komarov), 150 copies (KL, No 21, 1959, 113)

ZAYKOVA, V.A.

Interrelation between mosses and grasses in meadows. Bot. zhur. 43 no.1:96-103 Ja '58. (MIRA 11:2)

1. Botanicheskiy institut im. V.L. Komarova AN SSSR, Leningrad.
(Pastures and meadows) (Mosses) (Grasses)

ZAYKOVA, V.A.

Numbers of sprouts and seedlings in some meadow phytocoenoses of Karelia. Bot.zhur. 44 no.12:1720-1723 D '59.
(MIRA 13:4)

1. Botanicheskiy institut im. V.L.Komarova Akademii nauk SSSR, Leningrad.
(Karelia--Pastures and meadows)

ZAYKOVA, V.A.

Changes in some meadow phytocoenoses in Karelia under the influence of mineral fertilizers and the sowing of grass seed. Izv. Kar. i Kol'.fil.AN.SSSR no.4:114-122 '58. (MIRA 12:5)

1. Institut lesa Karel'skogo filiala AN SSSR.
(Karelia--Pastures and meadows)
(Botany--Ecology)

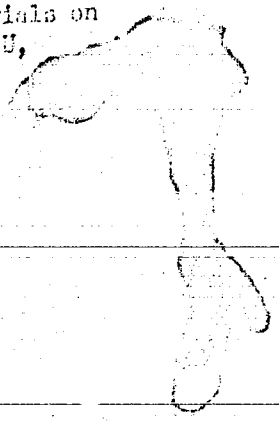
ZAIKOVA, V.A.; SHUR, Ya.S.

Connection between magnetostriction curves with the domain structure of silicon iron crystals. Fiz.met.i metalloved. 14 no.5:785-787 N '62. (MIRA 15:12)

1. Institut fiziki metallov AN SSSR.
(Magnetostriction) (Domain structure)

ZAYKOVA, V. A.

"Dependence of Magnetic Properties of Soft Magnetic Materials on the Thickness of the Foil." Cand Phys-Math Sci, Ural State U, Sverdlovsk, 1953. (RZhFiz, Jan 54)



SO: Sum 432, 29 Mar 55

ZAYKOVA, V. A.

The Dependence of Coercive Force of Soft Magnetic Materials on Thickness

V.A. Zaikova, Ya. S. Shur

Dokl. Akad. Nauk 94(4), 663-665 1954

U.S.S.R.

Experiments, described in some detail, were made with twelve soft magnetic materials: Fe, Ni, Fe-Ni alloys with 36 to 87% of nickel, and Fe-Si alloys with Si contents between 1 and 4%. The thickness varied between 0.5 mm. and 4 micron. For all soft magnetic materials between 0.1 - 0.07 mm. coercive force changed very slowly and differed little from thicker material. After the thickness of material went below certain critical value, coercive force rapidly increased. This regularity is explained by the fact that in very thin sheet material the magnetic structure would change, whereby the role of surface domains would be enhanced. (Bibl. 3)

Index Aeronauticus
June 1954
Magnetism.

Inst. Physics & Metals, Ural Affd. AS USSR

ZAYKOVA, V.A.

AUTHORS: Shur, Ya. S., Abel's, V. R., Zaykova, V. A. 48-8-17/25

TITLE: On the Part Played by the Closing Domains in Processes of Technical Magnetization (O roli zamykayushchikh oblastey v protsessakh tekhnicheskogo namagnichivaniya)

PERIODICAL: Izvestiya AN SSSR, Seriya Fizicheskaya, 1957, Vol. 21, Nr 8, pp. 1162-1167 (USSR)

ABSTRACT: The following magnetic domains are distinguished in this paper: Basic domains, which extend over the entire thickness of ferromagnetica in thin crystals; the closing domains, which are situated on the edge of the sample or on its surface, in which the magnetic current of the basic domains is closed, and sub-domains - particularly closing domains - which form before defective places, where the uniformity of magnetization is disturbed. In the chapter: The shape of closing domains and their connection with natural crystallographic anisotropy the statement is made that, if the surface of the sample is parallel to one of the directions of the light magnetization, no closing domain is formed on the surface, and such a domain can be found only at the ends of the basic domains. On the boundary of the flat sample the closing domains form as triangles. This was disclosed for the first time by Landau and Lifshits. (In this paper various kinds of occurrence of

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closing domains are further described which are ascribed as "drop", "comb", "pine tree", "stem" etc.) . In the chapter: The dependence of the shape of closing domains on the thickness of the sample the change in the formation of the closing domains from a 100 -thickness of the sample up to 5 is described, and it is said that the particularly thin samples - under 5 have no more closing domains of the surface. In the chapter: Modification of the shape of closing domains in the case of an elastic extension of the sample it is said that, corresponding to the increase of the force causing extension of the sample parallel to the orientation of magnetization, the magnetic structure becomes gradually simplified until finally it goes over into the extinguishing closing domain. In the chapter: Transformations in closing domains accompanied by an increase of the intensity of the magnetic field it is said that in the weak fields the processes of shifting the boundaries of the basic domain take place and, if a closing domain is encountered, this boundary vanishes. The same, however, occurs again as soon as the place of this domain is passed. After the definite completion of the process (with growing intensity) these boundaries vanish, but the closing domains remain. With a further increase of intensity the

On the Part Played by the Closing Domains in Processes of Technical Magnetization 48-8-7/25

closing domains grow weaker as far as the strong fields, where they also vanish. In the chapter: Transformation of the closing domains during the decrease of the intensity of the magnetic field a process that is inverse to the above described one is found to occur, but transformations here take place in comparatively weaker fields. The closing domains partly go over into the basic domains by negative re-magnetization (examples). In the chapter: Magnetic structure in the state of definite magnetization the process of magnetization is described on the ring-shaped sample (in order to avoid magnetization of the edge). In this case it was possible, on the occasion of final magnetization, to determine the basic domains, and, (in special cases), also inversely charged basic domains, which may be explained by the remaining effect of re-magnetization.
There are 11 figures and 8 references, 7 of which are Slavic.

AVAILABLE: Library of Congress

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ZAYKOVA, V. A., and SHUR, Ya. S.

"Study of the Influence of Elastic Stresses on the Magnetic Structure of the Crystals of Ferrosilicon."

paper presented at the All-Union meeting on Magnetic Structure of Ferromagnetics June 1958, in Krasnoyarsk. Meeting sponsored by Inst. of Physics, Acad. Sci. USSR, and Comm. for Magnetism, Dept Phys-Math Sci, AS USSR,

Zaykova, V.A.

PHASE I BOOK EXPLOITATION SOV/3847
SOV/26-M-20

Akademiya nauk SSSR. Ural'skiy filial. Institut fiziki metallov

Trudy, vyp. 20 (Transactions of the Institute of the Physics of Metals, Ural Branch, Academy of Sciences USSR, No. 20) Sverdlovsk, 1958. 402 p. Errata slip inserted. 1,000 copies printed.

Resp. Eds.: S.V. Vonsovskiy, Corresponding Member, Academy of Sciences USSR, and V I. Arkharov, Doctor of Technical Sciences.

PURPOSE: This book is intended for scientists working in the field of physical metallurgy.

COVERAGE: This is a collection of 28 articles written by members of the Institute of the Physics of Metals, Ural Branch of the Academy of Sciences USSR, on problems investigated at the Institute. Studies at the Institute have concentrated on two basic problems: 1) developing a theory of metals and alloys and finding ways to improve the properties of engineering materials; and 2) developing new physical methods for investigating and controlling the quality of materials and metal articles. In connection with these basic problems the articles in the collection treat the following subjects: problems of the multielectron quantum-mechanical theory of solids; the laws of distribution and diffusion of admixtures in various metallic alloys (internal adsorption theory); strength and plasticity of polycrystalline materials in relation to interatomic binding forces, distortions in the crystal lattice; structural theory of diffusion reaction, i.e. diffusion due to chemical reactions in solid phases; theory of the magnetic structure of ferromagnetic substances; theory of the heat treatment of steel; and the physical theory of magnetic measurements (magnetic flaw detection and structural analysis). The first article gives a description of the work being done by the Institute and a list of departments and laboratories along with their chief personnel. Several persons are cited for their work at the Institute. References accompany each article.

ZAYKOVA, V.A.

SOV/58-59-10-23521

Translation from: Referativnyy Zhurnal, Fizika, 1959, Nr 10, p 145 (USSR)

AUTHORS: ...mer, Ya.S., Lushinskaya, M.G., Vlasov, K.B., Shiryayeva, O.I., Zaykova, V.A.

TITLE: On the Relation Between the Magnetic Properties and Sensitivity of Magnetostrictive Receivers

PERIODICAL: Tr. In-ta fiz. metallov. Ural'skiy fil. AN SSSR, 1958, Nr 20, pp 131-140

ABSTRACT: The authors made an experimental study of the relation between the sensitivity of magnetostrictive receivers and the magnetic characteristics of a number of materials out of which they were produced. For this study soft magnetic materials were used that possess very dissimilar magnetic and magnetostrictive properties. It is demonstrated that for every receiver the greatest magnitude of sensitivity is attained at those values of the magnetizing field and that magnitude of induction, at which the greatest value of the product $\mu_{\sim}\cdot(\partial\lambda/\partial H)$ is obtained for the given material. The sensitivity of receivers made of different kinds of materials, measured at optimum polarization, is proportional to the

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magnitudes $\mu_{\sim}\cdot(B_{opt})$ $(\partial\lambda/\partial H)$ (B_{opt}), $\mu_{\sim}\cdot(B_{opt})$ (λ_s/I_s), or $\mu_0(\lambda_s/I_s)$ obtained on these materials. It follows that if the static magnetic characteristics μ_0, λ_s, and I_s of the materials are known, then, using the correlation $a_{max} \sim \mu_0 (\lambda_s/I_s)$, it is possible to make an approximate comparative estimate of the magnitude of sensitivity of magnetostrictive receivers produced from these materials. Cf abstract 22801.

V.A. Zaykova

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AUTHORS: Shur, Ya. S. and Zaykova, V. A. SOV/126-6-3-23/32

TITLE: On the Influence of Elastic Stresses on the Magnetic Structure of Silicon Iron Crystals (O vliyanii uprugikh napryazheniy na magnitnuyu strukturu kristallov kremnistogo zheleza)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 3, pp 545-555 (USSR)

ABSTRACT: The aim of the work described in this paper was to establish general relations governing the changes in the magnetic structure of silicon iron crystals under the effect of elastic stresses. By means of the method of powder patterns the changes were investigated in the magnetic structure of such crystals caused by elastic stretching of the crystal as a function of the magnitude of the tensile force, the type of the initial magnetic structure and the orientation of the stresses relative to the crystallographic directions in the crystal. The investigations were carried out on coarse crystal specimens of iron containing 3.5% Si, whereby the dimensions of the individual crystals varied between 0.5 and 5.0 mm. The specimens consisted of 30 mm long,

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On the Influence of Elastic Stresses on the Magnetic Structure of Silicon Iron Crystals

4 mm wide, 0.1 to 0.2 mm thick strips with various crystallographic orientations of the surface. The surface treatment (mechanical and electrolytic polishing) and the preparation of the magnetic suspensions was the same as in earlier described work of Shur and Abel's (Ref 4). The powder patterns were observed by means of a microscope. The stretching of the specimens was effected by means of a specially designed instrument, a photo of which is reproduced in Fig.1. In this the specimen is fixed between the clamps of a spring dynamometer which is attached to the stand of a microscope; the stretching of the specimen was effected by means of an electric motor-driven screw which compressed the spring of the dynamometer. It was thus possible to obtain a continuous loading and unloading of the investigated specimens and to determine the load from the deflection of the dynamometer pointer. The applied loads did not cause plastic deformation of the specimens. The observation and photographing of the powder patterns were effected at magnifications of 180 to 300 times. Some of

the thus produced photographs are reproduced in Figs.2-9. It was found that elastic stretching may bring about considerable changes in the magnetic structure of crystals of silicon iron; these changes depend on the magnitude of the stresses, the type of the initial magnetic structure and the orientation of the stresses relative to the crystallographic directions in the crystal. Changes in the structure may consist of displacement of the boundaries, changing the dimensions and cessation of additional areas and also of changes in the type of magnetic structure. The changes in the magnetic structure caused by tension in the elastic range may be irreversible. The obtained results can be explained qualitatively if it is assumed that,as a result of the elastic stresses,a redistribution takes place in the crystals of the sections where the boundary energy has a minimum value and in the direction of easy magnetisation, which is near to the direction of the tensile force, magnetisation will become still easier. In some cases the vector of spontaneous magnetisation may

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On the Influence of Elastic Stresses on the Magnetic Structure of Silicon Iron Crystals

turn from the tetragonal axis of the crystal to the direction of the stretching. Students Yu.N.Dragashanskiy and Ye. D. Kuzmin participated in the experimental work. There are 9 figures and 6 references, 3 of which are Soviet, 3 English.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR (Institute of Metal Physics, Ural Branch of the Ac.Sc., USSR)

SUBMITTED: August 21, 1957

1. Silicon iron crystals--Magnetic properties 2. Electrolytic polishing --Applications 3. Silicon iron crystals--Stresses 4. Silicon iron crystals--Test results

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AUTHORS: Zaykova, V. A., Shur, Ya. S. SOV/48-22-10-5/23

TITLE: The Change of the Magnetic Structure of Iron Silicate Crystals Under the Action of Elastic Strain (Izmeneniye magnitnoy struktury kristallov kremnistogo zheleza pod deystviyem uprugikh napryazheniy)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 10, pp 1185 - 1189 (USSR)

ABSTRACT: In the present paper the authors investigated the change of the magnetic structure under the action of elastic tension-stresses. They intended to find general rules governing the change of the magnetic structure of ferromagnetic crystals in the case of one-sided elastic stress. The investigations resulted the following: Under the influence of an elastic stress considerable changes in the magnetic structure of iron silicate crystals take place. These changes are represented by the shift of the boundaries, the change of the supplementing and boundary domains, and the change of the type of the magnetic structure. They depend on the strain value, on the nature of the original magnetic structure, and on the orientation of the strain with respect

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The Change of the Magnetic Structure of Iron Silicate Crystals Under the Action of Elastic Strain

SOV/48-22-10-5/23

to the crystallographic axes. The change of the magnetic structure of the crystal with varying strain is irreversible. Qualitatively the results may be explained as follows: It is assumed that under the influence of elastic strain an orientation of $\vec{I}_s$ into the direction of the strain takes place; the domains with minimum values of the boundary energy becomes displaced in the crystal; the tetragonal axis which is nearest to the orientation of the strain becomes the orientation of the weak magnetization. It may be assumed that the change of the magnetic structure under the action of elastic strains will exhibit qualitatively the same character also in other weakly magnetic materials. This is especially true of triaxial ferromagnetic materials. There are 2 figures and 5 references, 3 of which are Soviet.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of Metal Physics, AS USSR)

Card 2/2

AUTHORS: Shur, Ya. S., Luzhinskaya, M. G., SOV/48-22-10-18/23
Vlasov, K. B., Shiryayeva, O. I., Zaykova, V. A.

TITLE: On the Dependence of the Sensitivity of Magnetostrictive Receivers on Their Magnetostrictive Characteristics (O zavisimosti chuvstvitel'nosti magnitostriktsionnykh priyemnikov ot ikh magnitnykh kharakteristik)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 10, pp 1259 - 1262 (USSR)

ABSTRACT: According to theoretical calculations (Refs 1 - 3) the sensitivity of the magnetostrictive receiver can be related to the magnetic characteristics of the material of the receiver as follows:

$$e \sim \mu_{\sim} \frac{\partial \lambda}{\partial B} \qquad (1)$$

$$e_{max} \sim \mu_{\sim} (B_{opt.}) \frac{\lambda_s}{I_s} \qquad (2)$$

$$e_{max} \sim \mu_0 \frac{\lambda_s}{I_s} \qquad (3)$$

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On the Dependence of the Sensitivity of Magnetostrictive Receivers on Their Magnetostrictive Characteristics

SOV/48-22-10-18/23

The symbols denote: e - sensitivity, μ_a - apparent permeability, λ - magnetostriction, B - induction, λ_s - saturation magnetostriction, I_s - saturation magnetization, μ_c - initial permeability, e_{max} - maximum sensitivity of the receiver at a certain optimum value of the induction of the polarization B_{opt}. In the present paper the above-mentioned theoretical relations and their possible application in the selection of the material for magnetostrictive receivers were checked by experiment. Materials with widely differing magnetic properties were investigated. The measurements showed that after different treatment the alloys exhibited widely differing magnetic properties and sensitivities. From experimental data can be seen that in the case of a modification of the magnetic state of the concerned receiver its sensitivity varies according to formula (1). The relations (2) and (3), which relate the maximum values of the receiver sensitivity of various alloys, are satisfied less exactingly. One of the reasons for this disagreement might be errors in the experimental determination of various characteristics.

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SOV/48-22-10-18/23

On the Dependence of the Sensitivity of Magnetostrictive Receivers on Their Magnetostrictive Characteristics

The results show that when formula (3) is employed an approximate comparative estimation of the sensitivity of the material can be given if the values of μ_0, λ_s, and I_s are known. Detailed results of this work are published in reference 3. There are 3 figures and 3 references, 1 of which is Soviet.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of Metal Physics, AS USSR)

Card 3/3

87897

9,4300 (1143, 1155 only) S/126/60/010/003/003/009/XX
18 1142 E201/E391

AUTHORS: Zaykova, V.A. and Shur, Ya.S.

TITLE: Causes of Rise of the Coercive Force on Reduction of Thickness of Ferromagnetic Sheets

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10, No. 3, pp. 350 - 358

TEXT: It is known (Refs. 1-6) that in sufficiently thin sheets of soft magnetic materials the coercive force H_c depends markedly on the sample thickness d : the thinner the sample, the higher H_c . The present authors studied the dependence of the coercive force on the sheet thickness using monocrystals and polycrystals of silicon iron (3.5% Si) and of permalloy-78. The sample thickness was reduced by electrolytic etching or by cold rolling with subsequent high-temperature annealing in vacuum. The coercive force was measured with a sensitive astatic magnetometer. The authors determined also the temperature dependence of the coercive force of silicon iron polycrystals. Powder-pattern method was used to study the

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Causes of Rise of the Coercive Force on Reduction of Thickness of Ferromagnetic Sheets

domain structure and its changes on reduction of sample thickness in silicon iron monocrystals. Some of the results are given in Figs. 2-8 (Fig. 1 shows schematically magnetic "charge" distribution in ferromagnetic crystals). Figs. 2-5 give the $H_c = f(d)$ dependences for permalloy-78 (Fig. 2) and silicon iron monocrystals (Figs. 3-4 and Curves 1 and 2 in Fig. 5), and polycrystals (Fig. 5, Curve 3). The domain structure of silicon iron monocrystals is shown in Figs. 6 and 7; in Fig. 7 the four photomicrographs represent changes in the domain structure on gradual reduction of the sample thickness from 0.18-0.2 mm (Fig. 7a) to 0.005-0.003 mm (Fig. 7d). Fig. 8 gives the temperature dependence (-200 to 500 °C) of H_c for silicon iron samples of various thicknesses. It was concluded that the rise of the coercive force with decrease of the thickness of magnetically soft ferromagnetic sheets was due to an increase of the magnetic leakage fields at the

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Causes of Rise of the Coercive Force on Reduction of Thickness of Ferromagnetic Sheets

sample surface. This effect should occur in all ferromagnetics.
There are 8 figures and 13 references: 9 Soviet and 4 non-Soviet.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals of the AS, USSR)

SUBMITTED: June 1, 1960

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ZAYKOVA, V.A.; SHUR, Ya.S.; FALALEYEV, G.A.

Dependence of magnetic properties on ferromagnetic sheet thicknesses. Fiz. met. i metalloved. 13 no.4:521-528 Ap '62. (MIRA 16:5)

1. Institut fiziki metallov AN SSSR.
(Sheet metal—Magnetic properties)

ZAYKOVA, V.A.

Dynamics of the yield of meadow phytocenoses in connection with ecological conditions and the application of fertilizers. Bot. zhur. 49 no.4:589-592 Ap'64. (MIRA 17:5)

1. Institut biologii Karel'skogo filiala AN SSSR, Petrozavodsk.

ZAYKOVA, V.A.; SHUR, Ya.S.

Dependence of the form of magnetostriction curves of silicon iron crystals on the nature of changes in the domain structure during magnetic polarity reversal. Fiz. met. i metalloved. 18 no.3:348-359 S '64. (MIRA 17:11)

1. Institut fiziki metallov AN SSSR.

SHUR, Ya.S.; GLAZER, A.A.; DRAGOSHANSKIY, Yu.N.; ZAYKOVA, V.A.; KANDAUROVA, G.S.

Disturbance of the homogeneity of magnetization intensity within ferromagnetic domains. Izv. AN SSSR. Ser. fiz. 28 no. 3:553-558 Mr '64. (MIRA 17:5)

1. Institut fiziki metallov AN SSSR.

ZAYKOVA, V.A.; SHUR, Ya.S.

Dependence of the curves of magnetostriction in silicon iron on the state of the crystal structure. Fiz. met. i metalloved. 16 no.4:614-617 O '63. (MIRA 16:12)

1. Institut fiziki metallov AN SSSR.

ZAYKOVA, V.A.

Observations on changes in meadows from year to year. Biul. MOIP. Otd. biol. 68 no.6:77-87 N-D '63. (MIRA 17:1)

S/0048/64/028/003/0553/0558

ACCESSION NR: AP4023406

AUTHOR: Shur,Ya.S.; Glazer,A.A.; Dragoshanskiy,Yu.N.; Zaykova,V.A.; Kandaurova,G.S.

TITLE: Regarding departures from homogeneity of magnetization within ferromagnetic domains [Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 6 June 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 553-558

TOPIC TAGS: ferromagnetic domains, ferromagnetic domain inhomogeneity, magnetization reversal nuclei

ABSTRACT: This paper is a short summary of investigations, conducted in the Ferromagnetic Laboratory of the Institute of Metal Physics of the Academy of Sciences, SSSR, concerning departures from homogeneity of magnetization within ferromagnetic domains. The early stages of the formation of magnetization reversal nuclei on the basal plane surface of a magnetoplumbite crystal, and their development into domains was observed by means of powder patterns. Motion pictures of this process were made, and several frames are reproduced. As the magnetizing field (perpendicular to the crystal surface) was gradually reduced from saturating values, the powder pattern,

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initially featureless, first showed large (~0.1 mm) circular bright spots. These decreased in size, increased in number, became irregular in shape, and finally some of them could be seen to grow into twisting domains of opposite magnetization. The initial large spots revealed by the powder pattern are ascribed to "spin vortices", regions in which the spins are inclined to the surface in a circular pattern. These arise because they provide partial flux closure within the crystal, thus reducing the surface energy. As the magnetizing field decreases, the spin inclinations increase, and the disturbance penetrates more deeply into the crystal. Finally spin reversal occurs in the center of the vortex, and a reverse magnetization nucleus is formed. These nuclei grow into spike shaped domains. If this interpretation of the observations is correct, the intersections of the wall of such a spike domain with a plane parallel to the magnetic axis should have opposite polarities; this was observed to be the case in cobalt. The domains in Co and in MnBi alloy were observed to increase in size with increasing temperature, although the saturation magnetization did not change significantly over the temperature range concerned, the crystal anisotropy decreased markedly, and no domains of closure could be found. This behavior is ascribed to spin disorientation at the higher temperatures, resulting in internal flux closure and decreased surface energy. This interpretation is supported

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ACCESSION NR: AP4023406

by the fact that the contrast of the domains as observed with the longitudinal Kerr effect, as well as that of the spots on the basal plane as observed with the polar Kerr effect, decreased with increasing temperature. This increase in spin disorientation with increasing temperature could be due to increasing influence of crystal imperfections as the crystal anisotropy decreases. The magnetostriction of silicon iron in the [100] direction, which should vanish in an ideal crystal, was found to depend strongly on the annealing process to which the crystal had been subjected. The less thoroughly annealed specimens showed greater magnetostriction and less perfect domain structure. This indicates departure from uniform magnetization within the domains due to crystal imperfections. It is concluded that investigation of the departure from homogeneity of the magnetization within the domains is prerequisite to a deep understanding of various properties of ferromagnetic materials. Orig.art.has: 4 figures.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of Physics of Metals, Academy of Sciences, SSSR)

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 002 OTHER: 000

Card 3/3

ZAYKOVA, V.A.; STARTSEVA, I.Ye.

Stability of the magnetic state of soft magnetic materials.
Izv. AN SSSR. Ser. fiz. 25 no.12:1455-1461 D '61. (MIRA 14:12)
(Ferromagnetism)

ZAYKOVA, V.A.

Organization of the research on the surface improvement of meadow vegetation in Karelia. Bot.zhur. 47 no.2:229-231 F '62. (MIRA 15:3)

1. Institut biologii Karel'skogo filiala AN SSSR, Petrozavodsk.
(Karelia--Pastures and meadows)

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S/126/62/013/004/005/022
E073/E535

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AUTHORS: Zaykova, V.A., Shur, Ya.S. and Falaleyev, G.A.

TITLE: On the dependence of the magnetic properties on the thickness of ferromagnetic sheets

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.4, 521-528

TEXT: The dependence of the magnetic properties on the thickness of the sheet (0.1 - 0.005 mm) was investigated for 66-permalloy and perminvar (23% Co, 43% Ni, rest Fe) in the magnetically-isotropic as well as in the magnetically-textured states. From the sheet, rings 40 x 29 mm were cut and annealed in a vacuum of 10^{-4} mm Hg at 1100°C. To obtain differing surfaces one part of the rings was covered with aluminium-oxide powder, the other with a fine suspension of this powder in acetone. After annealing, the surface of the rings annealed under aluminium-oxide powder was found to be covered with mounds, whilst the surface of the other specimens remained almost completely undistorted. Specimens were subjected to thermomechanical treatment in a circular magnetic field of 18 Oe so as to obtain material with the axis of easy magnetization parallel to the surface. The

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magnetic properties were measured ballistically on toroidal specimens consisting of 2-10 rings of equal thickness. The specimens were placed into a thin perspex holder, which also carried the metering coil, to prevent deformation. It was found that in these alloys formation of a magnetic texture for which I_s in the domains is parallel to the surface of the specimens had less influence on the $H_c(d)$ curves than in silicon iron. The actual values measured for isotropic ($H_c^{MЭ}$) and textured (H_c^{TMO}) sheets of thicknesses d between 0.1 and 0.005 mm are given in the table. The increase in H_c with decreasing sheet thickness is attributed to the charges produced at the surface of the specimen by the spins of the boundary zone, which in thin specimens increase the density of the boundary energy. Apparently, this mechanism is valid for all ferromagnetics for which $K \ll I_s^2$, whilst for ferromagnetics for which K approaches or is greater than I_s^2, the charges occurring at the surface of the specimen due to deviation of the axis of easy magnetization from the surface plane and changes of the magnetic-surface structure with decreasing thickness have a decisive influence for thicknesses of 10^{-1} to 10^{-3} mm. The leakage fields occurring at surface nonuniformities

(mounds, waviness, etc.) have an appreciable influence on the magnetic properties of thin specimens. $H_c(d)$ curves for specimens with "mounds" are somewhat higher than those obtained for "smooth" specimens. The dependence of the residual magnetization on the thickness of the specimen also changes considerably: in smooth specimens B_r/B_s increase with decreasing thickness, whilst in specimens with mounds they increase at first, reaching a maximum, and then decrease. The magnetic texture produced by thermomagnetic treatment in thin specimens with "mounds" is less perfect than that produced in "smooth" specimens. The residual induction in "smooth" and "mounded" magnetically-textured, 0.005 mm thick specimens equalled 95 - 97% B_s and 75 - 85% B_s, respectively. Therefore, to obtain thin sheet with a perfect magnetic texture it is essential to prevent the formation of any type of surface nonuniformity during annealing. This applies to any type of magnetically-textured material, regardless of the method used to produce the texture. There are 6 figures and 1 table.

On the dependence of the magnetic ... S/126/62/013/004/005/022
E073/E535

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, AS USSR)

SUBMITTED: August 25, 1961

Table:

Сплав	d, мм	$H_c^{из}$, э	$H_c^{тио}$, э	$H_c^{из}/H_c^{тио}$
Пермивар (PERMINVAR ALLOY)	0,1	0,34	0,093	3,6
	0,03	0,46	0,125	3,6
	0,01	0,55	0,22	2,5
	0,007	0,58	0,30	1,9
	0,005	0,60	0,41	1,5
66-пермаллой (66-PERMALLOY)	0,1	0,25	0,075	3,6
	0,05	0,25	0,063	4,0
	0,03	0,28	0,055	2,9
	0,02	0,34	0,145	2,3
	0,015	0,38	0,21	1,8
	0,007	0,58	0,46	1,3
	0,005	0,66	0,56	1,2

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S/058/61/000/012/059/083
A058/A101

AUTHORS: Zaykova, V.A., Shur, Ya.S.

TITLE: Concerning the effect of elastic stresses on the magnetic structure of siliceous iron crystals

PERIODICAL: Referativnyy zhurnal. Fizika, no. 12, 1961, 384, abstract 12E693 (V sb. "Magnitn. struktura ferromagnetikov", Novosibirsk, Sib. otd. AN SSSR, 1960, 39)

TEXT: The effect of elastic stresses on the magnetic structure of siliceous Fe crystals (~ 3.5% Si) was studied by the powder-figure method. The results are given qualitative explanation.

[Abstracter's note: Complete translation]

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32608
S/137/61/000/011/062/123
A060/A101

15.2660

AUTHORS: Zaykova, V. A., Shur, Ya. S.

TITLE: On the effect of elastic stresses upon the magnetic structure of iron silicide crystals

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 11, abstract 11Zh63 (V sb.: "Magnitn. struktura ferromagnetikov". Novosibirsk Sib. otd. AN SSSR, 1960, 39)

TEXT: The effect of elastic stresses upon the magnetic structure of iron silicide (~3.5% Si) crystals was investigated by the method of dust figures. It was demonstrated that under the action of tensile stresses there occurs a change in the form of the dust figures. The nature of the variation depends on the magnitude of the tensile forces, the form of the initial magnetic structure and the orientation of the tension with respect to the crystallographic axes of the crystal. If in the unstressed state it is possible to observe antiparallel regions separated by 180° boundaries, then under tension of the specimen parallel to the I_s of the base regions one observes a displacement of the boundaries. If, besides the base regions, on the surface of the specimen there are additional regions in

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On the effect of elastic stresses upon...

the form of "drops", then the tension, together with the displacement of the boundaries between the base regions leads to a reduction in the size and the disappearance of these additional regions. Under tension of the specimen perpendicularly to the I_s of the base regions one observes a change in the type of magnetic structure. The application and subsequent removal of tension causes an irreversible change in the magnetic structure (elastic magnetic hysteresis).

A. Rusakov

[Abstracter's note: Complete translation]

31601
S/048/61/025/012/005/022
B102/B138

242200

AUTHORS: Zaykova, V. A., and Startseva, I. Ye.

TITLE: Stability of magnetic state of magnetically soft materials

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 12, 1961, 1455 - 1461

TEXT: Besides the stability of magnetic states the authors studied the possibilities of determining the most stable state of the domain structure. Annular specimens of coarsely crystalline silicon steel were used to determine the variations in magnetic induction due to field, and flat specimens for those due to tensile stresses. Stability was determined from these and from the changes observed in domain structure. The former were measured ballistically, domain structure by the powder method. The following demagnetization methods were applied: (1) A damped alternating field, no external magnetic field; (2) Magnetization in the direction of the Earth's magnetic field H_e up to maximum residual magnetization, application of an anti-field, and again application of H_e; (3) Demagnetization as in (1),

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Stability of magnetic state...

then magnetization against H_e and application of a steadily damped alternating field. Application of H_e together with damped alternating field with initial amplitude so that the final induction of the specimen was zero; (4) Demagnetization as in (3) and (1), magnetization against H_e simultaneously with elastic extension of the specimen, then again application of H_e and demagnetization with damped alternating field. δ' was chosen such that final induction was zero. Specimens treated according to (3) displayed the highest stability, those treated according to (2) - the least. Variations in induction were measured when, with weak constant magnetic field, the strength of the variable field was varied (Fig. 1), and also when a stress was applied (Fig. 4). The results showed that the stability of the demagnetization state of a ferromagnetic against external effects applied in the presence of a weak constant field is to a considerable degree dependent on the way in which this state was achieved. The state showing the highest stability will be that which requires the completion of the effect in question for its achievement. There are 4 figures and 7 references: 5 Soviet and 2 non-Soviet. The two references to English-language publications read as

ДАУКОВ, В Н

PHASE I BOOK EXPLOITATION SOV/5526

Vsesoyuznoye soveshchaniye po magnitnoy strukture ferromagnetikov, Krasnoyarsk, 1958.

Magnitnaya struktura ferromagnetikov; materialy Vsesoyuznogo soveshchaniya, 10 - 16 iyunya 1958 g., Krasnoyarsk (Magnetic Structure of Ferromagnetic Substances; Materials of the All-Union Conference on the Magnetic Structure of Ferromagnetic Substances, Held in Krasnoyarsk 10 - 16 June, 1958) Novosibirsk, Izd-vo Sibirskogo otd. AN SSSR, 1960. 249 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki Sibirskogo otdeleniya. Komissiya po magnetizmu pri Institute fiziki metallov OFMN.

Resp. Ed.: L. V. Kirenskiy, Doctor of Physical and Mathematical Sciences; Ed.: R. L. Dudnik; Tech. Ed.: A. F. Mazurova.

PURPOSE: This collection of articles is intended for researchers in ferromagnetism and for metal scientists.

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Magnetic Structure (Cont.) SOV/5526

COVERAGE: The collection contains 38 scientific articles presented at the All-Union Conference on the Magnetic Structure of Ferromagnetic Substances, held in Krasnoyarsk in June 1958. The material contains data on the magnetic structure of ferromagnetic materials and on the dynamics of the structure in relation to magnetic field changes, elastic stresses, and temperature. According to the Foreword the study of ferromagnetic materials had a successful beginning in the Soviet Union in the 1930's, was subsequently discontinued for many years, and was resumed in the 1950's. No personalities are mentioned. References accompany individual articles.

TABLE OF CONTENTS:

Magnetic Structure (Cont.) SOV/5526

LAYKOVATIY, M.

Two proposals by operator I. Fomin. Stroitel' no.8:9 Ag '57. (MLRA 10:9)

(Bulldozers)

ZAYKOVATYY, M., inzhener.

End support for tower crane. Stroitel' 2 no.8:15 Ag '56.
(Cranes, derricks, etc.) (MLRA 9:12)

ZAYKOVATYY, M., insh.

Efficiency promoters in the Main Kiev Administration for Construction. Mekh.stroi. 14 no.8:19-21 Ag '57. (MIRA 10:11)
(Kiev--Building machinery)

ZAYKOVATYY, M.

KRIVDA, F., inzhener; ZAYKOVATYY, M., inzhener.

Rapid assembling of tower cranes. Stroitel' no.3:9 Mr '57.
(Cranes, derricks, etc.) (MLRA 10:4)

ZAYKOVATYY, M.G., inzh.

Introducing earth-moving machinery in the building mechanization trust of the Main Kiev Administration for Construction. Mekh. stroi. 15 no.8:8-10 Ag '58. (MIRA 11:10)
(Kiev--Earthmoving machinery)

AUTHOR: Zaykovatyy, M. G., Engineer SOV/100-58-8-4/13

TITLE: Mechanisation of Excavation Works in Stroymekhanizatsiya Trust of Glavkiyevstroy. (Mekhanizatsiya zemlyanykh rabot v treste Stroymekhanizatsiya Glavkiyevstroya).

PERIODICAL: Mekhanizatsiya Stroitel'stva, 1958, Nr.8. pp. 8 - 10. (USSR).

ABSTRACT: The Glavkiyevstroy carried out the concentration of all excavating machinery and achieved increased output. The Goloseyevskiy Park of Building Machines used excavator E-505 in conjunction with 10 lorries. Fig.1 illustrates universal bulldozer, and Fig.2 bulldozer in action. Fig.3: bulldozer with universal scraping blade. When excavating ground of third to fourth category using dragline, the bucket is not properly filled, therefore, the bulldozer is used in addition to the dragline which has a special toothed scraping blade. Fig.4: illustration showing the de-freezing of frozen ground. In 1957 universal bulldozer mounted to the tractor DT-54, according to the design of I. V. Fomin, was constructed by the Trust. This had, instead of a hydraulic lift, a fractional winch which allowed higher reach. This bulldozer could push and drag the soil when the blade is turned 180° round its axis (see

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