STOIA, I., conf.; STROESCU, O.; STROESCU, I.

Sympathetic algodystrophies of the extremities. Med. intern., Bucur 12 no.9:1295-1302 S '60.
(EXTREMITIES, diseases) (NEUROLOGY)

OPREANU, I., Prof.; STROESCU, O., dr.; STANESCU, P., dr.; BATCU, A., dr.; BEJAN, V., dr.

Biochemical changes in chronic evolutive polyarthritis and ankylosing spondylitis. Med. int.,Bucur. 9 no.1:53-66 Jan 57.

(ARTHRITIS, RHEUMATOID, metabolism
proteins, water & electrolytes)
(PROTEINS, metabolism
in rheum. arthritis & ankylosing spondylitis)
(BODY FLUIDS
water-electrolyte balance in rheum. arthritis & ankylosing spondylitis)
(SPONDYLITIS ANKYLOSING, metab.
proteins, water & electrolytes)

STOIA, I., dr.; STROESCU, O., dr.; STROESCU, I., dr.

Considerations on 3 cases of Morquio's disease. Med. intern. 13 no.12:1691-1698 D '61.
(ECCENTRO-OSTEOCHONDRO-DYSPLASIA)

STOIA, I., dr.; STROESCU, I., dr.; STROESCU, O., dr. SZIFFERT, C., dr.

Spondyloses in the construction industry. Med. intern. 14 no.7: 807-812 Jl '62.

(SPINAL DISEASES) (ARTHRITIS, RHEUMATOID) (OCCUPATIONAL DISEASES) (INDUSTRIAL MEDICINE) (BACKACHE)

STOIA, I., dr.; STROESCU, O., dr.; STROESCU, I., dr.

Early diagnosis of spondylosis. Med. intern. 14 no.7:843-848 Jl '62.

(SPINAL DISEASES)

STOIA, I., dr.; STROESCU, O., dr.; STROESCU, I., dr.; STANESCU, P., dr.; BOICESCU, L., dr.

Considerations on hypercholesteremic xanthomatosis with locomotor manifestations. Med. intern. 14 no.8:977-984 Ag '62.

1. Lucrare efectuata la Centrul metodologic de reumatologie, Bucuresti.
(HYPERCHOLESTEREMIA) (XANTHOMATOSIS)
(TENDONS) (JOINT DISEASES)

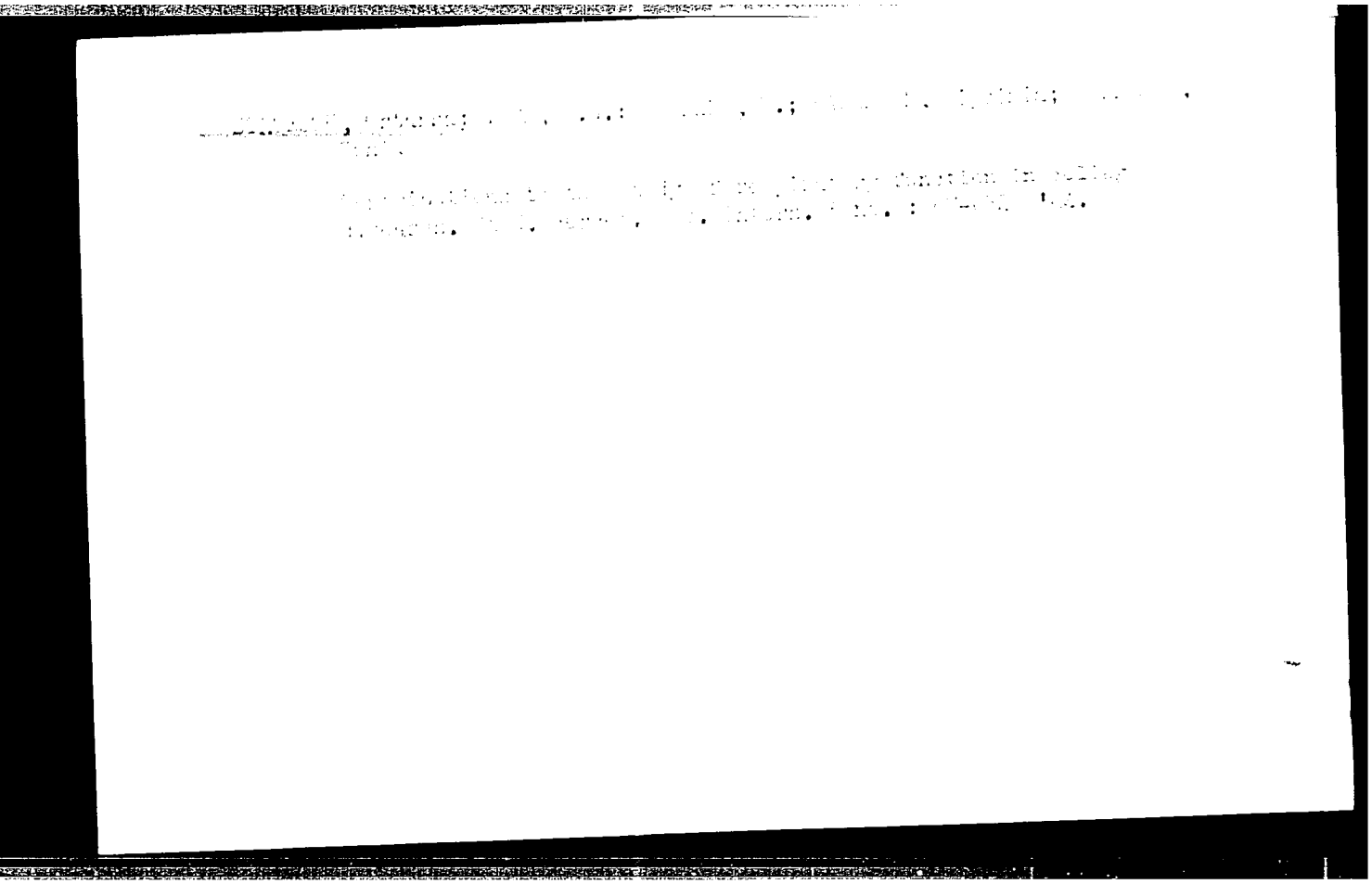
STOIA, I.; STROESCU, O.; STROESCU, I.

Considerations on three cases of Morquio's disease. Rumanian med. rev. no.2:41-44 '62.
(ECCENTRO-OSTEOCHONDRODYSPLASIA)

STOICA, Gh.; CIOBANU, V.; STROESCU, Ortansa; VASILIU, I.; SUTEANU, St.

Comparative value of several rheumatoid factor titration tests. I. The hemagglutination test and the fixation test using the latex of styrene-acrylonitrile copolymer. Stud. cercet. med. intern. 3 no.4: 485-494 '62.

(HEMAGGLUTINATION) (RHEUMATOID FACTOR)
(SERODIAGNOSIS)



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STOIA, I., dr.; STROESCU, Ortansa, dr.; STROESCU, I., dr.; STANESCU, P., dr.; DIMITRIU, Mariana, dr.

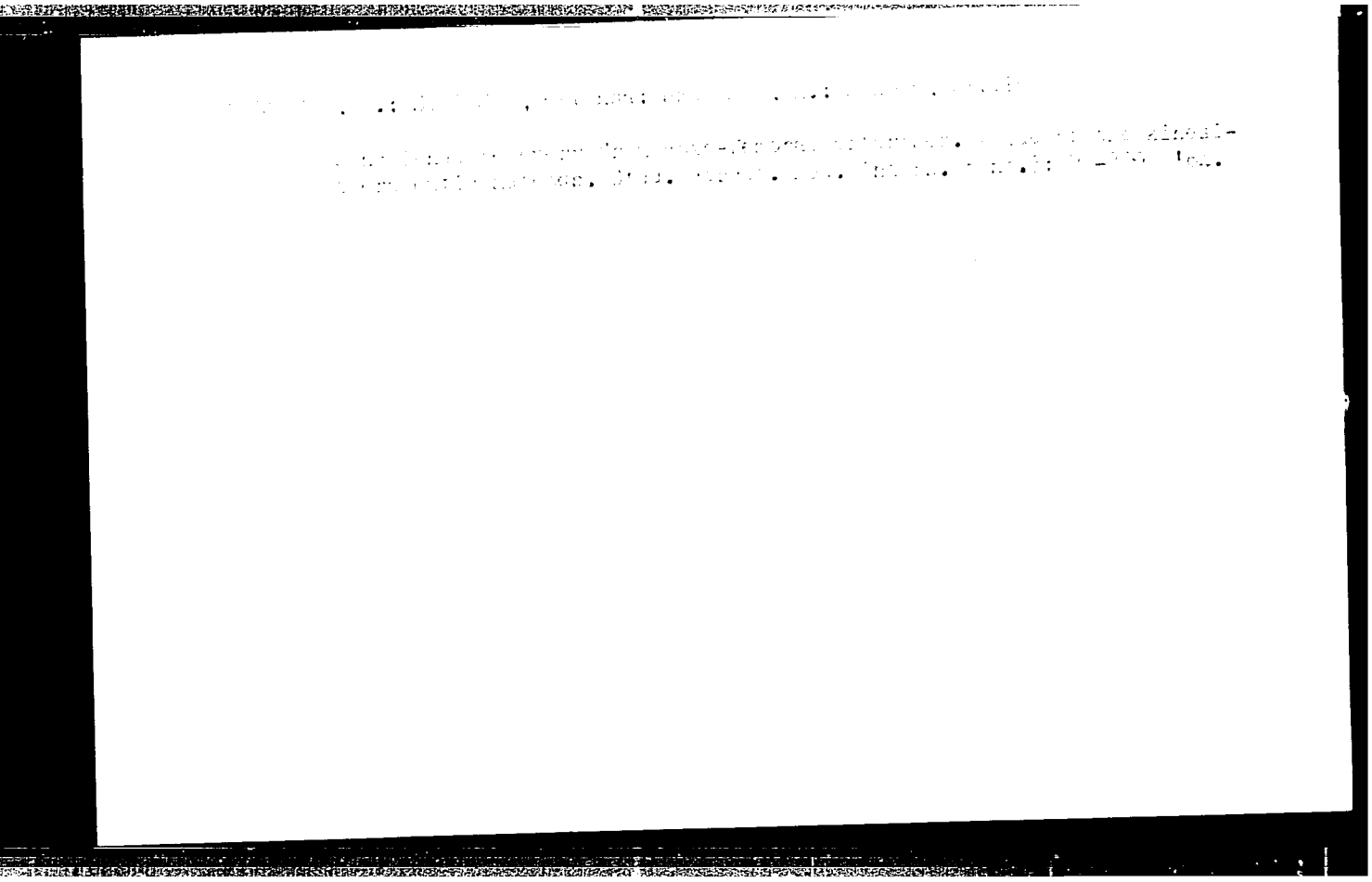
Considerations on the association of Paget's disease with chronic evolutive polyarthritis. Med. intern. 15 no.1:59-67 Ja '63.

1. Lucrare efectuata la Centrul metodologic de reumatologie, Bucuresti.
(OSTEITIS DEFORMANS) (ARTHRITIS, RHEUMATOID)

CIOBANU, V., dr.; VELICAN, C.dr.; STROESCU, O, dr.; SUTEANU, St., dr.;

Anatomoclinical study of lymphadenopathies in chronic evolutive polyarthritis. Med. intern. (Bucur.) 16 no.7:793-802 Jl'64

1. Lucrare efectuata in Institutul de medicina interna al Academiei R.P.R. si M.S.P.S. (director: acad. N.Gh.Lupu).



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STOICA, Gh., dr.; SUTEANU, St., dr.; CIOBANU, V., dr.; STROESCU, Ortansa, dr.; DRAGOI, Tatiana, dr.; MICHIU, Valeria, asist.; SUSNEA, Doina, asist.

Changes in several blood proteins in rheumatoid polyarthritis. (Immunoelectrophoretic study). Med. intern. (Bucur.) 17 no.9: 1093-1101 S '65.

1. Lucrare efectuata in Institutul de medicina interna al Academiei Republicii Socialiste Romania si Ministerul Sanatatii si Prevederilor Sociale (director: acad. N. Gh. Lupu).

STROESCU, P.

Histochemical study of epidemic hepatatis. Bul.stiint.,sect.med 7 no.1:137-153 Jan-Mar '55.

(HEPATITIS, INFECTIOUS, pathology
liver, autopsy findings, histochem.)
(LIVER, in various diseases
hepatitis, infect., autopsy findings, histochem.)

STROESCU, V., ing.

Running in of engines with internal combustion and piston by the chemical method. Rev transport 9 no. 6:251-#57 Je '62.

STROESCU, V.

GHEORGHIU, P., Dr.; STROESCU, V., dr.

Anti-fibrillation substances. Med. int.,Bucur. 3 no.7:937-943 Nov 56.

1. Lucrare efectuata la Catedra de farmacologie, Fac. de medicina-Bucuresti.

(CHINCHONA ALKALOIDS, ther. use
auric. & ventric. fibrillation)
(DIGITALIS, ther. use
(SAME)
(PROCAINE, ther. use
(SAME)
(SPARTEINE, ther. use
(SAME)
(AURICULAR FIBRILLATION, ther.
chinchona alkaloids, digitalis, procaine & sparteine)
(VENTRICULAR FIBRILLATION, ther.
(SAME)

V

RUMANIA/Pharmacology and Toxicology. Local Anesthetics.

Abs Jour: Ref Zhur-Biol., No 19, 1958, 89925.

Author : Gheorghin, P.; Stroescu, V.; Mannchian, M.
Inst : -
Title : The Antifibrillating Action of Procaine.

Orig Pub: Fiziol. norm. si patol., 1957, 4, No 1, 46-54.

Abstract: The effect of procaine (I) on arrythmia of rabbits' hearts in situ and outside of the organism was studied. It was established that, in situ, I has no effect on auricular fibrillation, but arrests fibrillation of the ventricles; I arrests fibrillation of both the auricles and ventricles in the isolated heart, possibly as a result of direct action upon the myocardium. -- Ye. M. Sheynbaum.

Card : 1/1

RUMANIA/ Pharmacology and Toxicology--Narcotics V-1

Abs Jour: Ref Zhur-Biol., No 23, 1958, 107214

Author : Gheorghiu, P., Stroescu, V.

Inst : Not given

Title : On the Ganglionic Blocking Action of Barbamyl

Orig Pub: Fiziol. norm. si patol., 1958, 5, No 2, 133-138

Abstract: Barbamyl introduced intravenously to dogs in a dosage of 10 to 30 milligrams per kilogram (sub-narcotic dose) paralyzes the sympathetic and parasympathetic ganglia. Ganglionic blocking action was studied according to the Perry and Wilson method. --Author's summary.

Card 1/1

GEORGIU, P.; STORYESKU, V. [Stroescu, V.]; DOBRESKU, D. [Dobrescu, D.]

Mechanism of secretion of the hormones of the adrenal cortex. Effect of pendiomid and chlorpomazine on pain stress. Report No.1. Farm.i toks. 22 no.5:421-424 S-O '59. (MIRA 13:3)

1. Farmakologicheskaya laboratoriya bukharestskogo mediko-farmatsevticheskogo instituta.
(MENTONIUM COMPOUNDS pharmacol.)
(CHLORPROMAZINE pharmacol.)
(PAIN exper.)

MARCU, C.; STROESCU, V.; SCHWARTZ, Rita

Action of imipramin on the oxidation of glucose by rat brain. Studii cerc fiziol 5 no. 4:679-685 '60.

(1. Imipramin) (2. Oxidation, Physiological)

1. Catedra de farmacologie, Facultatea de medicina si farmacie, Bucuresti.

MANOLESCU, E., dr.; STNOLSCU, V., dr.

Current aspects and prospects of anticancer chemotherapy. Med. intern., Bucur 13 no.4:621-636 Ap '61.
(ANTINEOPLASTIC AGENTS therapy)

STRESOVA, V.

STRAESCU, V.

(38)

Bucharest, Farmacia, Vol X, No 4, Apr 1962 (159)

1. "Rheology and Its Importance in Pharmaceutics," Farm A. SCHWEIGER, Farm Engr V. POPOVICI and Farm A. SPITZER; pp 193-201.

2. "Investigations in the Mono-etheralkyl Resorcin Class (VII). New Compounds Having an Antihelminthic Action," Dr V. ZOTTA, Farm D. OTRIEANU, Farm Aurora [illegible], Farm C. CHIRITA and Prof Al. MAVRODIN. Work performed at the Laboratory of Organic Chemistry (Laboratorul de Chimie Organica) of the School of Pharmacy (al Facultatii de Farmacie), Bucharest; English summary; pp 203-212.

3. "Contributions to the Study of the Stability of Chloral Hydrate and Sodic Luminal Solutions," Engr Farm N. [illegible], Farm Vasilica ANTONESCU and Farm St. MOISESCU; English summary; pp 213-218.

4. "On the Antituberculous Activity of Certain Hydrazid Derivatives of the α-Benzoylaminocinnamic Acid and Phenylacetic Acid Series (Note II)," Prof [illegible], Prof M. VANGHELOVICI, Conf P. GHEORGHIU, Dr V. S[illegible], Dr Chemist Viorica BRATU, Chemist Catalina [illegible], Dr Em. MARCULESCU, Dr Em. POPESCU and Dr A. POPA; English summary; pp 219-227.

5. "Study of the Antituberculous Action of Certain New Thioureic Derivatives (4 Methylthiazolin-Urea)," Conf P. GHEORGHIU, Conf C. MARCU, Chemist Viorica BRATU, Dr D. DOBRESCU, Dr M. MANUCHIAN, Dr V. STROESCU, Dr A. POPA, Dr Em. POPESCU and Chemist Rita SCHWARTZ; English summary; pp 229-233.

6. "Study of Gelatin Excipients for Various Galenic Substances with a Prolonged Action," Prof V. CIOCANELEA, Farm I. BAN, Farm V. FILIPAS, Dr I. [illegible] and Dr S. [illegible]. Work performed at the Galenic Department (Catedra de Galenica) of Clinic II for Gynecology (Clinica II-a de Ginecologie); pp 235-237.

7. "Contribution to the Study of the Copper Content of Bread Made of Various Flours," Farm V. LUPSA and Farm V. BODEANU; English summary; pp 239-242.

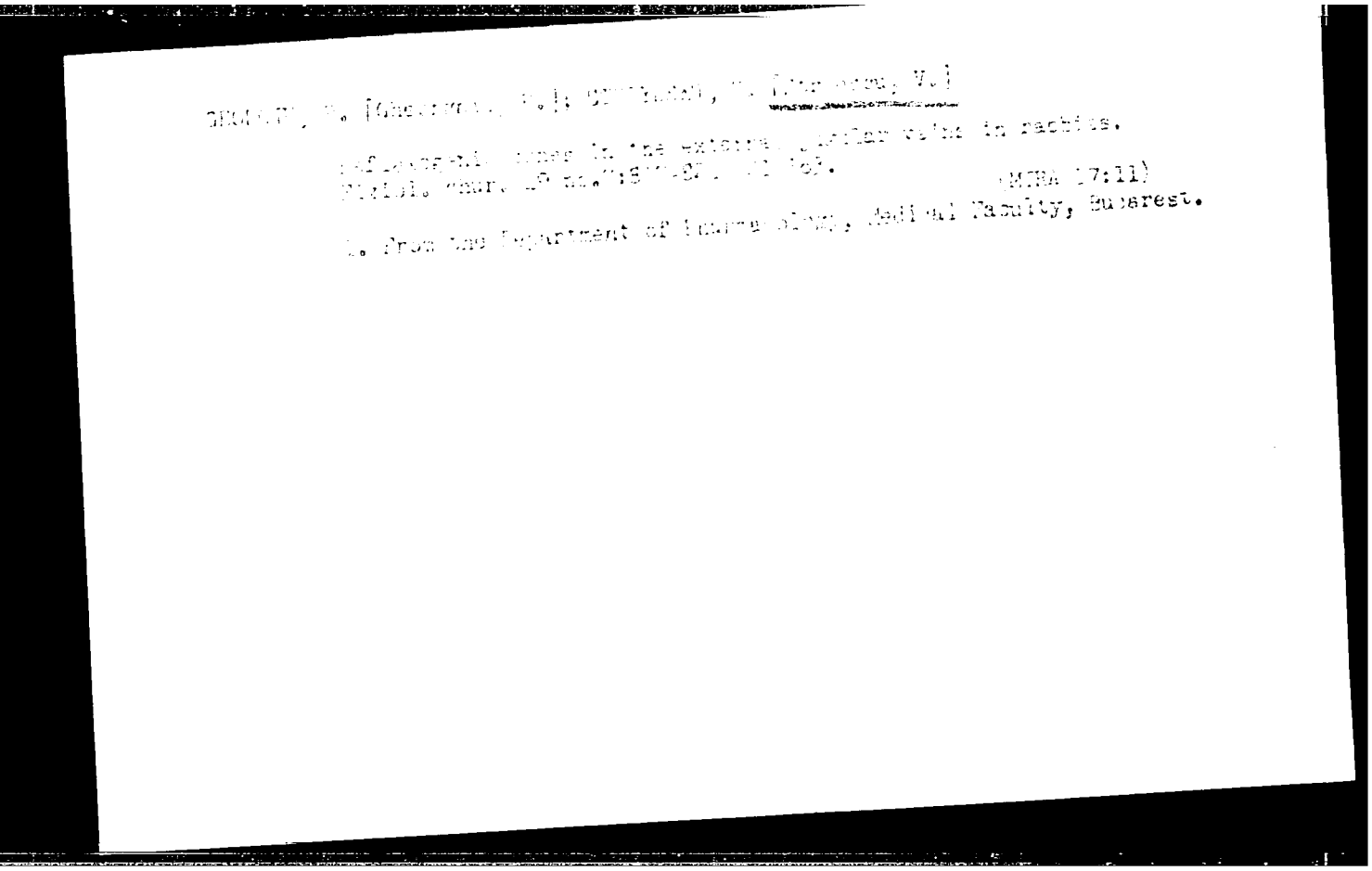
— 1/2 —

STROESCU, V., dr.; TENESCU, C., dr.; GAINARU, Paula, dr.

The treatment of urinary and biliary infections with cycloserine.
Med. intern. 15 no.2:229-234 F '63.

1. Lucrare efectuata in Sectia medicala a Spitalului "Bucur", Bucuresti.

(BILIARY TRACT) (INFECTION) (URINARY TRACT INFECTIONS)
(CYCLOSERINE)



CIORBARU, Rita; STROESCU, V.; STEFLEA, D.; GHEORGHIU, P.

On the influence of meprobamate on the protein composition of the brain. Fiziol. norm. pat. 6:559-562 '64

1. Catedra de Farmacologie, Institutul medico-farmaceutical, Bucuresti.

TEITEL, A.; STROESCU, V.; STEFLEA, D.; CIORBARU-SCHWARTZ, Rita

Research on the mechanism of action of histamine on the isolated intestine. Stud. cercet. fiziol. 10 no.1:23-29 '65.

TEITEL, A.; CIORBARU-SCHWARTZ, Rita; STROESCU, V.; TRUTIA, E.

Influence of hydroxyzine on the protein composition of the brain. Stud. cercet. fiziol. 10 no.3:227-232 '65.

TEITEL, A.; GANE, P.; STROESCU, V.; STEFLEA, D.

On the mechanism of the non-anesthetic action of procaine. Research on the effect of procaine on the conditioned reflex activity of rats. Fiziol. norm. pat. 11 no.1:67-70 Ja-F '65.

1. Catedra de Farmacologie, Institutul medico-farmaceutic, Bucuresti.

STROESCU, V., dr.

Drugs inhibiting and inactivating gastric secretion. (Current status). Med. intern. (Bucur.) 17 no.9:1119-1122 S '65.

1. Lucrare efectuata la Catedra de farmacologie, Institutul medico-farmaceutic, Bucuresti.

STROF, JIRI

3

Esters of nicotinic acid. Karel Fušík and Jiří Štrof. Czech. 85,930, Sept. 15, 1956. Esterification of nicotinic acid (I) with alcs. in the presence of pyrosulfates gives compds. showing a vasodilatory effect. Allowing to react 1 mole I with 1 mole $HOCH_2CH_2OH$ at 130° in the presence of 0.1 mole $K_2S_2O_7$ in the medium of excess $HOCH_2CH_2OH$, cooling the mixt. to 60°, filtering off the inorg. salt, and extg. the filtrate with $CHCl_3$ at pH 8 give oily 2-hydroxyethyl ester of I which is converted to its HCl salt, m. 144°.

L. J. Urbánek

GAVRISH, D.I.; LARIN, A.P.; STROFILOV, A.A.

In Austrian refractory plants. Ogneupory 27 no.8:381-386 '62. (MIRA 15:9)

1. Gosplan SSSR (for Gavrish). 2. Vsesoyuznyy institut ogneuporov (for Larin, Strofilov).
(Austria--Refractory materials)

ACC NR: AP7000348

INVENTOR: Volkov, P. M.; Strogachev, A. N.

SOURCE CODE: UR/0413/66/000/022/0112/0113

ORG: None

TITLE: A device for testing the fatigue strength of hinged components. Class 42, No. 188726 [announced by the Military "Order of Lenin" Academy of Armored Tank Troops (Voyennaya ordena Lenina Akademiya bronetankovykh voysk)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1966, 112-113

TOPIC TAGS: fatigue test, test facility, mechanical fastener, TRACKED VEHICLE

ABSTRACT: This Author's Certificate introduces: 1. A device for testing the fatigue strength of hinged components, e. g. caterpillar treads (tracks). The unit contains a loading mechanism which produces repeated variable loads, and a table with two adjustable moving clamps designed for holding the ends of the section of tread to be tested. This section may consist of three lengths, one of them horizontal with the other two at an angle to it. The unit is designed for producing test conditions which approach the actual operating conditions of the track. The device is equipped with a punch mounted opposite the table and making contact only with the horizontal link during loading by forces acting in the plane perpendicular to the plane of motion of the

Card 1/2

UDC: 620.178.3.05

SUB CODE: 13/ SUBM DATE: 05Jan65

Card 2/2

GAL'PERIN, Ye.L.; STROGALIN, Yu.V.

Polytetrafluoroethylene single crystals. Vysokom. soed. 5 no.10:1589 O '63. (MIRA 17:1)

L 33512-65 EWT(m)/EPF(c)/EWG(m)/EPF/ENP(j)/T Pc-4/Pr-4/Ps-4 RPL RWH/WW/RM
ACCESSION NR: AP5003822 S/0190/65/007/001/0016/0018

AUTHORS: Gal'perin, Ye. L.; Strogalin, Yu. V. 31 B 15

TITLE: Symmetry and dimensions of the elementary cell of polytrifluoroethylene

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 16-18

TOPIC TAGS: polytrifluoroethylene, electrographic analysis, polymer structure

ABSTRACT: Since the x-ray diffraction picture of polytrifluoroethylene (PTFE) obtained by H. S. Kaufman (J. Amer. Chem. Soc., 75, 1477, 1953) for a nonoriented specimen could not be duplicated for an oriented specimen, form and dimensions of the PTFE (M_η = 100 000-300 000) elementary cell were studied electrographically. PTFE films were obtained by placing several drops of 0.2-0.5% PTFE solution in acetone on glycerine (heated to 40-50C). After evaporation, the films were studied either in nonoriented form or after 400-500% elongation. Electrographs of oriented specimens (see Fig. 1 on the Enclosure) show that the structure corresponds to a hexagonal lattice with a = 5.59 ± 0.02 Å and c = 2.50 ± 0.02 Å. The calculated density was 2.01 ± 0.03 gm/cm^3, the pycnometrically measured value was 1.98 ± 0.02 gm/cm^3. The electrograms in conjunction with published data by C. W. Bunn and

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L 33512-65
ACCESSION NR: AP5003822

E. V. Garner (Proc. Roy. Soc., 189A, 39, 1947) indicate that the polymer is in the gas crystalline state. The small values of the C-C-zigzag projections on the molecular axis can be explained by assuming a helical structure of the polymer chains (C. W. Bunn and E. R. Hawells, Nature, 174, 549, 1954). Calculation of the order of the Bessel functions from $\left(\frac{l}{c}=\frac{n}{p}+\frac{m}{s}\right)$ show that for any helix, Bessel functions of the zero order correspond to the observed layer lines. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 05Feb64 ENCL: 01 SUB CODE: OC

NO REF SOV: 003 OTHER: 005

Card 2/3

L 33512-65
ACCESSION NR: AP5003822

ENCLOSURE: 01

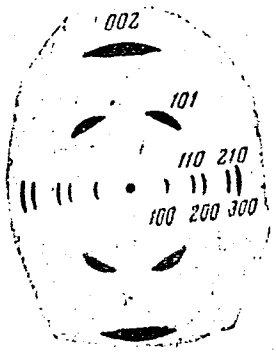

Fig. 1. Electrogram of oriented PTFE films

Card 3/3

GAL'PERIN, Ye.L.; STROGALIN, Yu.V.; MERNIK, M.P.

Crystallization structure of polyvinylidene fluoride. Vysokom. soed. 1 no.3:333-337 Mr '59. (MIRA 12:9)

SERGAL'SHCHIKOV, P. (UA9AK), master radiosporta (Chelyabinsk)

Why club-owned transmitter-receiver sets do not operate as well as those which are individually operated. Radio no.9:15 S '61. (MIRA 14:10)

(Radio clubs--Equipment and supplies)
(Radio operators)

VIGDORCHIK, D.Ya.; DRUSKIN, L.I.; IVANOV, V.N.; STROGAL'SHCHIKOVA, L.B.

Conversion of VNIISTO small cast-iron household heating boilers to gas fuel. Gaz.prom.no.9:17-22 S '56. (MLRA 9:10)
(Gas as fuel) (Boilers)

STROGANOV, A., student (Moskva)

Modern altobassee. Izobr.i rats. no.3:19-20 '63. (MIRA 16:4)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche.
(Metal cloth)

STROGANOV, A. I.

Strogonov, A. I. "Gases in liquid steel," In the symposium: Nauch. raboty studentov gorno-metallurg. in-tov Moskvy, Moscow, 1949, pp. 109-18, - Bibliog: 9 items

SO: U-1038, 20 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

STROGANOV, A. I.

TN740.M56 TREASURE ISLAND BOOK REVIEW AID 778 - M

MOROZOV, A. N., A. I. STROGANOV,
RASKISLENIYE MARTENOVSKOY STALI (Deoxidation of open-hearth steel).
Metallurgizdat, 1955. 256 p., charts, tables. 4,000 copies
printed.

This book is intended for engineers and technical workers in metallurgical plants and for research analysts in scientific research institutes. It is a comprehensive review of Russian and other literature dealing with the theory and practice of deoxidation of open-hearth steel and with current methods and practical techniques in deoxidizing rimmed and killed steel. It does not discuss the first two stages of the open-hearth process, i.e., melting and refining, but concentrates on the last stage of deoxidation, which properly conducted determines to a greater extent the quality of steel. The subject of deoxidation of open-hearth steel is widely discussed in periodical literature and can open-hearth process, but a separate monograph dedicated exclusively to this subject was not available. The author of this book therefore, considered it important to compile in a single volume all the information gathered from an extensive literature, Russian and non-Russian,

periodical and monograph.

The first chapter discusses the state of the open-hearth bath before deoxidation. The main attention is given to the problem of oxygen content in the bath and of the content of ferro-oxides in the slag, which play an important role in the progress of the deoxidation process. In the second chapter, the main problems of the theory of deoxidation are presented, the general properties required from deocidizers are outlined and the affinity of the elements to oxygen, nitrogen and sulphur are discussed.

The third chapter analyses the properties of the specific deoxidizers mostly used, namely: manganese, silicon, aluminum, titanium, vanadium, zirconium, calcium, boron and sone others. Their deoxidizing characteristics are compared and the final products obtained after deoxidation are described. Subsequent chapters outline and analyse practical techniques applied for deoxidation of rimmed, semikilled and killed steel. The most advanced deoxidation methods are discussed and a critical survey

MOROZOV, A. N., A. I. STROGANOV, Raskisleniye . . . AID 778 - M

A voluminous literature is listed, a total of 211 titles, 35 non-Russian and 176 Russian (1926-1953). 50 tables and 51 charts supplement the text.

STROGANOV, A. I.

19

Conference on the Use of Radioactive Isotopes in Ferrous Metallurgy. A. I. Stroganov. (*Stal'*, 1956, (8), 58) [In Russian]. Recent research work on iron and steel in the Soviet Union involving radioactive isotopes is described in this account of a conference held in Magnitogorsk in January, 1950. Representatives from the main works and research and educational institutes attended.—S. K.

4
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1-JWM

RMR
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MOROZOV, A.N., dekter tekhnicheskikh nauk, professor; STROGANOV, A.I., kandidat tekhnicheskikh nauk.

On N.N.Dobrokhotov's and B.K.Khan's review of A.N.Morozov's and A.I. Stroganov's book "Deoxidation of open-hearth steel." Stal' 16 no.8:766-767 Ag '56. (Open-hearth process) (MLRA 9:10)

STROGANOV, A.I., MOROZOV, A.N., KOLOSOV, M.I., POVOLOTSKIY, D.YA., KOSSOVSKIY, L.D, VAYNSHTEYN, O.Ya.

"Behaviour of Hydrogen in Steel During its Production and Remelting," lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of Metallurgy, Moscow, July 1-6, 1957

SOV/137-58-8-16552

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 46 (USSR)

AUTHORS: Kolosov, M.I., Morozov, A.N., Stroganov, A.I., Isayev, V.F., Keys, N.V., Vaynshteyn, O.Ya.

TITLE: The Rate and Sequence of Crystallization in Ingots of Killed Steel (Skorost' i posledovatel'nost' kristallizatsii slitkov spokoynoy stali)

PERIODICAL: V sb.: Primeneniye radioaktivn. izotopov v chernoy metallurgii. Chelyabinsk, Knigoizdat, 1957, pp 95-105

ABSTRACT: Radioactive Fe^{59} (introduced in the form of Fe oxide) was employed in conjunction with the method of overturning of molds in order to investigate crystallization processes in ingots of steel ShKh15SG (2.65 t) and of steels 10 and 45 (6.2-t ingots). The radioactivity of various zones of the ingot was determined from the radiation intensity of 3.5-g specimens of metal drilled out on different levels of a longitudinal templet of the ingot. As the crystallization progresses, the two-phase region on the sides of the ingot amounts to 30-50 mm. After the formation of a zone of columnar crystals, a two-phase region fed with liquid metal from the central part is formed in the lower part

Card 1/2

The Rate and Sequence of Crystallization in Ingots of Killed Steel

of the ingot. In a 6.2-ton ingot, the height of this zone extends to 850 mm. Up to a certain time (approximately 80 min in the case of the 6.2-t ingot) the thickness of the crystallized layer (including the two-phase region) taken in a horizontal section of the ingot is proportional to the square root of the crystallization time. Deviations from this relationship, which occur toward the end of the crystallization period, are attributable to a more rapid formation of a two-phase region at the center of the ingot. Extension risers, employed in production of high-quality steel ingots, may be removed only after the crystallization of the ingot has been completed. Bibliography: 19 references.

Ya.L.

1. Steel--Crystallization 2. Isotopes (Radioactive)--Applications

Stroganov, A.I.

137-1958-1-337

Translation from Referativnyy zhurnal. Metallurgiya, 1958. Nr 1. p 52 (USSR)

AUTHORS Morozov, A.N., Stroganov, A.I., Vaynshteyn, O.Ya. Isayev V.F.

TITLE Rate of Solution of Scrap Iron in Open Hearth Furnaces After Charging of Pig Iron (Skorost' rastvoreniya zheleznogo loma v martenovskikh pechakh posle zalivki chuguna)

PERIODICAL V sb. Primeneniye radioaktivn. izotopov v chernoy metallurgii Chelyabinsk, Knigoizdat, 1957. pp 135-144

ABSTRACT The radioactive isotopes P^{32} introduced into the furnace with the ore, and CO^{60}, introduced into the pig iron ladle when pig iron from the mixer is poured into it, were used to study the rate of fusion of the scrap in 380-t open hearth furnaces operating on scrap and ore. Samples of metal for measurement of radioactivity were taken during the heat, the amount of scrap fusing being established by the change in the intensity of radiation by the metal specimens relative to the intensity of radiation of the pig iron. Curves showing the radioactivity of the metal during the heat and curves of the change in its composition are presented. A specimen calculation of the rate of fusion of scrap iron on the basis of radioactivity measurement is presented. It is remarked

Card 1/2

Rate of Solution of Scrap Iron (cont.)

that fusion of the scrap iron does not proceed uniformly; 60-70 % is dissolved rapidly in the pig, whereas the remainder follows more slowly. The rate of carbon elimination during the heat is determined.

M.Kh.

1. Open hearth furnaces--Performance--Test results 2. Ores--Melting rate--Determination 3. Iron--Melting rate--Determination 4. Carbon --Elimination 5. Phosphorus isotopes (Radioactive)--Applications 6. Cobalt isotopes (Radioactive)--Applications 7. Liquid metals --Sampling

Card 2/2

137-1958-1-333

Translation from Referativnyy zhurnal Metallurgiya, 1958 Nr 1, p 51 (USSR)

AUTHORS: Morozov A.N., Stroganov, A.I., Vaynshteyn O.Ya.

TITLE: Kinetics of Transport of Iron from Slag to Metal in an Open Hearth Furnace During Boil (Kinetika perekhoda zheleza iz shlaka v metall v martenovskoy pechi vo vremya kipeniya)

PERIODICAL: V sb Fiz.-khim osnovy proiz-va stali Moscow, AN SSSR, 1957, pp 124-131 Diskus pp 160-187

ABSTRACT: Experimental melts were run in a 100-ton open hearth furnace working on scrap and ore. The radioactive isotope Fe^{59} was introduced into the slag as oxide at the start of the period when boiling alone was in progress. Samples of metal and slag taken thereafter were checked for radioactivity. Isotope exchange was found to exist between particles in different Fe phases, exhibiting a considerably greater velocity than the process of FeO transport from slag to metal. This circumstance permits the conclusion that the limiting factor in the process of oxidation in an open hearth bath during the period of pure boil is the rate of transport of wustite across the slag-metal interface.

Card 1/1 A.S.

1. Iron--Production 2. Open hearth furnaces-operation 3. Iron (Liquid)--Chemical reactions 4. Iron isotopes (Radioactive)--Applications 5. Slags--Formation--Test results

SOV/137-58-7-14377

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 62 (USSR)

AUTHORS: Kolosov, M.I., Stroganov, A.I., Vaynshteyn, O.Ya., Khryukina, V.A.

TITLE: Silicon-chromium in the Smelting of Chrome Grades of Steel in the Open Hearth (Primeneniye silikokhroma pri vyplavke khromistykh marok stali v martenovskikh pechakh)

PERIODICAL: Tekhn.-ekon. byul. Sov. nar. kh-va Chelyab. ekon. administrat. r-na, 1957, Nr 2, pp 8-9

ABSTRACT: In 11 experimental heats of medium-carbon chromium steels: 37KhS, 40Kh-45Kh, 35KhGS, and 40KhS, and 8 of low-carbon steels 20Kh and 2KhNZA run in 100-t furnaces with high molten-pig-iron charges, Fe-Cr was replaced by two grades of Si-Cr, containing respectively 56.6 and 46.9% Cr, 14.5 and 18.7% Si, and 4.5 and 3.1% C. No preliminary deoxidation of the metal in the furnace was performed. Loss of Cr by oxidation in experimental heats of medium-carbon steels (St) was 10.6% versus 12.5% in standard heats, while the respective figures for mild St were 19.5 and 26.3%. The duration of heats with Si-Cr is diminished by 2.5%, and there is no change in the quality of the steel. Working conditions are also improved. A.S.

Card 1/1

1. Steel alloys--Production 2. Chromium-silicon alloys --Metallurgical effects 3. Chromium--Oxidation

PHASE I BOOK EXPLOITATION 1203

Stroganov, A. I.

Primeneniye kisloroda v konverternom proizvodstve stali (Application of Oxygen in Converter Production of Steel) Moscow, Metallurgizdat, 1958. 143 p. 4,800 copies printed.

Ed.: Kornfel'd, V. N.; Ed. of Publishing House: Khoras, L. I.; Tech. Ed.: Mikhaylova, V. V.

PURPOSE: This book is intended for engineers and scientific personnel and may also be useful to students taking advanced courses at metallurgical vtuzes.

COVERAGE: The book deals with the converter method of producing steel, using an oxygen blast. The author discusses fields of application of converter steel, quality of the steel, modern methods of obtaining low-nitrogen steel in converters, and the physical and chemical basis of

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Application of Oxygen (Cont.)

the Bessemer and Thomas processes with the use of oxygen. Sample calculations of the heat balance of these processes, making use of up-to-date thermodynamic data, are given. The author expresses his thanks to A. N. Morozov, Professor, Doctor of Technical Sciences; V. N. Kornfel'd; and N. P. Stroganova for help in compiling the material and in editing the manuscript. There are 213 references, of which 119 are Soviet, 55 English, 29 German, and 10 French.

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Ch. I. Quality and Fields of Application of Ordinary Converter Steel 5
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SOV/137-59-5-9962

18.3200

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 75 (USSR)

AUTHORS: Kolosov, M.I., Morozov, A.N., Stroganov, A.I., Isayev, V.P., Keys, N.V., Vaynsteyn, O.Ya.

TITLE: The Rate and Sequence of Crystallization in Killed Steel Ingots

PERIODICAL: V sb.: Metallurgiya i metallovedeniye, Moscow, AS USSR, 1958, pp 133 - 137

ABSTRACT: The authors investigated the crystallization in "ShKh15SG" steel ingots of 2.65 t weight and in syphon-cast "10" and "45" grade steel ingots of 6.2 ton weight. The location of the crystallization front was determined at various moments by a consecutive multiple introduction of a thermic mixture of radioactive iron and Al-powder into the non-solidified section of each ingot. Subsequently, the concentration of the radioactive iron over the cross-section and the length of the solidified ingot was determined by radiometric means. Moreover, the non-solidified sections of "10" steel ingots were tapped at time intervals corresponding to the moments of

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The Rate and Sequence of Crystallization in Killed Steel Ingots

introducing the radioactive iron. The thickness of the solidified layer on the section of the ingot body (ostov) was measured. Results obtained by the described methods were compared and it was revealed that the cavity in the body of an overturned ingot was wider and deeper than the area of expansion of the radioactive iron introduced at the same moment. This discrepancy is explained by the presence of a two-phase zone located between the border of the radioactive iron expansion and the solidified layer. The two-phase zone consists of suspended (partially intergrown) crystals and liquid metal. The width of the two-phase zone at the lateral crystallization fronts does not exceed 30 - 50 mm; however, its expansion along the height in the lower axial section of the solidified ingot attains 850 mm. It is assumed that the two-phase zone is developed periodically during interrupted crystallization (in particular, at the moment of the completed growth of columnar crystals). The development of a two-phase zone in the lower axial section of the ingot is connected with the fact that crystals originating at the lateral crystallization fronts, are carried away by the descending flows of cooled-off metal and are accumulated in the bottom section of the solidified ingot. This explains

SOV/137-58-9-18676

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 75 (USSR)

AUTHORS: Morozov, A.N., Kolosov, M.I., Stroganov, A.I., Isayev, V.F., Keys, N.V., Vaynshteyn, O.Ya.

TITLE: A Nucleonic Study of the Rate and Sequence of Steel-ingot Crystallization (Izucheniye skorosti i posledovatel'nosti kristallizatsii stal'nykh slitkov pri pomoshchi radioaktivnykh indikatorov)

PERIODICAL: V sb.: Staleplavil'n. proiz-vo. Moscow, Metallurgizdat, 1958, pp 203-217

ABSTRACT: Radioactive tracers were used to investigate the crystallization of 2.65-t ingots of ShKh15SG and 6.2-t ingots of Nrs-10 and 45 steels, bottom poured. 3-5 batches of Fe^{59} (4.5-14.5 millicuries per t steel) were introduced as Fe_2O_3 mixed with Al powder. The tops of the ingots were held in the liquid state by periodic additions of lunkerite pipe eliminator. At the same time, crystallization of Nr-10 steel was also studied by overturning three ingots on single stool at different time intervals after pouring. The isotope was introduced at the moments when the residual liquid metal from each of these ingots was poured

Card 1/3

A Nucleonic Study of the Rate and Sequence of Steel-ingot Crystallization

into a fourth on the same stool. The thickness of the frozen layer as determined by radiography was greater than when determined by pouring out the liquid residue of the metal. This is explained by the fact that the zones of isotope distribution describe the region of the ingot occupied by liquid metal, whereas the thickness of the crystallized layer determined by pouring out defines the region of solid metal phase alone. The difference between them is the magnitude of the region in which two phases exist. The length of that region along the sides of the ingot in the course of crystallization does not exceed 30-40 mm. At the conclusion of the formation of the zone of columnar crystals in the bottom of the 6.2-t ingot there arises a two-phase region attaining 850 mm in height. This region comes into being as the result of the accumulation of equiaxed crystals that have torn away after formation on the interface between the solid and liquid phases. The crystallization of the two-phase region is intermittent in nature. The development of V-segregation and axial porosity are dependent upon the taper of the ingot and the conditions under which the two-phase zone is fed liquid metal from the upper portion of the ingot. In the making of high-quality steel, the hot top should be removed only after the body of the ingot has completely hardened. Within given time limits, the thickness of the crystallized layer is proportional to the square root of the crystallization time; the proportionality factor therein,

SOV/137-58-9-18676

A Nucleonic Study of the Rate and Sequence of Steel-ingot Crystallization

which is 21-29 mm/min$^{0.5}$ for carbon steels, declines with reduction in the [C] of the steel.

L.K.

1. Steel--Processing 2. Steel--Crystallization 3. Radioisotopes--Performance

Card 3/3

SOV/137-59-5-9855

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 55 (USSR)

AUTHORS: Morozov, A.N., Stroganov, A.I., Vaynshteyn, O.Ya.

TITLE: Preliminary Deoxidation of Low Carbon Open-Hearth Steel

PERIODICAL: Metallurg. Yuzhn. Urala (Sovnarkhoz Chelyab. adm. r-na), 1958, Nr 1 (2), pp 11 - 17

ABSTRACT: Experimental smelts were carried out by the scrap-ore process with a cast-iron content in the charge of 65 - 70% and 100- and 180-ton furnaces (at the Chelyabinsk Metallurgical Plant) and in 185- and 380-ton furnaces at the MMK. The "10 tr" steel grade was investigated at the ChMZ and steels with 0.10 - 0.20%C were examined at MMK. Of 45 experimental smelts, 23 smelts were deoxidized in the furnace by the blast furnace Fe-Si, introduced into the furnace in order to obtain metal with 0.18 - 0.20 Si (ChMZ) or 0.10 - 0.15% Si (MMK). In the ladle the metal was deoxidized by 45% Fe-Si and a constant Al amount. Moreover, data of industrial control were used, obtained from "10 tr" steel smelts, deoxidized and not deoxidized by the blast furnace Fe-Si

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133-1-7/24

AUTHORS: Kolosov, M.I., Engineer, Morozov, A.N., Doctor of Technical Sciences, Stroganov, A.I., Candidate of Technical Sciences, Popov, Yu.A., Engineer, Vaynshteyn, O.Ya., and Keys, N.V.

TITLE: The Quality of Steel from Pig Iron Produced with a Constant Moisture Blast (Kachestvo stali iz chuguna, vyplavlennogo na dut'ye postoyannoy vlazhnosti)

PERIODICAL: Stal', 1958, No.1, pp. 24 - 27 (USSR).

ABSTRACT: The influence of moisture content of blast on the hydrogen content in pig iron and the influence of hydrogen content of pig iron on the hydrogen content of steel as well as flake sensitivity of steel on the hydrogen content in the liquid metal were investigated. Nos. 1 and 3 blast furnaces on the above works were transferred to operation with a constant moisture blast (15-20 g/m^3). This resulted in the smoother operation, higher blast temperatures 750 - 800 ^{o}C (against previous 450 - 500 ^{o}C), increase in output (No.1 - 3%; No.3 - 1.3%) and a decrease in the coke rate (No.1 - 6.5%; No.3 - 1.3%). As the works produce quality steel it was considered necessary to check the possible effect of higher moisture in blast on the steel quality. It was found that with increasing moisture content in blast, the hydrogen content of pig iron increases but not proportionally. However, the mean content of hydrogen in the

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The Quality of Steel from Pig Iron Produced with a Constant Moisture Blast

open-hearth bath after melting and on teeming was found to be practically independent of the hydrogen content of pig or moisture content in the blast (Fig.1), The final hydrogen content of steel on teeming was not correlated to its content in the corresponding pig (Table 1, Fig.2). The comparison of hydrogen content in pig, steel and rolled products of various levels of moisture content in blast is shown in Table 2; the comparison of the degree of flaking in semis and their hydrogen content and the mechanical properties of finished steel at various levels of moisture in blast - Tables 3 and 4, respectively. It is concluded that the hydrogen content of pig iron has no influence on the hydrogen content of quality steel after melting and on teeming. The direct relationship between the flake sensitivity and hydrogen content of liquid metal was not established. The methods of heating and cooling flake-sensitive steels used on the works secure the absence of flakes in finished products at any level of moisture in the blast. The macro-structure of rolled semis is independent from the moisture content of the blast. There are 4 tables, 2 figures and 6 Russian references.

133-1-7/24

The Quality of Steel from Pig Iron Produced with a Constant Moisture Blast

ASSOCIATION: Chelyabinsk Metallurgical Works (Chelyabinskiy metallurgicheskiy zavod)

AVAILABLE: Library of Congress

Card 3/3

STROGANOV, A.I., dots., kand.tekhn.nauk

Oxygen distribution between metal and slag. Izv.vys.ucheb.zav.; chern.met. no.10:23-30 O '58. (MIRA 11:12)

1. Chelyabinskiy politekhnicheskiy institut.
(Open-hearth process) (Oxygen)

STROGANOV, A.I.; MOROZOV, A.N.

Povedenie khroma v vanne osnovnoy martenovskoy pechi.

report submitted for the 5th Physical Chemical Conference on Steel Production.

MOSCOW 30 JUN 1959

STROGANOV, A. I

PHASE I BOOK EXPLOITATION SOV/4206

Kolosov, Mikhail Ivanovich, Anatoliy Il'ich Stroganov, and Isay Yakovlevich Ayzenshtok

Proizvodstvo sharikopodshipnikovoy stali (Production of Ball-Bearing Steel) Moscow, Metallurgizdat, 1960. 267 p. Errata slip inserted. 2,650 copies printed.

Ed.: A.I. Lebedev; Ed. of Publishing House: Ya. D. Rozentsveyg; Tech. Ed.: M.K. Attopovich.

PURPOSE: This book is intended for production engineers and scientific workers in metallurgy and machinery manufacture. It may also be used by students in advanced courses at schools of higher education specializing in metallurgy and machinery manufacture.

COVERAGE: The book deals with production techniques, basic quality requirements, and in-service conditions for ball-bearing steel. Melting, teeming, rolling, and heat treatment are discussed in detail, and an historical outline of the development of the manufacturing process for ball-bearing steel is presented.

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Production of Ball-Bearing Steel SOV/4206

Sources of impurities in steel (nonmetallic inclusions), methods of determining the presence of impurities, factors leading to the formation of defects, and methods of combatting defects are also investigated. Material used in the book is based on practices of the Chelyabinsk, Stalingrad, and Zlatoust Plants and the Serov and Kuznets Metallurgical Combines. The authors thank the following persons for their assistance: Engineers N.V. Keys, A.M. Khizhnichenko, D.B. Royak, T.M. Malinovskaya, L.D. Kossovskiy, N.Ye. Mysina, N.K. Ipatov, N.S. Devchenko, D.G. Zhukov, V.F. Isupov, and Doctor of Technical Sciences I.N. Golikov. There are 191 references: 174 Soviet, 13 English, and 4 German.

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Ch. II. Structure of the Steel Ingot 15
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S/133/60/000/007/004/016

AUTHORS: Kolosov, M.I., Candidate of Technical Sciences; Stroganov, A. I., Candidate of Technical Sciences; Keye, N.V., Engineer; Bogatenkov, V.F., Candidate of Technical Sciences; Vainshteyn, O.Ya., Engineer; Danilov, A.M., Engineer; Zverev, B.F., Engineer; Antropova, N.G., Engineer; Khryunkina, V.A., Engineer

TITLE: The Use of Silicochrome When Smelting Steel in Open Hearth Furnaces

PERIODICAL: Stal', 1960, No. 7, pp. 607 - 608

TEXT: In the Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant) and in the Zlatoustovskiy metallurgicheskiy zavod (Zlatoustovsk Metallurgical Plant) in melting low-carbon chrome steels: 18ХГТ (18 KhGT), 17ХН2 (17KhN2), 20ХН(20KhN), 12 - 20ХН3А(12-20Kh2N3A), 12-20Х2Н4А (12-20Kh2N4A) and medium carbon chrome-containing steels: 35-45ХН(35-45KhN), 33-37ХС(33-37KhS), 30-35ХГСА(30-35KhGSA), 30ХГТ(30KhGT) five types of silicochrome were applied having the following Cr, Si and C content (in %):

	Cr	Si	C
Silicochrome	12 - 20	40 - 50	

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S/133/60/000/007/004/016

The Use of Silicochrome When Smelting Steel in Open Hearth Furnaces

Cr	49 - 56	29 - 39
Si	15 - 19	40 - 54
C	2.75 - 4.50	0.12 - 0.20

When using 12 - 20 type silicochrome 7 - 20 kg/t were added, whereas of the 40 - 50 type silicochrome about 4.5 kg/t (in the ChMZ) and about 2.3 kg/t (in the ZMZ) and for 30 - 35 KhGSA 6.5 kg/t were added. When applying silicochrome, steels of the required composition could be produced without any difficulty and the duration of the preliminary deoxidation could be reduced by 5 - 9 min in both plants, (i.e., by 0.3 - 1.5% of the melting time). The amount of chrome, manganese and silicon scale is practically the same as for the conventional method (in Zlatoustovsk: Cr 18%, Mn 20%, Si 32%, in Chelyabinsk: Cr 19%, Mn 25%, Si 38%). The lower amount of chrome scale in the ZMZ can be explained by the higher residual chrome content of the metal before deoxidation: 0.13 - 0.31% as compared to the values obtained in the ChMZ : 0.06 - 0.13%. In order to obtain an optimum economical effect, when melting medium-carbon chrome steel, the amount of 20 type silicochrome should be 11 - 13 kg/t in the ChMZ and 8.5 - 9.5 kg/t in the ZMZ and the silicon used in conventional melting be replaced by blast-furnace ferrosilicon. When

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The Use of Silicochrome When Smelting Steel in Open Hearth Furnaces

melting low-cabon steels, 12 - 13 kg silicochrome per ton should be used when the chrome content of the steel is below 0.9% and 15 - 17 kg of silicochrome per ton when it is above 9%. The use of silicochrome of the 40 and 50 types is economical only in the melting process of low-carbon steels. The holding time of the bath after adding 20 type silicochrome, when melting steels of a chrome content below 0.9% is only 15 - 20 min and for steels with a chrome content above 0.9% it is 20 - 30 min, on account of the decrease in weight of cold additives in the furnace (15 - 20 kg/t) and a more rapid absorption of silicochrome as compared to ferrochrome. The initial cost of steel when using silicochrome in the melting process was decreased in both plants by a total of 2 - 2.5 million roubles per annum, from 2 roubles/ton for the 40Kh type steel to 20.4 roubles/ton for the 20Kh type steel in Chelyabinsk and from 1.1 rouble/ton for the 30KhSA type steel up to 12.6 roubles/ton for 20Kh steel in Zlatoustovsk. There is 1 table.

ASSOCIATIONS: Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii (Chelyabinsk Scientific Research Institute of Metallurgy); Chelyabinskiy, Zlatoustovskiy metallurgicheskie zavody (Chelyabinsk and Zlatoustovsk Metallurgical Plants)

KOLOSOV, Mikhail Ivanovich; SMIRNOV, Juriy Dmitriyevich; STROGANOV, Anatoliy Il'ich; TSIPUNOV, Aleksey Georgiyevich; BOREVSKIY, Vladimir Moiseyevich; SVET, Ye.B., red.; KOLBICHEV, V.I., tekhn. red.

[Interchangeable equipment for the pouring of steel] Smennoe oborudovanie dlia razlivki stali. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo, 1961. 55 p. (MIRA 17:3)

STROGANOV, Anatoliy Il'ich; KOLOSOV, Mikhail Ivanovich; LEBEDEV, S.I., red.; POZDNYAKOVA, G.L., red. izd-va; ISLENT'YEVA. P.G., tekhn. red.

[Production of quality and high-quality steel in basic open-hearth furnaces] Proizvodstvo kachestvennoi i vysokokachestvennoi stali v osnovnykh martenovskikh pechakh. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 416 p. (MIRA 14:12)

(Steel—Metallurgy) (Open-hearth furnaces)

PHASE I BOOK EXPLOITATION SOV/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

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COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, B.P. Nam, V.I. Yavoyskiy, G.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute)

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

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Yavoyskiy, V. I. [Moskovskiy institut stali - Moscow Steel Institute]. Principal Trends in the Development of Scientific Research in Steel Manufacturing 7

Filippov, S. I. [Professor, Doctor of Technical Sciences, Moscow Steel Institute]. Regularity Patterns of the Kinetics of Carbon Oxidation in Metals With Low Carbon Content 15

[V. I. Antonenko participated in the experiments.]

Levin, S. L. [Professor, Doctor of Technical Sciences, Dnepropetrovskiy metallurgicheskiy institut - Dnepropetrovsk Metallurgical Institute].

New [Developments]in the Theory (Cont.) SOV/5556

On the Theory of Carbon Oxidation in the Open-Hearth Bath 22

Chelishchev, Ye. V. [Docent, Candidate of Technical Sciences, Moscow Steel Institute]. Special Features of Carbon Oxidation in the Open-Hearth Bath 31

Mikhaylets, N. S. [Candidate of Technical Sciences, Khimiko-metallurgicheskiy institut Sibirskogo otdeleniya AN SSSR - Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences, USSR]. Carbon Oxidation in the Baths of Open-Hearth Furnaces of Various Sizes 44

Startsev, V. A. [Engineer], and P. V. Umrikhin [Professor, Doctor of Technical Sciences, Ural'skiy politekhnicheskiy institut - Ural Polytechnic Institute]. Interaction Between the Metal-Bath Carbon and the Hearth of the Basic Open-Hearth Furnace During the Scrap and Ore-Scrap Processes 53

Stroganov, A. I. [Docent, Candidate of Technical Sciences, Chelyabinskiy politekhnicheskiy institut - Chelyabinsk Polytechnic Institute]. Carbon Oxidation in the Open-Hearth Bath 61

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.

Ladyzhenskiy, B. N., and M. V. Karakula. Making Low-Carbon Alloyed Steels in Acid Open-Hearth Furnaces 27

Stroganov, A. I., and A. N. Morozov. Behavior of Chromium in the Bath of a Basic Open-Hearth Furnace 39

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Omarov, A. K., and A. Ye. Khlebnikov. Intensifying the Working Period of the Open-Hearth Scrap Process 54

[The following persons participated in the research work: Engineer Munasypova, Engineer T. Kovaleva, and Technicians U. Rakhmanulov, V.V. Ponomareva, L. Rusnyak, Z. Zaporozhan, A. Perkova, S. Bilyalova, and V. Guseva.]

S/133/61/000/001/002/016
A054/A033

AUTHORS: Kolosov, M.I., Candidate of Technical Sciences; Stroganov, A.I., Candidate of Technical Sciences; Vaynshteyn, O.Ya., Engineer; Keys, N.V., Engineer; Khryukina, V.A., Engineer

TITLE: Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

PERIODICAL: Stal', 1961, No. 1, pp. 25 - 28

TEXT: In the 18KhGT grade steel defects in the form of blisters and twists were found, mainly in the top part of the ingot, resulting in 7% rejects. The defects in the ingot body were most probably due to pouring in such a way that in the ingot mold top a skin was formed at the walls. When 5-ton ingots were cast the defects decreased due to the shorter pouring time resulting in a smaller temperature difference between the beginning and the end of the casting process. An efficient measure to prevent these defects was topping the ingots at 19% of their height instead of 17%. Another type of defect is the "tongue" observed on the face of the ingot when cutting the hot metal. In the 5-ton and 6.2-ton ingots this type of defect increased to 25%. When investigating these "tongues" on

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Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

etched longitudinal and lateral macrosections and on the longitudinal hardened fracture, it was found that they were actually laminations of the central zone of the ingot. Macrostructural tests revealed at the place of laminations an accumulation of non-metallic impurities, extending along the axis of lamination. Moreover, investigations of the longitudinal hardened fracture showed that this lamination is an internal defect of the metal connected with the crystallization of the ingot. Therefore, tests were made to determine the character of crystallization and the structure of 18-30KhGT grade steel ingots. The crystallization process was studied in 6.2-ton ingots by the tilting method, radiometry and temperature tests. In the radiometric method (Ref. 1, M.I. Kolosov, A.N. Morozov, et al.: "Rate and Sequence of the Crystallization of Killed Steel Ingots". In the collection: "The Application of Radioactive Isotopes in Ferrous Metallurgy", Chelyabinsk, 1957), the Fe^{59} radioactive isotope was applied. The metal temperature during crystallization was recorded at distances 665, 1,125 and 1,425 mm from the riser, with platino-rhodium-platinum thermocouples, protected by double-wall quartz tubes between which graphite rings were fitted at each level. During crystallization a double-phase zone formed along the axis of the ingot. The considerable toughness of the 18-30KhGT steels makes the feeding of the central part

Crystallization and Quality Improvement of 18-30ХГТ (18-KhGT) Grade Steel

of the ingot difficult, causing the origination of a porous zone. As the location of this central porous zone coincides with the lamination in the rolled product it can be assumed that lamination is caused by the porosity of the metal. In the places of lamination considerable amounts of non-metallic impurities were found impeding the scalding of the lamination even at greater reductions. Based on the tests two methods were found to prevent lamination: 1) reducing the porosity of the central part of the ingot and 2) reducing the quantity of non-metallic impurities. 1) In order to reduce the central porosity, the process of feeding the central area of the ingot had to be improved. Measures were taken to increase the time during which the metal is liquid in the hood of the riser. It was found, however, that neither the application of "lunkerite" with an aluminum content of 28% instead of 14%, added in quantities of 3 - 4 kg/ton instead of 1.5 - 2 kg/ton, nor the use of lunkerite containing 35 - 50 % magnesium powder (1.5 - 2.0 kg/ton) yielded a considerable improvement of the macrostructure. Thus it was not possible to improve the feeding of the ingot with liquid metal by increased heating of the top. Better results were obtained in this respect when the riser hood was insulated by asbestos sheets (10mm thick) between its casing and lining and by winding

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Crystallization and Quality Improvement of 18-30XГТ (18-30KhGT) Grade Steel

asbestos cores, 22 mm thick, or asbestos sheets around the ingot molds, at a distance of 500 mm from the top, fixed with sheet iron. The riser hoods were also mounted on asbestos disks. The longitudinal templates taken from ingots melted in insulated ingot molds showed a satisfactory density and the axial porosity found in conventional ingots was absent. The products rolled from ingots produced with the insulation method (140 x 140 mm section) were also free from lamination. 2) The second method to prevent lamination, i.e., the reduction of non-metallic impurities was tested with 3 kinds of deoxidizing agents: a) Silicomanganese in the furnace and 45% solution of ferro-silicium in the ladle (conventional method); b) 15 - 17 kg/ton AMS alloy in the furnace and 45% solution of ferrosilicium in the ladle; c) manganese silicate in the furnace and calcium-silicon in the ladle. The best results were obtained with method b) (3.05% rejects due to lamination and 0.06% rejects due to macrostructure, while the corresponding figures for method a) are 5.05% and 0.5% and for method c) 17.0%) (see table). To improve the steel quality, further tests were carried out in 1958 - 1959 to study preliminary oxidation with silicochromium, instead of AMS, the use of titanium-containing scrap instead of ferro-titanium for alloying and the optimum metal temperature prior to deoxidation, ensuring a satisfactory macrostructure and metal surface. By employing titanium-containing scrap the temperature drop in the ladle decreased

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Crystallization and Quality Improvement of 18-30ХГТ (18-30KhGT) Grade Steel

and the toughness of steel was reduced. Rejects due to surface defects were 0.13% instead of 0.24% in the conventional melts. There are 2 figures, 1 table and 1 Soviet reference.

ASSOCIATIONS: Nauchno-issledovatel'skiy institut metallurgii, Chelyabinskiy metallurgicheskiy zavod (Scientific Research Institute of Metallurgy, Chelyabinsk Metallurgical Plant)

Figure 1: "Tongue" defect in 18KhGT steel ingot

GLADKOVSKIY, V.A.; MOROZOV, A.N.; STROGANOV, A.I.; VACHUGOV, G.A.; Prinimali uchastiye: BELOV, B.V., inzh.; POPOV, N.P., inzh.; BAYAZITOV, M.I., inzh.

Effect of work hardening on the properties of structural steel. [Sbor. trud.] Nauch.-issl. inst.met. no.4:144-150 '61. (MIRA 15:11)

1. Nauchno-issledovatel'skiy institut metallurgii (for Gladkovskiy, Morozov, Stroganov). 2. Zlatoustovskiy metallurgicheskiy zavod (for Vachugov).
(Steel, Structural—Hardening)

BOGATENKOV, V.F.; VAYNSHTEYN, O.Ya.; ZVEREV, B.F.; KOLOSOV, M.I.; LUBYETS, I.A.; MOROZOV, A.N.; POVOLOTSKIY, D.Ya.; STROGANOV, A.I.

Desiliconization of open-hearth pig iron in the mixer. Izv. vys. ucheb. zav.; chern. met. 4 no.8:32-36 '61. (MIRA 14:9)

1. Chelyabinskiy metallurgicheskiy zavod, Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Chelyabinskiy politekhnicheskiy institut.

(Cast iron--Metallurgy)

KOLOSOV, M.I., kand.tekhn.nauk; STROGANOV, A.I., kand.tekhn.nauk; KEYS, N.V., inzh.; BOGATENKOV, V.F., kand.tekhn.nauk; VAYNSHTEYN, O.Ya., inzh.; DANILOV, A.M., inzh.; ZVEREV, B.F., inzh.; ANTROPOVA, N.G., inzh.; KHRYUKINA, V.A., inzh.

Use of silicon-chromium in open-hearth smelting of steel. Stal' 20 no.7:607-608 Jl '61. (MIRA 14:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii; Chelyabinskiy i Zlatoustovskiy metallurgicheskiye zavody.
(Steel—Metallurgy) (Silicon-chromium alloys)

S/133/62/000/006/003/015
A054/A127

AUTHORS: Stroganov, A. I., Candidate of Technical Sciences, Vachugov, G. A., Belov, B. F., Engineers

TITLE: Distribution of additives in the electric arc furnace bath during smelting

PERIODICAL: Stal', no. 6, 1962, 523 - 525

TEXT: The distribution of additives during smelting 18 KhBA (18KhNVA), 12 KhN-A (12KhN3A) and 35 KhA (35KhYuA) steel grades in 12-ton electric arc furnaces (520 mm deep, 290 mm in diameter) was studied. The tests covered the oxidizing, reducing and tapping periods of the process. The analysis was carried out taking into account the following error limits: for a carbon content between 0.1 and 2.0%: ±0.015 - ±0.05%; for a silicon content of < 0.1 - 0.5%: ±0.0075 - ±0.023%; for a phosphorus content of 0.03 - 0.1%: ±0.0025 - ±0.004%; for a sulphur content of 0.02 - 0.05%: ±0.002 - ±0.004%; for a manganese content of 0.1 - 0.5%: ±0.02% and for a tungsten content of 0.5 - 2.0%: ±0.03%. The changes in the content of the various additives for the grades studied were almost identical. In the oxidizing period the bath is mixed very thoroughly, due to the separation

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Distribution of additives in...

of carbon oxide bubbles, and additives are distributed evenly throughout the metal. The sulphur content in this period is reduced by 0.005 - 0.003%. Earlier tests made in a 30-ton electric furnace with Fe^{59} radioactive isotope (carried out by A. I. Stroganov and O. Ya. Vaynshtayn) showed that it was distributed uniformly in the bath within 3 - 6 minutes. In the reducing period, due to the absence of intensive convective flows in the bath, the distribution of additives in the metal slows down. Thus, the Fe^{59} isotope tested in the 30-ton electric furnace was distributed in this period only in 60 - 75 minutes. The separation of sulphur is rather intensive; there is hardly any change in the phosphorus content, sometimes only a slight increase (by 0.001 - 0.002%). The nitrogen content, in spite of the long duration of the reduction period (30 - 90 minutes) does not increase by more than 0.001 - 0.003%. At the end of the reducing period, after the addition of ferro-alloys is checked, carbon, phosphorus and nitrogen are distributed uniformly in the bath, both horizontally and vertically. At very high rates of carburization, however, a carbon concentration in the upper layers of the bath can be observed. The generally accepted view that the nitrogen concentration increases in the upper layers of the bath, was not proved by these tests. A uniform distribution of chrome and manganese takes place only 30 - 40

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STROGANOV, A.I., kand.tekhn.nauk; BOGATENKOV, V.F., kand.tekhn.nauk; KOLOSOV, M.I., kand.tekhn.nauk; ZVEREV, B.F., inzh.; DAVIDYUK, V.N., inzh.; POPOV, R.V., tekhnik

Heat balance of the riser head of an ingot. Stal' 22 no.1:27-29 Ja '62. (MIRA 14:12)

(Steel ingots) (Heat--Transmission)

STROGANOV, Anatoliy Il'ich; PETROV, Aleksey Konstantinovich; ZVEREV, Boris Fedorovich; SVET, Ye.B., red.; KUZNETSOVA, O.Ya., tekhn. red.

[Economy of magnesite in steel smelting]Ekonomiia magnezita v staleplavil'nom proizvodstve. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo, 1962. 41 p. (MIRA 16:1)
(Smelting furnaces--Maintenance and repair)
(Refractory materials)

STROGANOV, A.I., kand. tekhn. nauk; VACHUGOV, G.A., inzh.;
BELOV, B.F., inzh.

Distribution of impurities in an electric furnace bath during the smelting process. Stal' 22 no.6:523-525 Je '62.
(MIRA 16:7)

(Steel--Impurities)
(Electrometallurgy)

KOLOKOV, Mikhail Ivanovich; STROGANOV, Anatoliy Il'ich; SHIRNOV, Yuriy Dmitriyevich; SVEN, Ye.B., red.

[Selecting a method of steel pouring] Vybor sposoba razlivki stali. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo 1962. 54 p. (MIRA 17:2)

STROGANOV, A.I.

Oxygen distribution between metal and slag in steel smelting processes. Izv. vys. ucheb. zav.; chern. met. 6 no.3:46-51 '63. (MIRA 16:5)

1. Chelyabinskiy politekhnicheskiy institut.
(Steel—Metallurgy) (Oxygen)

STROGANOV, A.I.

Interaction of carbon oxide with slag during steel smelting processes. Izv. vys. ucheb. zav.; chern. met. 6 no.5:51-57 '63. (MIRA 16:7)

1. Chelyabinskiy politekhnicheskiy institut.
(Steel--Metallurgy) (Carbon monoxide) (Slag)

STROGANOV, A.I., kand.tekhn.nauk

Kinetics of oxidizing processes in basic steel smelting baths. Stal' 23 no.4:308-314 Ap '63. (MIRA 16:4)

1. Chelyabinskiy politekhnicheskiy institut.
(Steel—Metallurgy)

BOREVSKIY, Vladimir Moiseyevich; CHERNAKOV, Mikhail Georgiyevich; STROGANOV, A.I., red.; SVET, Ye.B., red.

[Organization of safety measures in a metallurgical plant] Organizatsiia raboty po tekhnike bezopasnosti na metallurgicheskom zavode. Cheliabinsk, Cheliabinskoe knizhnoe izd-vo, 1962. 98 p. (MIRA 18:3)

STROGANOV, A.I.; PETROV, A.K.; LABUNOVICH, O.A.; SVET, Ye.B., red.

[Raw materials for steelmaking] Syrye materialy v staleplavil'nom proizvodstve. Cheliabinsk, IUzhno-Ural'skoe knizhnoe izd-vo, 1964. 77 p. (MIRA 18:5)