SOV/19-58-6-25/685

AUTHORS: Verkhovskiy, I.M.; Pushkarskiy, S.M.; Gorbachev, V.S.; Muzylev, G.A. and Fridman, I.A.

TITLE: A Method of Obtaining Flushing Liquid (Sposub polucheniya promyvochnogo rastvora)

PERIODICAL: Byulleten' izobreteniy, 1958, Nr 6, p 10 (USSR)

ABSTRACT: Class 5a, 31. Nr 113504 (575172/MNP-2991 of 15 July 1955). Submitted to the Ministry of Petroleum Industry of USSR. 1) A method of obtaining a flushing liquid (consisting of a filler, clay, and reagents) for well drilling. To improve the quality by regeneration of the filler, the spent clay solution will be diluted with water to a specific weight of 1.25-1.3, and concentrated in a hydraulic cyclone with separation of the filler into the sand fraction. Large rock particles will then be eliminated from the mass on a sieve, and the remaining clay separated

Card 1/2

A Method of Obtaining Flushing Liquid SOV/19-58-6-25/685

in a classifier. 2) A method variation, with addition of chemical reagents, e.g. an alkaly-coal reagent, and subsequent separation of the drilled rock and surplus water.

Card 2/2

GENDZ.TKHADZE, T.L.; VERKHOVSKIY, I.M.; DZHOASHVILI, Zh.I.

Using induction heating in heat treatment of piston pins. Avt. prom. no.9:34-35 S '58. (MIRA 11:10)

1.Kutaisskiy avtozavod imeni Ordzhonikidze.
(Induction heating) (Steel--Heat treatment)

SOV/137-58-10-20391

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 6 (USSR)

AUTHORS: Verkhovskiy, I. M., Vinogradov, N. N., Arutinov, O. M.

TITLE: Use of Nucleonic Methods (Gamma and Neutron Radiations) for the Investigation and Automation of the Pulsator Jigging Process [Primeneniye yadernykh metodov (gamma- i neytronnykh izlucheniy) dlya issledovaniya i avtomatizatsii protsessa otsadki]

PERIODICAL: Nauchn. dokl. vyssh. shkoly. Gorn. delo, 1958, Nr 1, pp 263-274

ABSTRACT: The following methods are developed: 1) The method of γ location, permitting continuous recording of the characteristics of the spatial movement of the grains in the bed of the pulsator jigging machine; 2) the method of determining density at various points in the bed; 3) methods of determining the degree of looseness of the bed. Variants of designs of automatic regulators to maintain these parameters at constant levels are developed. A pick-up design for an automatic regulator for determining medium density was developed and was tested under industrial conditions with encouraging results.

Card 1/1 1. Ores--Processing 2. Radiation--Applications 3. Industrial equipment--Control systems

M. M.

VERKHOVSKIY, I.M., prof., doktor tekhn.nauk; VINOGRADOV, N.N., dots., kand. tekhn.nauk; ARUTINOV, O.M., inzh.

Movement of mineral particles at the bottom of a jugging machine. Nauch. dokl. vys. shkoly; gor. delo no.3:248-252 '58. (MIRA 11:9)

1.Predstavlena kafedroy obogashcheniya Moskovskogo gornogo instituta im. I.V. Stalina.
(Ore dressing)

SOV/136-58-8-1/27

AUTHORS: Verkhovskiy, I.M. and Shokhin, V.N.

TITLE: Method of Determining Final Fall Velocities of Grains in Heavy Moving Media. (Metod opredeleniya konechnykh skorostey padeniya zeren v tyazhelykh podvizhnykh sredakh.)

PERIODICAL: Tsvetnyye Metally, 1958, Nr.8, pp.1-4 (USSR).

ABSTRACT: For determining the falling velocities of particles in opaque media (suspensions) visual methods are unsuitable and various electrical systems have been proposed. The authors list the disadvantages of three of these - that of Mitrofanov and Zelinskiy (Ref.1), of Muzylev (Ref.2) and of Goroshko (Ref.3). They go on to describe their own method which is free from many of the listed defects. The electrical part of the method is an improvement on that of the tensometer designed by the Moskovskiy gornyy institut (Moscow Mining Institute). The principle is that as a ferromagnetic grain passes the centre line of an induction core it causes a change in the inductive resistance of the coil, which unbalances the bridge circuit of which the coil forms a part. The impulse is amplified and registered with a millivoltmeter; the same occurs when

Method of Determining Final Fall Velocities of Grains in Heavy Moving Media.

the grain passes a second coil. An oscillographic record (Fig.2) or other means can be used for timing the grain over the distance. An editorial note points out that the authors have not taken into account the difference in suspension speed at the walls and centre of the tube of their apparatus (Fig.1). The authors claim that the apparatus enables the falling speed of grains in heavy media, including ferromagnetic suspensions, moving at a constant speed, to be determined, and suggest that the method could be applied to study grain motion in true solutions as well as suspensions. There are 2 figures, 1 table and 4 Soviet references.

ASSOCIATION: Moskovskiy gornyy institut (Moscow Mining Institute).

1. Grains (Metallurgy)--Theory 2. Grains (Metallurgy)--Testing equipment 3. Grains (Metallurgy)--Test results

VERKHOVSKIY, I.M., prof., VINOGRADOV, N.N., dotsent; ARUTINOV, O.M., inzh.

Using nuclear methods (gamma and neutron radiations) for the investigation and automatization of the jigging process. Nauch. dokl. vys. shkoly; gor. delo no.1:263-264 '58. (MIRA 11:6)

1.Predstavlena kafedroy obogashcheniya poleznykh iskopayemykh Moskovskogo gornogo instituta.
(Ore dressing) (Radioisotopes)

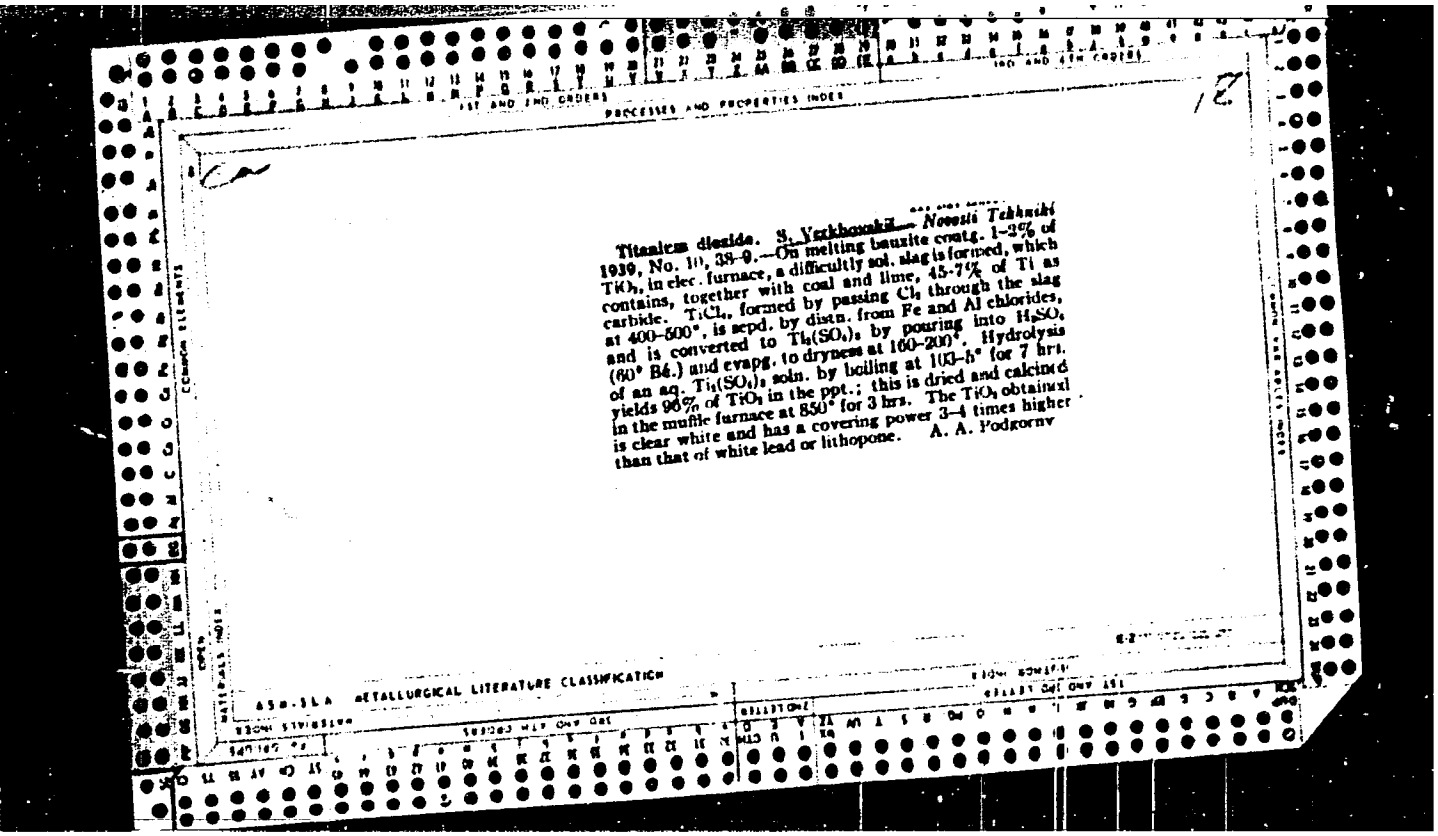
VERKHOVSKIY, N., vrach (Moskva)

Thoughts about cancer. Izobr. i rats. no.7:46-47 '63. (MIRA 16:9)

(Cancer research)

ABDULIN, A.; ALEKSEYEV, I.; BANTLE, O.; BOBROV, L.; BOZHANOV, B.; BOYKO, V.; BONDAREV, K.; BORZOV, V.; VERKHOVSKIY, N.; GUBAREV, V.; GUSHCHEV, S.; DEBABOV, V.; DIKS, R.; DMITRIYEV, A.; ZHIGAREV, A.; ZEL'DOVICH, Ya.; ZUBKOV, B.; IRININ, A.; IORDANSKIY, A.; KITAYGORODSKIY, P.; KLYUYEV, Ye.; KLYACHKO, V.; KOVALEVSKIY, V.; KNORRE, Ye.; KONSTANTINOVSKIY, M.; LADIN, V.; LITVIN-SEDOY, M.; MALEVANCHIK, B.; MANICHEV, G.; MEDVEDEV, Yu.; MEL'NIKOV, I.; MUSLIN, Ye.; NATARIUS Ya.; NEYFAKH, A.; NIKOLAYEV, G.; NOVOMEYSKIY, A.; OL'SHANSKIY, N.; OS'MIN, S.; PODOL'NYY, R.; RAKHMANOV, N.; REPIN. L.; RESHETOV, Yu.; RYBCHINSKIY, Yu.; SVOREN', R.; SIFOROV, V.; SOKOL'SKIY, A.; SPITSYN, V.; TEREKHOV, V.; TEPLOV, L.; KHAR'KOVSKIY, A.; CHERNYAYEV, I.; SHAROL', L.; SHIBANOV, A.; SHIBNEV, V.; SHUYKIN, N.; SHCHUKIN, O.; EL'SHANSKIY, I.; YUR'YEV, A.; IVANOV, N.; LIVANOV, A.; FEDCHENKO, V.; DANIN, D., red.

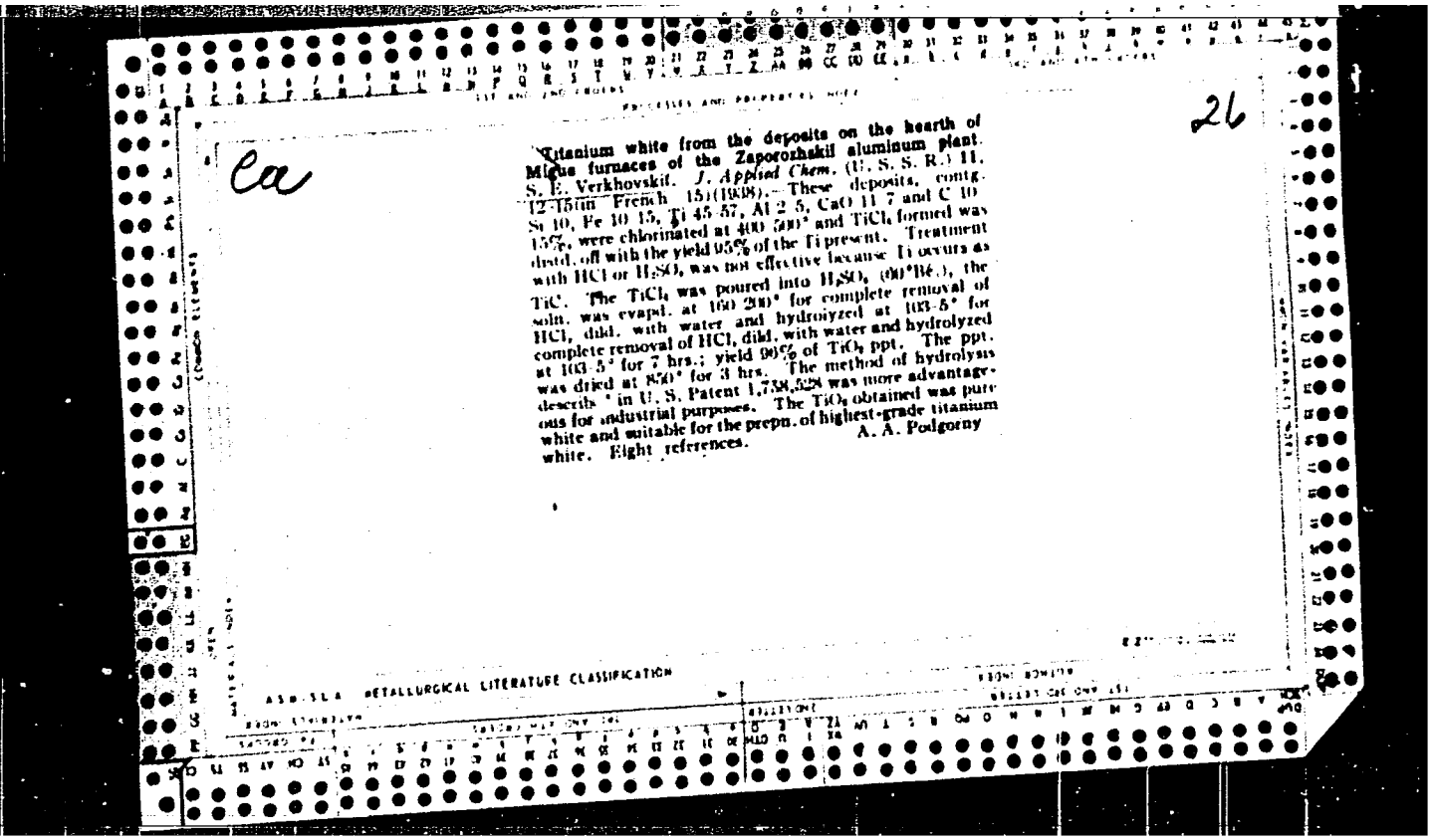
[Eureka] Evrika. Moskva, Molodaia gvardiia, 1964. 278 p. (MIRA 18:3)



Titanium dioxide. S. Yerkhovskii. *Novosti Tekhniki* 1939, No. 10, 38-9.—On melting bauxite contg. 1–2% of TiO_2, in elec. furnace, a difficultly sol. slag is formed, which contains, together with coal and lime, 45-7% of Ti as carbide. $TiCl_4$, formed by passing Cl_2 through the slag at 400–500°, is sepd. by distn. from Fe and Al chlorides, and is converted to $Ti_2(SO_4)_3$ by pouring into H_2SO_4 (60° Bé.) and evapg. to dryness at 160–200°. Hydrolysis of an aq. $Ti_2(SO_4)_3$ soln. by boiling at 103–5° for 7 hrs. yields 96% of TiO_2 in the ppt.; this is dried and calcined in the muffle furnace at 850° for 3 hrs. The TiO_2 obtained is clear white and has a covering power 3–4 times higher than that of white lead or lithopone. A. A. Podgorny

VERKHOVSKIY, S.Ye. (g. Kurgan-oblastnoy)

Certain definitions of chemical concepts. Khim. v shkole 9 no.6: 70-72 N-D '54. (MLRA 8:1)
(Chemistry--Study and teaching)



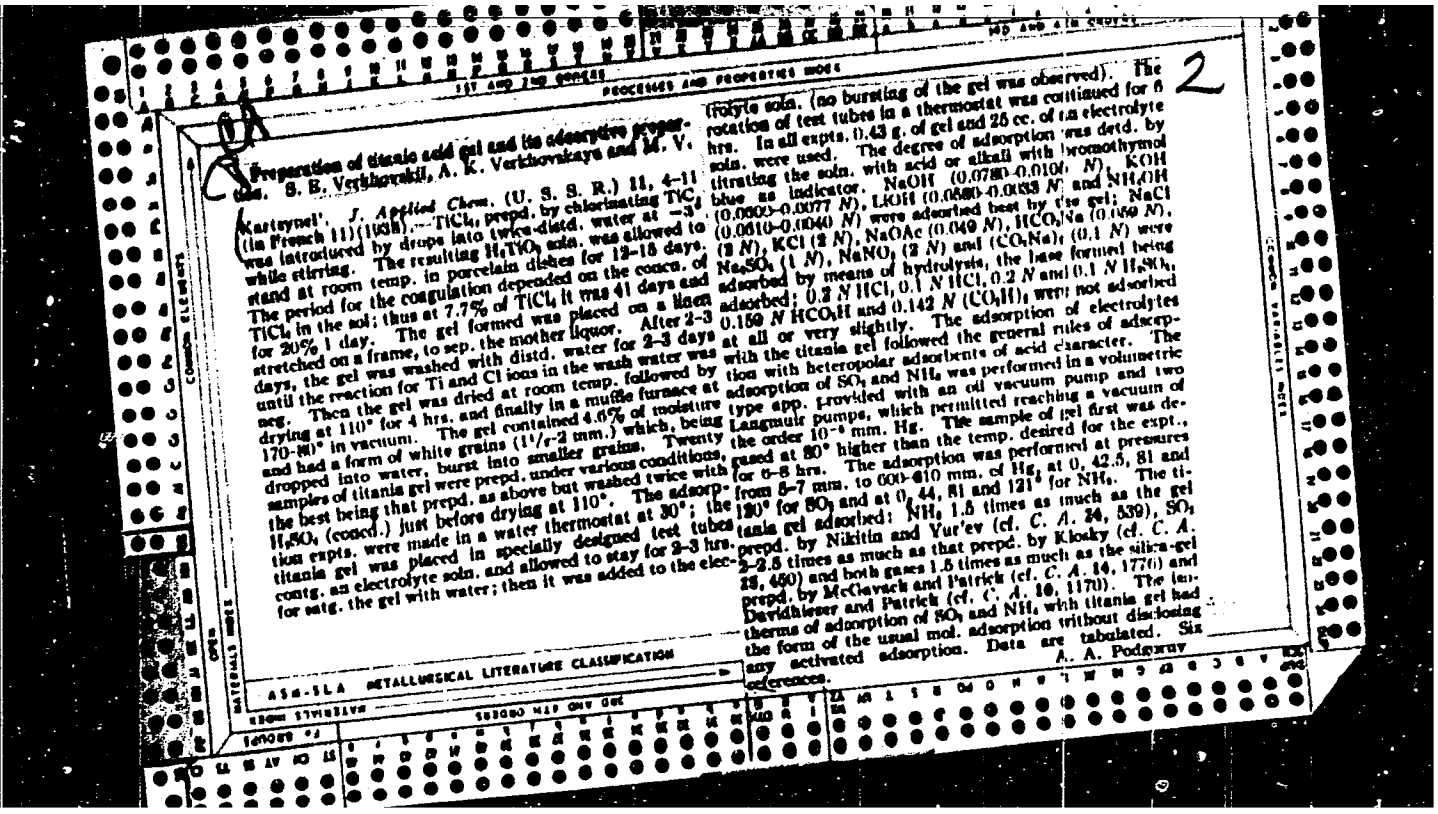
Ca

26

Titanium white from the deposits on the hearth of Mg-Na furnaces of the Zaporozhskii aluminum plant. S. E. Verkhovskii. *J. Applied Chem.* (U. S. S. R.) 11, 12-15tin French 15)(1938).—These deposits, contg. Si 10, Fe 10 15, Ti 45 57, Al 2 5, Ca(O 11 7 and C 10 15%, were chlorinated at 400 500° and $TiCl_4$ formed was distd. off with the yield 95% of the Ti present. Treatment with HCl or H_2SO_4 was not effective because Ti occurs as TiC. The $TiCl_4$ was poured into H_2SO_4 (60°Bé.), the soln. was evapd. at 160 210° for complete removal of HCl, dild. with water and hydroiyzed at 103-5° for complete removal of HCl, dild. with water and hydrolyzed at 103-5° for 7 hrs.; yield 90% of TiO_2 ppt. The ppt. was dried at 850° for 3 hrs. The method of hydrolysis described in U. S. Patent 1,738,528 was more advantageous for industrial purposes. The TiO_2 obtained was pure white and suitable for the prepn. of highest-grade titanium white. Eight references.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



2

Preparation of titania acid gel and its adsorptive properties. S. B. Verkhovskii, A. K. Verkhovskaya and M. V. Kartsynel'. *J. Applied Chem.* (U. S. S. R.) 11, 4–11 (in French 11)(1938).—$TiCl_4$, prepd. by chlorinating TiC, was introduced by drops into twice-distd. water at −3° while stirring. The resulting H_2TiO_3 soln. was allowed to stand at room temp. in porcelain dishes for 12–15 days. The period for the coagulation depended on the concn. of $TiCl_4$ in the sol; thus at 7.7% of $TiCl_4$ it was 41 days and for 20% 1 day. The gel formed was placed on a linen stretched on a frame, to sep. the mother liquor. After 2–3 days, the gel was washed with distd. water for 2–3 days until the reaction for Ti and Cl ions in the wash water was neg. Then the gel was dried at room temp. followed by drying at 110° for 4 hrs. and finally in a muffle furnace at 170–80° in vacuum. The gel contained 4.6% of moisture and had a form of white grains (1½–2 mm.) which, being dropped into water, burst into smaller grains. Twenty samples of titania gel were prepd. under various conditions, the best being that prepd. as above but washed twice with H_2SO_4 (concd.) just before drying at 110°. The adsorption expts. were made in a water thermostat at 30°; the titania gel was placed in specially designed test tubes contg. an electrolyte soln. and allowed to stay for 2–3 hrs. for satg. the gel with water; then it was added to the electrolyte soln. (no bursting of the gel was observed). The rotation of test tubes in a thermostat was continued for 6 hrs. In all expts. 0.43 g. of gel and 25 cc. of the electrolyte soln. were used. The degree of adsorption was detd. by titrating the soln. with acid or alkali with bromothymol blue as indicator. NaOH (0.0780–0.0100 *N*) KOH (0.0009–0.0077 *N*), LiOH (0.0080–0.0033 *N*) and NH_4OH (0.0010–0.0040 *N*) were adsorbed best by the gel; NaCl (2 *N*), KCl (2 *N*), $NaNO_3$ (2 *N*) and $(CO_2Na)_2$ (0.1 *N*) were adsorbed by means of hydrolysis, the base formed being adsorbed; 0.2 *N* HCl, 0.1 *N* HCl, 0.2 *N* and 0.1 *N* H_2SO_4, 0.150 *N* HCO_2H and 0.142 *N* $(CO_2H)_2$ were not adsorbed at all or very slightly. The adsorption of electrolytes with the titania gel followed the general rules of adsorption with heteropolar adsorbents of acid character. The adsorption of SO_4 and NH_4 was performed in a volumetric type app. provided with an oil vacuum pump and two Langmuir pumps, which permitted reaching a vacuum of the order 10^{-4} mm. Hg. The sample of gel first was degased at 80° higher than the temp. desired for the expt., for 6–8 hrs. The adsorption was performed at pressures from 5–7 mm. to 600–610 mm. of Hg, at 0, 42.5, 81 and 120° for SO_2 and at 0, 44, 81 and 121° for NH_3. The titania gel adsorbed: NH_3 1.5 times as much as the gel prepd. by Nikitin and Yur'ev (cf. *C. A.* 34, 539), SO_2 2–2.5 times as much as that prepd. by Klosky (cf. *C. A.* 28, 450) and both gases 1.5 times as much as the silica-gel prepd. by McClavack and Patrick (cf. *C. A.* 14, 1770) and Davidhieser and Patrick (cf. *C. A.* 16, 1170). The isotherms of adsorption of SO_2 and NH_3 with titania gel had the form of the usual mol. adsorption without disclosing any activated adsorption. Data are tabulated. Six references.

A. A. Podgorny

A56-SLA METALLURGICAL LITERATURE CLASSIFICATION

GOROSHKO, D. (Khar'kov); VERKHOVSKIY, V. (Khar'kov)

Centralized cutting out of leather goods for repair shops. Prom. koop. 12 no.7:6-7 Jl '58. (MIRA 11:8)

1.Predsedatel' pravleniya oblbytpromsoyuza (for Goroshko). 2.Glavnyy inzhener oblbytpromsoyuza (for Verkhovskiy).
(Kharkov Province--Boots and shoes--Repairing)

PISANKO, S.P. [Pysanko, S.P.], kand.tekhn.nauk; MURGIA-YELORSA, N.A. [Murhia-Elorsa, N.A.], kand.sel'skokhoz.nauk; VERKHOVS'KIY, V.M. [Verkhovs'kyi, V.M.], inzh.

Using hydraulic drills in growing farm crops. Mekh. sil'. hosp. 14 no.4:13-14 Ap '63. (MIRA 16:10)

KOMAROV, V. M., inzh.; VERKHOVSKIY, V. M., inzh.

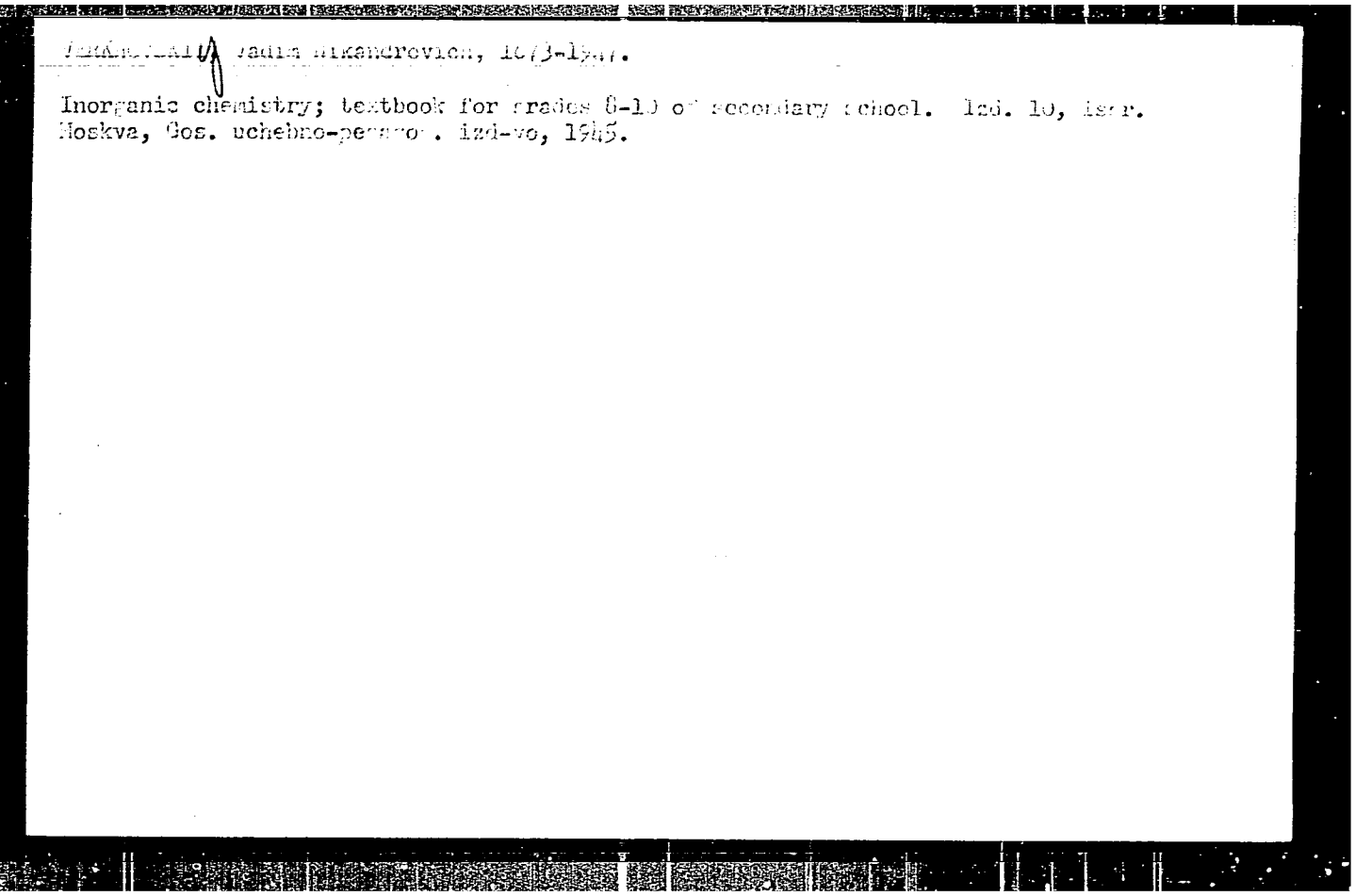
Mechanization of transportation, storage, and placement of ammonia in the U. S. A.; a review. Zemledelie 24 no.12:80-82 D '62. (MIRA 16:1)

(United States—Ammonia as fertilizer)

VERKHOVSKIY, V.M., inzh.

Machinery for the placement of liquid nitrogen fertilizers.
Mekh. i elek.sots.sel'khoz. no.4:56-58 '57. (MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Fertilizer spreaders)



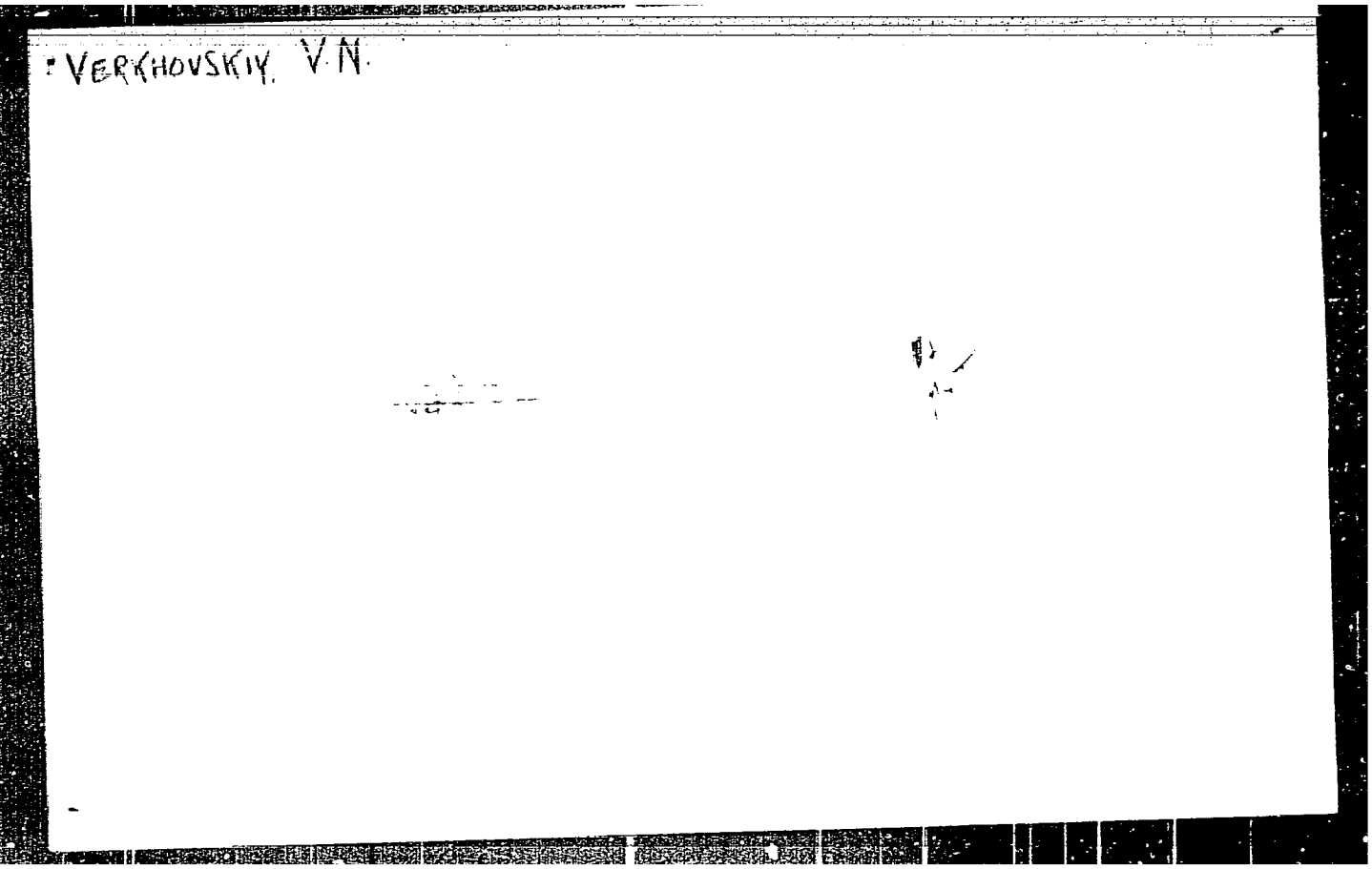
[illegible] Vadim Aleksandrovich, 1873-1[illegible].

Inorganic chemistry; textbook for grades 8-10 of secondary school. Izd. 10, ispr. Moskva, Gos. uchebno-pedagog. izd-vo, 1945.

VERKHOVSKIY, V.N.

[Technique and methodology of chemical experiments in school] Tekhnika i metodika khimicheskogo eksperimenta v shkole. Moskva, Gos.uchebno-pedagogicheskoe izd-vo Ministerstva prosveshcheniia RSFSR. Vol. 1 [Apparatus, materials, work methods and description of experiments] Pribory, materialy, npiemy raboty i opisanie opytov. Izd.5. 1953. 554 p. (MLRA 6:12)

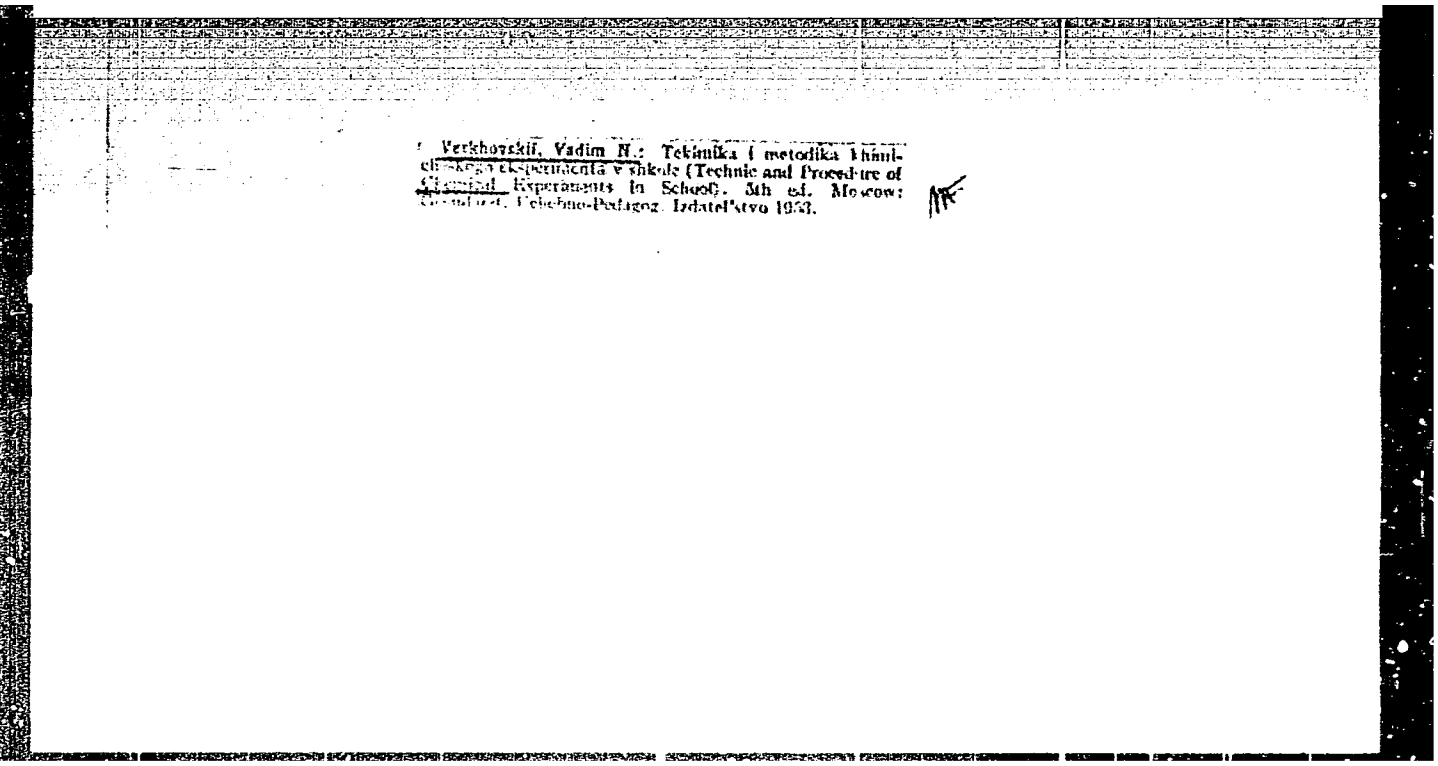
(Chemistry--Experiments)



VERKHOVSKIY, V.N.

[Technique and methodology of chemical experiments in school] Tekhnika i metodika khimicheskogo eksperimenta v shkole. Moskva, Gos.uchebno-pedagogicheskoe izd-vo Ministerstva prosveshchenila RSFSR. Vol. 1 [Apparatus, materials, work methods and description of experiments] Pribory, materialy, rpiemy raboty i opisanie opytov. Izd.5. 1953. 554 p. (MLRA 6:12)

(Chemistry--Experiments)



Verkhovskiĭ, Vadim N.: Tekhnika i metodika khimicheskogo eksperimenta v shkole (Technic and Procedure of Chemical Experiments in School). 5th ed. Moscow: Uchebno-Pedagog. Izdatel'stvo 1953.

VERKHOVSKIY, Vadim Nikandrovich

[Techniques and methods of chemical experiments in schools; a manual for teachers and students in teachers' colleges] Tekhnika i metodika khimicheskogo eksperimenta v shkole; posobie dlia prepodavatelei i studentov pedagogicheskikh vuzov. Izd.6., perer. i dop. Moskva, Gos.uchebno-pedagog. izd-vo, 1959. (MIRA 13:1)

(Chemistry--Experiments)

[redacted], VADIM NIKANDROVICH

Science

Organic chemistry. Moskva, Gos. uchebno-pedagog. izd-vo, 1948.

Monthly List of Russian Accessions, Library of Congress April 1952. Unclassified.

ZHODZISHSKIY, I.I., kand. tekhn. nauk; VERKHOVSKIY, V.S., inzh.

Temperature deformations of heated panels for coverings of industrial buildings. Prom. stroi. 41 no.1:33-37 Ja '64. (MIRA 17:6)

VERKHOVSKIY, V. V.

6783. Verkhovskiy, V. V. [illegible] Kiseleva, A. K. Kormovyye kul'tury. Penza, Kn. izd., 1954. 87 s. s. ill. 20 sm. 3.000 ekz. 1 r. 15 k.— (55-2859) P 633.2/4(47.398)

SO: Knizhnaya Letopis' No. 6, 1955

VERKHOVSKIY, Ya.I.; ANTONOVA, A.V.; BAKHTIOZIN, R.A.

Groups for analyzing technical documentation. Avtom., telem. i svyaz' 9 no.12:32-34 D '65.

(MIRA 19:1)

1. Glavnyy inzh. sluzhby signalizatsii i svyazi Gor'kovskoy dorogi (for Verkhovskiy). 2. Starshiy inzh. otdela signalizatsii, tsentralizatsii, blokirovki i svyazi Kazakhskoy dorogi (for Antonova). 3. Starshiy inzh. dorozhnoy laboratorii otdela signalizatsii, tsentralizatsii, blokirovki i svyazi Kazakhskoy dorogi (for Bakhtiozin).

VERKHOVSKIY, Yu.N.

Seventh Congress of the Medical Workers of Yaroslavl Province.
Zdrav. Ros. Feder. 7 no.8:47 Ag '63. (MIRA 16:10)

1. Zaveduyushchiy sektorom planirovaniya Yaroslavskogo oblastnogo otdela zdravookhraneniya.
(YAROSLAVL PROVINCE—PUBLIC HEALTH—CONGRESSES)

VERKHOVSKIY, Yu.N.

Prospects for Yaroslavl Province public health development in the period 1959-1965. Zdrav.Ros.Feder. 3 no.1:14-16 Ja '59.
(MIRA 12:2)

1. Iz Yaroslavskogo oblastnogo otdela zdravookhraneniya.
(YAROSLAVL PROVINCE--PUBLIC HEALTH)

VERKHOVSKIY, Yu.N. (Yaroslavl').

Further extension of the rights of directors of public health agencies and institutions. Zdrav. Ros. Feder. 2 no.8:9-11 Ag '58 (MIRA 11:10)
(PUBLIC HEALTH)

VERKHOVSKIY, Yu.N.

Sixth Congress of Medical Personnel of Yaroslavl Province. Zdrav. Ros. Feder. 5 no.6:42-43 Je '61. (MIRA 14:6)
(YAROSLAVL PROVINCE--MEDICAL PERSONNEL)

VERKHOVSKIY, Yu.N.

Yaroslavl Province Public Health Department welcomes young specialists.
Zdrav.Ros.Feder. 4 no.11:45 '60. (MIRA 13:11)
(YARCSLAVL PROVINCE--PHYSICIANS)

VERKHOVSKOY, I.

Wrote about Ministry of Automobile Transport of the RSFSR MOSKOVSKAYA o., RSFSR

Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. TI 10 2548

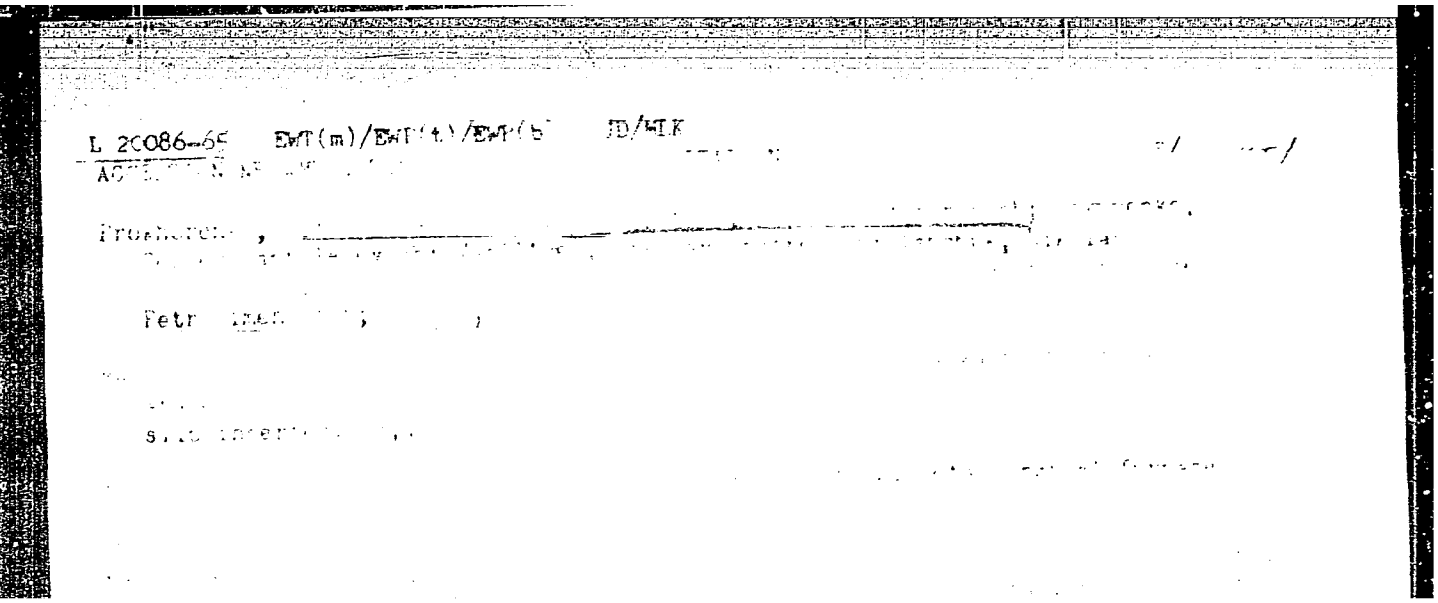
VERKHOVSKOY, I.; KARPUSHENKOV, V.

Conference on the outlook for the over-all development of the the transportation system. Avt.trasp. 39 no.10:31-34 O '61.
(MIRA 14:10)

(Transportation)

VERKHOVTSEV, M.V.; KHAN, B.Kh.; GUS'KOV, K.M.; GUSHCHIN, Ye.P.; MOROZENSKIY, A.I.

Deoxidation and alloying of steel by solid ferroalloys in laddles. Mul. tekh.-ekon. inform. no.1:12-16 '57. (MIRA 11:4)
(Steel--Metallurgy)

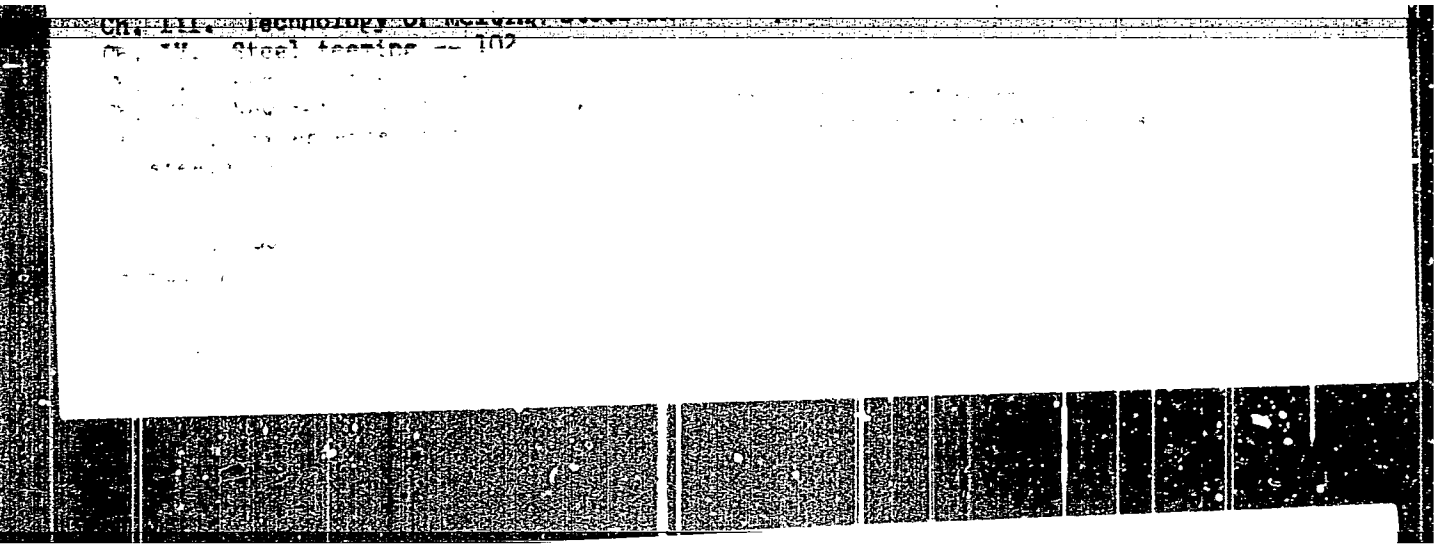


L 20086-65 EWT(m)/EWT(t)/EWP(b JD/WLK

L 20086-65

ACCESSION NR AM4049548

The book is intended for engineers and technicians working in the production of



S/133/61/000/007/001/017
A054/A129

Heating ingot heads by exothermic mixtures

tures containing saltpeter are, therefore, better than those made with ferrooxides (smoking mixtures). Mixtures consisting of ferro-oxides and aluminum have a high exothermic effect, but only when the aluminum content is between 10 - 20 %, while the high ferro-oxide content results in the formation of white spots. A suitable composition can be obtained with calcium silicate, displaying a high inflammability both with ferro-oxides and saltpeter, thus they can be made "non-smoking", while the high calcium silicate content maintains the reducing atmosphere which in turn prevents the formation of white spots. In order to establish the optimum method of feeding the mix into the ingot head, it was partly introduced in one layer (as done in the zavod Serp i Molot = Sickle and Hammer Plant) and in two layers (as in the Vitkovitskiy plants; Abstracter's note: Czechoslovakia), using the mixtures of these two plants (70Ф20С = 70F20S and 35Ф15С20С = 35F15S20S). A better macrostructure was obtained by applying the mix in two layers. In the subsequent tests only this method was used therefore. Enlarging the ingot head to 18% when using exothermic heating increases the number of sub-skin defects. The head should therefore not be more than 13%. In order to define the optimum shape of the ingot head, four inserts were tested: a double-conical one with a volume of 12.5% ("A", on a 700 kg ingot) and three square inserts ("B", "C", "D", on 3.5 ton

Card 2/7

Heating ingot heads by exothermic mixtures

ingots) with volumes of 13%, 13.4%, and 13.5%, having a conicity of 10.5, 18.5 and 24%, respectively. The optimum chemical homogeneity in the metal was obtained with the square insert having 10.5% conicity. In order to select the optimum heat-insulating substance, ash-drift, cupola-furnace ash, graphite, lime and mica flakes were tested. Their analysis (table 4) shows that the effect of the heat-insulating material depends, besides its actual insulating capacity, also on the ingot weight. In large ingots the best effect was obtained with ash, graphite and cupola-furnace ash, (i.e. substances with a low heat conductivity and low density). The smaller the ingot-weight, the less important is the insulating substance, because the solidification period of the ingot is nearly as long as the heat-insulating substance remains active. In spite of this, insulating materials should also be used in these ingots, because they improve the effect of the exothermic mixture. The chemical effect of heat-insulating substances was determined by the distribution of C, P, S and Si in templates and in the ladle. These tests were made with graphite (C: 89%), ash (C: 45%) and sand. The highest C and Si-liquation was found for ingots in which sand was used. When the mix is applied in a double-layer, at least 1.5 - 2.0 kg/t exothermic mix should be used for 3.0 - 3.5 t ingots and 1.0 - 1.5 kg/t for 0.7 t ingots, while ash should be used in an amount of 1.0 - 1.5 kg/t. The effect of the 11 selected exothermic mixtures was measured by the

Card 3/7

Heating ingot heads by exothermic mixtures

duration of their burning and their pyrometric properties (Table 7). According to these parameters exothermic mixes can be divided into 4 groups: 1) Л14 (L14) and Л28У (L28U) types, containing crushed charcoal and coke duff. They do not display visible pyrometric effect, and have a fairly high heat-insulating capacity. 2) 15СК15С (15SK15S) burns brightly and quickly but is not more efficient than type 1) mainly because it is employed in combination with ash. 3) $15A15C_2$ ($15A15S_2$) and $15A15S_3$ are the least efficient, while 4) $15A15S_1$, 70F20S and 50СК500 (50SK500) are between group 1) and 2); they display low and medium reaction rates and ensure a dense macrostructure with a cropping of 10 - 11%. The higher the pyrometric effect of the mix and the shorter time it is burning, the weaker is the heating of the ingot head. Therefore, in order to make the exothermic mix more effective, either delaying agents should be used to extend the burning time of the mix or secondary exothermic effects should be developed (when using, for instance, 50SK500, 70F20S). When these mixes with a higher Si-content are applied, the first phase of heating (during which the mixture is burning) is followed by the second phase of heating, during which silicon is diffused in the metal pores and the exothermic process takes place on account of silicon diffusion in the metal. Of the 11 test mixes the best results were obtained with $15A15S_1$, 50SK500 and 70F20S. They en-

Card 4/7

Heating ingot heads by exothermic mixtures

sured the highest degree of homogeneity and the densest macrostructure. When these mixes were used in combination with ash as heat-insulating agent, the head crop could be reduced to 10 - 12%. The use of the above-mentioned mixes and the 35F15SK20S type prevent the formation of white spots. With regard to hygienic conditions mixtures containing saltpeter can be used if special protective measures are taken. The 15A15S_1 mix requires adequate ventilation. The optimum mixture was found to be the 50SK500 type, being the cheapest (10.5 kp./kg), containing the minimum of components and being "non-smoking". When using for large ingots, its composition can still be improved when replacing 5 - 15% of the calcium silicate by 75% ferrosilicon. The tests were carried out with the participation of Ye. P. Gushin, V. I. Sarafanov, N. Ye. Vasil'yev, D. P. Oparin, Ye. G. Saprykin, A. I. Savintsev, M. N. Zhuravlev. There are 4 figures, 7 tables and 8 Soviet references.

ASSOCIATION: Izhevskiy metallurgicheskiy zavod (Izhevsk Metallurgical Plant)

Card 5/7

S/137/62/000/001/075/237
A060/A101

AUTHORS: Savel'yev, D. F., Verkhovtsev, E. V., Vysotin, S. G.

TITLE: Rolled elongated ingots

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 3, abstract 1D13 (V sb. "Stal'". Moscow, Metallurgizdat, 1961, 279 - 286)

TEXT: Elongated ingots of open-hearth steel with H/D = 3.05 - 8.1 and weight 0.35 - 5.7 tons (the weight of an ordinary ingot having approximately the same cross section and head dimensions constitutes 2.9 tons) were tested at the Izhevsk metallurgical plant. The head of an elongated ingot occupies a relatively lesser volume and, besides, may be better utilized; the shrink-hole does not pass beyond its limits and the head rimming is considerably reduced. The chemical homogeneity and macrostructure of the elongated ingots turned out to be satisfactory; no greater liquation or height variations in the mechanical characteristics were discovered, as compared with ordinary ingots. The heating up of elongated ingots in the furnace is realized faster than that of ordinary ingots of like weight, ensuring (for a 3.05 ton ingot, when compared with an ordinary ingot) an increase in the productivity of the blooming mill by 10.4%, reduction

Card 1/2

S/137/62/000/001/075/237
A060/A101

Rolled elongated ingots

of the heating time by 1 hr, reduction in the specific expenditure of reference fuel by 10 - 14 kg/ton. The specific electric power expenditure for rolling elongated ingots is lower than that of ordinary ingots (22.9 as compared with 28.8 kwhr/ton). Ingots of 3.05 and 3.5 tons, for casting of which no extensive equipment alterations are required, are being introduced into mass production. 2.0-ton elongated ingots of various electric steels have also been investigated.

Ye. Bukhman

[Abstracter's note: Complete translation]

Card 2/2

PROKHORENKO, K.K.; VASIL'YEV, N.Ye.; ISHCHUK, N.Ya.; VERKHOVTSEV, E.V.

Reducing nonmetallic inclusions in roller-bearing steel. Vop. proizv.stali no.7:94-116 '60. (MIRA 13:8)
(Steel--Defects)
(Bearing metals--Defects)
(Nonmetallic materials)

VERKHOVTSEV, E.V.; PROKHORENKO, K.K.; MIKHAYLOV, A.S.

Effect of the speed of pouring on the quality of steel ingots. (MIRA 13:8)
Vop.proizv.stali no.7:74-81 '60.
(Steel ingots) (Metallurgical plants--Quality control)

18(5) PHASE I BOOK EXPLOITATION SOV/1907

Akademiya nauk Ukrainskoy SSR. Kiyev Otdeleniye tekhnicheskikh nauk

Voprosy proizvodstva stali vyp.6 (Problems of Steel Production, Nr 6) Kiyev, Izd-vo AN Ukrainskoy SSR, 1958. 137 p. Errata slip inserted. 2,000 copies printed.

Resp. Ed.: N.N. Dobrokhotov, Academician, Ukr. SSR Academy of Sciences; Ed. of Publishing House: N.M. Labinova; Tech. Ed.: V.I. Yurchishin.

PURPOSE: This book is intended for engineers and scientific personnel in the field of steel production.

COVERAGE: This is a collection of articles dealing with various aspects of the production of steel, including the designing of open-hearth furnaces, thermal processes in the furnaces, thermodynamics of steel-making processes, technology of producing high-grade steel, and changes in the size and shape of ingots. Other topics discussed are the properties of chrome-manganese stainless steels, improvement of ball-bearing steel, ingot defects, ingot quality as determined by temperature of teeming and shape of mold, and certain aspects of steel rolling. Some of the articles are accompanied by references, both Soviet and non-Soviet.

Khan, B. Kh., and N.P. Nakonechnyy. Investigation of the Properties of Chrome-Manganese Stainless Steels 41

Prokhorenko, K.K., and E.V. Verkhovtsev. Improving the Quality of ShKh15 Ball-bearing Steel 49

Verkhovtsev, E.V., and K.K. Prokhorenko. Ingot Defects Caused by Skin Folds Forming During the Teeming of Steel 68

Prokhorenko, K.K., P.K. Timokhov, E.V. Verkhovtsev, and V.A. Vyshkovskiy. Exothermic Mixture for [Heating] Hot Tops of Steel Castings 77

Yefimov, V.A., M.P. Sabiyev, and V.P. Grebenyuk. Effect of the Hydrodynamics of the Inflow of Liquid Steel Into the Ingot Mold on Ingot Quality 87

Yefimov, V.A., V.I. Danilin, M.P. Lapshova, V.P. Grebenyuk, and A.A. Kiselev. Effect of Teeming Temperature and Mold Shape on the Quality of Steel Ingots 96

Yefimov, V.A., M.P. Sabiyev, and V.P. Osipov. Reduction of Head and Butt Crops in the Rolling of Ingots 110

Yefimov, V.A., V.P. Osipov, and A.K. Malashko. An Investigation of the Conditions for Rolling Sheet Bar With Wavy Surfaces 123

Fedorovich, V.G. Experiments in the Conversion of High-phosphorus Pig Iron in a Converter With Side Blast of Oxygen 130

AVAILABLE: Library of Congress

GO/bg
7-20-59

Card 4/4

PROKHORENKO, K.K.; SVISTUNOV, A.M. [deceased]; VVEDENSKIY, V.S.; VERKHOV-TSEV, E.V.; YEMEL'YANENKO, Yu.G.; NAKONECHNYY, N.F.; PASTUKHOV, V.N.

Improving the technology of smelting and pouring stainless steel. Vop. proizv. stali no.9:51-64 '63. (MIRA 16:9)

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 6, p 62 (USSR) SOV/137-57-6-9745

AUTHORS: Khan, B.Kh., Verkhovtsev, E.V.

TITLE: The Quality of Chromium Steel Deoxidized and Alloyed in the Ladle by Solid Ferroalloys (Kachestvo khromistoy stali, raskislennoy i legirovannoy v kovshe tverdymi ferrosplavami)

PERIODICAL: V sb.: Vopr. proiz-va stali. Nr 4. Kiyev, AN UkrSSR, 1956, pp 3-13

ABSTRACT: Nr 40Kh chromium steel is smelted in solid-metal heats in 40-t open-hearth furnaces with chemically-bonded magnesite chrome roof. All the ferroalloys are introduced into the metal via the runner during the tapping of the heat. Nr 4 or Nr 6 Fe-Cr is used for alloying in amounts of 1.2-1.3% of the weight of the heat; the amount of Fe-Mn is 0.7-0.8% and that of 45% Fe-Si is 0.4-0.6%. Introduction of all the ferroalloys into the metal ends when the ladle is half full. Prior to teeming, the metal is held in the ladle for 7-10 min. After the Fe-Cr, 200-250 g Al is added per t steel. The temperature of the metal fluctuates in the 1620-1650°C range, and the metal is bottom poured into 3-t ingots. Chemical analysis of samples

Card 1/2

taken during pouring showed that in the first sample the Cr, Mn, Si, and C contents show practically no difference from the contents of these elements in subsequent samples. Distribution of Cr in the ingots is also uniform. Study of the macrostructure revealed a more compact structure in the experimental ingots. The number of templets without scattered-spot segregation is 43% in the test heats as against 22% in ordinary heats. Fractures are identical. The mechanical properties completely satisfy the Technical Specifications. The quantity of nonmetallic inclusions is identical in test heats with that in standard heats. In the test metal, [H] was 6.0-6.2 cc/600 g as against 7.0 in standard heats. No rolling flakes or seams were observed; neither is slow cooling noted. The hardenability of the test metal satisfies the specifications for Nr 40Kh steel. The surface quality of ingots is virtually identical in the experimental and regular heats. Rejects due to lamination come to 7.5% as against 30% in standard heats. Rejects due to cracks and internal fissures are identical. Ferroalloy savings in test heats due to reduction in burnt steel cut the cost per t of 40Kh steel by 13 rubles. The absence of a deoxidation and alloying period in the furnace cut the time required for the test heats by 15-20 min.

Card 2/2 V.G.

SOV/128-59-11-5/24

18 (5, 7)

AUTHORS: Prokhorenko, K.K., Candidate of Technical Sciences, and Verkhovtsev, E.V., Engineer

TITLE: Improving the Quality of Precision Steel Castings

PERIODICAL: Liteynoye proizvodstvo, 1959, Nr 11, pp 10-11 (USSR)

ABSTRACT: Production of precision steel castings with the use of smelted models is performed at the Izhevsk Engineering Plant by application of models fashioned from a mixture of paraffin and stearin (70 : 30). The units are cast, chiefly, from carbon steels, brands 10-50 L. After the melting of metal, the slag is removed and ferromanganese, ferrosilicon and aluminum (0.1%) are added. When casting by using this method, the quality of the product received does not always meet the requirements due to the appearance of gas bubbles, cracks and other defects in the casting. These defects ensue owing to oxidation of iron as well as of elements-deoxidizers - manganese, silicon and aluminum - by the oxygen contained in the air. In order to pre-

Card 1/2

Improving the Quality of Precision Steel Castings

vent the admission of oxygen, slags of different compositions were added to the open metal surface. The best results were obtained when a mixture of sand with soda (4 : 1) or sand with admixture of boric acid (1-1.5%) was used. There are 3 tables and 2 photographs.

BAKUMENKO, S.P.; SVISTUNOV, A.M.; VERKHOVTSEV, E.V.

Steel pouring under a protective layer of mica. Metallurg 6 no.9:17-18 S '61. (MIRA 14:9)
(Steel ingots)

L 15577-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG 63

S/2921/63/000/009/0051/0064

ACCESSION NR: AT3002167

AUTHORS: Prokhorenko, K. K.; Svistunov, A. K. (deceased); Vvedenskiy, '. S.; Verkhovtsev, E. V.; Yemel'yanenko, Yu. G.; Nakonechnyy, N. F.; Pastukhov, V. N.

TITLE: Technological ... melting and pouring of stainless steel 18

... to 0.05% and that of Cr to 12.?%. The slag formed was fluid, homogeneous, ... contained 48.6% Cr_2O_3. The amount of silicochrome, which was introduced at the end of blowing, was calculated in such a way that the metal contained 3% Si and

Card 1/2

L 15577-63

ACCESSION NR: AT3002167

1.5% of lime by weight of metal. After 10 minutes 15% (wt.) of blooms were intro- [illegible] for the [illegible] crucibles for the melting of stainless steel [illegible] carbon by using carbon ferrochrome [illegible] high-chromium slag without the use of carbon-free ferrochrome. The [illegible] method [illegible] on the formation of a slag layer on the [illegible] oxidation in the ingot. Moreover, the [illegible] walls, thus serving as a lubricant that protects the walls. It also dissolves floating nonmetallic inclusions and prevents formation of [illegible] by moderating the surface [illegible] figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 10May63

ENCL: 00

SUB CODE: ML

NO REF SOV: 004

OTHER: 001

Card 2/2

PROKHORENKO, K.K.; ISHCHUK, N.Ya.; VVEDENSKIY, V.S.; VASIL'YEV, N.Ye.; VERKHOVTSEV, E.V.

Reducing the contamination of electrical steel by hair cracks and nonmetallic inclusions. Vop.proizv.stali no.8:55-69 '61. (MIRA 14:6)

(Steel—Defects)

VERKHOVTSEV, E.V.

B/137/61/000/011/027/123
A060/A101

AUTHORS: Prokhorenko, K.K., Ishchuk, N.Ya., Vvedenskiy, V.S., Vasil'yev, N. Ye., Verkhovtsev, E.V.

TITLE: Reduction of the contamination of electric steel by fine cracks and non-metallic impurities

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 53, abstract 11V305 (V sb. "Vopr. proiz-va stali", no. 8, Kiyev, AN USSR, 1961, 55 - 69)

TEXT: Steel 30 XH 2 MΦA (30KhN2MFA) is smelted in 20-ton arc furnaces and is cast in 2-ton ingots. In connection with the fact that this steel is sensitive to fine cracks, a study was made of the influence of the reducing method upon formation of fine cracks, its nonmetallic impurity content and its mechanical characteristics. The following variants of the reduction method were tried out: diffusion reduction by 75% Fe-Si with the admixture of 0.5 kg Al per ton at the end of the heat; the same but with Al added before the admixture of Fe-Cr; "precipitation" reduction by 45% Fe-Si and 0.5 kg Al per ton at the end of the heat; the same with 1.5 kg Si-Cd per ton in the ladle; reduction of 45% Fe-

Card 1/2

Si and Al 1.0 kg/ton at the end of the heat; the same but with 1.5 kg Al per ton. The percentage by weight of nonmetallic impurities in the steel was the lowest at the increased Al admixture (1.0-1.5 kg/ton). It was established that the main reason for the formation of fine cracks in the steel 30KhN3MFA are large oxide impurities deformed in the direction of rolling; the oxide impurity content and the steel affection by cracks are reduced as one raises the quantity of Al introduced into the steel; the steel has the greatest contamination when the Al is added before introducing the Fe-Cr; the reduction method - diffusion of "precipitation" has no influence upon the quality of the steel; when Si-Cd is used for reducing the steel, the number of cracks is reduced but their size becomes greater; the mechanical characteristics are basically the same for all the variants of the reduction method. There are 15 references.

V. Boyarshinov

[Abstracter's note: Complete translation]

Card 2/2

PROKHORENKO, K.K.; VERKHOVTSEV, E.V.; KONYUKH, V.Ya.; MIKHAYLOV, A.S.

Slag conditions in the scrap process of steel smelting. Vop.proizv. stali no.8:78-87 '63. (MIRA 14:6)
(Steel--Metallurgy) (Slag)

NOSENKO, Aleksey Yermolayevich; VERKHOVTSEV, I., red.; MUKHIN, Yu., tekhn. red.

[Stars over the steppe]Zvezdy nad step'iu. Moskva, Gospolitizdat, 1961. 54 p. (MIRA 15:11)
(Collective farms--Officials and employees)

NOSENKO, Aleksey Yermolayevich; VERKHOVTSEV, I., red.; KLIMOVA, T., tekhn. red.

[A son of our great people] Naroda velikogo syn. Moskva, Gos. izd-vo polit. lit-ry, 1961. 47 p. (MIRA 14:8)
(Collective farms--Officials and employees)

VASIL'YEV, N.Ye.; VERKHOVTSEV, E.V.; PROKHORENKO, K.K.; SVISTUNOV, A.M. [deceased]; KACHANOV, N.N.

Improving the quality of ball bearing steel. Izv. vys. ucheb. zav.; chern. met. 6 no.11:88-92 '63. (MIPA 17:3)

1. Izhevskiy mekhanicheskiy institut.

S/130/61/000/009/002/005
A006/A101

AUTHORS: Bakumenko, S. P.; Svistunov, A. M.; Verkhovtsev, E. V.

TITLE: Steel casting under a protective mica layer

PERIODICAL: Metallurg, no. 9, 1961, 17-18

TEXT: The effect of steel casting under a mica layer on the quality of open-hearth steel was investigated by syphon casting of 0.7 to 3.5 ton steel ingots. Mica was placed into the molds either prior to teeming or when the metal appeared in the molds. In the former case the molds were painted over their whole height with a mixture of resin and coal tar varnish, 50% each; then the bottom hole of the mold was covered with a paper sheet and mica was poured in. In the latter case mica was introduced after the beginning of teeming. Mica consumption per one ton of steel was 1.0 - 1.5 kg. The ingots were inspected and it was found that steel teeming under a mica layer improved the surface of ingots and sharply reduced the number of ingots requiring dressing. An examination of the macrostructure showed that in the upper section of the ingot distortions of the crust and subcrust defects were almost absent. As to the contamination of steel by non-metallic impurities it was found that it did not exceed the contamin-

Card 1/2

Steel casting under a protective mica layer

S/130/61/000/009/002/005
A006/A101

ation of the steel produced by conventional castings. The investigation proved that the addition of mica into the molds assured teeming of steel without crust formation and an improved quality surface and macrostructure of the ingots. There are 1 figure and 1 table.

Card 2/2

KOROLEV, A.I.; BLINOV, S.T.; LUBENETS, I.A.; KOBURNEYEV, I.M.; TURUBINER, A.L.; VASIL'YEV, S.V.; CHERNENKO, M.A.; BELOV, I.V.; TELESOV, S.A.; MAZOV, V.F.; MEDVEDEV, V.A.; MAL'KOV, V.G.; BUL'SKIY, M.T.; ZHUBETSKOV, K.M.; SHNEYEROV, Ya.A.; SLADKOSHTEYEV, V.T.; PALANT, V.I.; KUROCHKIN, B.N.; ZHDANOV , A.M.; BELIKOV, K.N.; SABIYEV, M.P.; GARBUZ, G.A.; PODGORETSKIY, A.A.; ALFEROV, K.S.; NOVOLODSKIY, P.I.; MOROZOV, A.N.; VASIL'YEV, A.N.; MARAKHOVSKIY, I.S.; MALAKH, A.V.; VERKHOVTSEV, E.V.; AGAPOV, V.F.; VECHER, N.A.; PASTUKHOV, A.I.; BORODULIN, A.I.; VAYNSHTEYN, O.Ya.; ZHIGULIN, V.I.; DIKSHTEYN, Ye.I.; KLIMASENKO, L.S.; KOTIN, A.S.; MOLOTKOV, N.A.; SIVERSKIY, M.V.; ZHIDETSKIY, D.P.; MIKHAYLETS, N.S.; SLEPKANEV, P.N.; ZAVODCHIKOV, N.G.; GUDEMCHUK, V.A.; NAZAROV, P.M.; SAVOS'KIN, M.Ye.; NIKOLAYEV, A.S.

Reports (brief annotations). Biul. TSNIICHM no.18/19:36-39 '57. (MIRA 11:4)

1. Magnitogorskiy metallurgicheskiy kombinat (for Korolev, Belikov, Agapov, Dikshteyn). 2. Kuznetskiy metallurgicheskiy kombinat (for Blinov, Vasil'yev, A.N., Borodulin, Klimasenko). 3. Chelyabinskiy metallurgicheskiy zavod (for Lubenets, Vaynshteyn). 4. Zavod im. Dzherzhinskogo (for Koburneyev). 5. Zavod "Zaporozhstal'" (for Turubiner, Mazov, Podgoretskiy, Marakhovskiy, Savos'kin). 6. Makeyevskiy metallurgicheskiy zavod (for Vasil'yev, S.V., Mal'kov, Zhidetskiy, Al'ferov). 7. Stal'proyekt (for Chernenko, Zhdanov, Zavodchikov). 8. VNIIT (for Belov). 9. Stalinskiy metallurgicheskiy zavod (for Telesov, Malakh).

(Continued on next card)

KOROLEV, A.I.---(continued) Card 2.

10. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Medvedev, Novolodskiy, Vecher). 11. Zavod "Azovstal'" (for Bul'skiy, Slepkanev). 12. TSentral'nyy nauchno-issledovatel'skiy institit chernoy metallurgii (for Trubetskov). 13. Ukrainskiy institut metallov (for Shneyerov, Sla[illegible]eyev, Kotin). 14. Zavod "Krasnyy Oktyabr'" (for Palant). 15. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki (for Kurochkin). 16. Zavod im. Voroshilova (for Sabiyev). 17. Chelyabinskiy politekhnicheskiy institut (for Morozov). 18. Giprostal' (for Garbuz). 19. Ural'skiy institut chernykh metallov (for Pastukhov). 20. Zavod im. Petrovskogo (for Zhigulin). 21. Ministerstvo chernoy metallurgii USSR (for Molochkov, Siverskiy). 22. Glavspetsstal' Ministerstva chernoy metallurgii SSSR (for Nikolayev).
(Open-hearth process)

137-58-6-11815

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 89 (USSR)

AUTHOR: Verkhovtsev, E.V.

TITLE: Deoxidation of Steel in the Ladle (Raskisleniye stali v kovshe)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 411-418

ABSTRACT: Data are presented on the smelting of carbon (Nrs 10-15) and chrome (20Kh-40Kh) steels in 40-t open-hearth furnaces with addition of all deoxidizers and alloying additives (Fe-Mn or Si-Mn, 45% Fe-Si and Fe-Cr) in the ladle, in pieces of $\leq$ 100 mm. Addition of ferroalloys from the charging box began when the ladle was one-quarter full; the sequence was Fe-Mn, Fe-Si, Fe-Cr, and Al. The temperature of the metal in the ladle was further reduced by 10-15°C in the case of carbon steels and by 20-25° in the case of chromium steels with 1% Cr. The consumption of ferroalloys in experimental heats is reduced as follows in the smelting of carbon steels: Fe-Mn by 2.6, 12% Fe-Si by 7.2, 45% Fe-Si by 0.2 kg/t; the figures for chrome steels are: Fe-Mn by 2.1, 12% Fe-Si by 6.2, 45% Fe-Si by 1, Fe-Cr by 5 kg/t, and the length of the heat by

Card 1/2

137-58-6-11815

Deoxidation of Steel in the Ladle

3-5.5%. On addition of the ferroalloys to the ladle, [H] is smaller by 1.2 $cm^3/100$ g than in standard deoxidation. The quality of the metal, as attested by all indices - chemical composition, macrostructure, nonmetallic inclusions, hardenability, and rolling rejects - is virtually independent of the mode of deoxidation and alloying.

A.S.

1. Steel--Production 2. Steel--Deoxidation 3. Steel--Materials 4. Dippers --Applications

Card 2/2

E. V. Verkhovtsev

18(5) PHASE I BOOK EXPLOITATION SOV/1907

Akademiya nauk Ukrainskoy SSR. Kiyev Otdeleniye tekhnicheskikh nauk

Voprosy proizvodstva stali vyp.6 (Problems of Steel Production, Nr 6) Kiyev, Izd-vo AN Ukrainskoy SSR, 1958. 137 p. Errata slip inserted. 2,000 copies printed.

Resp. Ed.: N.N. Dobrokhotov, Academician, Ukr. SSR Academy of Sciences; Ed. of Publishing House: N.M. Labinova; Tech. Ed.: V.I. Turchishin.

PURPOSE: This book is intended for engineers and scientific personnel in the field of steel production.

COVERAGE: This is a collection of articles dealing with various aspects of the production of steel, including the designing of open-hearth furnaces, thermal processes in the furnaces, thermodynamics of steel-making processes, technology of producing high-grade steel, and changes in the size and shape of ingots. Other topics discussed are the properties of chrome-manganese stainless steels, improvement of ball-bearing steel, ingot defects, ingot quality as determined by temperature of teeming and shape of mold, and certain aspects of steel rolling. Some of the articles are accompanied by references, both Soviet and non-Soviet.

Dan, E. Ph., and N.P. Nakonechnyy. Investigation of the Properties of Chrome-Manganese Stainless Steels 41

Prokhorenko, K.K., and E.V. Verkhovtsev. Improving the Quality of ShKh15 Ball-bearing Steel 49

Verkhovtsev, E.V., and K.K. Prokhorenko. Ingot Defects Caused by Skin Folds Forming During the Teeming of Steel 58

Prokhorenko, K.K., P.K. Tinokhov, A.V. Verkhovtsev, and V.A. Tyshchenko. Exothermic Mixture for Heating Hot Tops of Steel Castings 77

Yefimov, V.A., N.P. Sabirov, and V.P. Orchenyuk. Effect of the Temperature of the Inflow of Liquid Steel Into the Ingot Mold on Ingot Quality 87

Yefimov, V.A., V.I. Dmitrin, M.P. Lapshova, V.P. Orchenyuk, and A.A. Kishlev. Effect of Teeming Temperature and Mold Shape on the Quality of Steel Ingots 96

Yefimov, V.A., N.P. Sabirov, and V.P. Osipov. Reduction of Head and Butt Crops in the Rolling of Ingots 110

Yefimov, V.A., V.P. Osipov, and A.M. Melishko. An Investigation of the Conditions for Rolling Sheet Bar With Wavy Surfaces 123

Fedorchuk, V.G. Experiments in the Conversion of High-phosphorus Pig Iron in a Converter With Side Blast of Oxygen 130

AVAILABLE: Library of Congress

SO/ks
7-28-59

Card 4/4

VERKHOVTSEV, E.V.

18(3); 18(5) PHASE I BOOK EXPLOITATION SOV/2452

Akademiya nauk Ukrainskoy SSR. Otdeleniye tekhnicheskikh nauk

Voprosy proizvodstva stali, vyp. 4 (Problems in Steelmaking; Nr. 4) Kiyev, Izd-vo AN Ukrainskoy SSR, 1956. 163 p. 3,000 copies printed.

Resp. Ed.: N. N. Dobrokhotov, Academician, UkrSSR Academy of Sciences; Ed.: B. A. Kazantsev; Tech. Ed.: A. D. Zhukovskiy.

PURPOSE: This book is intended for advanced students and for scientists and personnel in the metallurgical industry.

COVERAGE: The papers in this collection present information on recent Soviet technological developments stated to be of considerable theoretical and practical importance in the production and teeming of steel. A number of articles deal directly with matters of method (alloying, deoxidizing, top and bottom pouring, production of open-hearth and electric steel). Some are concerned with the investigation of phenomena such as change

Card 1/4

of hydrogen content during the production of steel. Others describe the effect of various factors on the final product (shape of ingot, pouring temperature, addition of aluminum, etc.). There is one book review. References follow some of the papers.

TABLE OF CONTENTS:

Khan, B. Kh., and E. V. Verkhovtsev. Quality of Chrome Steel Deoxidized and Alloyed in the Ladle With Solid Ferroalloys 3

Khan, B. Kh. The Dissolving of Ferroalloys in Liquid Steel During Deoxidation and Alloying 14

Khan, B. Kh. Technology of Producting 1Kh18N9T Stainless Steel in Electric Furnaces With the Application of Oxygen 24

Prokhorenko, K. K. Change of Hydrogen Content in Open-hearth Steel During the Production Process 34

Prokhorenko, K. K. Effect of the Production Method on the Qua-

lity of Tube Steel 47

Prokhorenko, K. K. Accelerated Bottom Pouring of Killed Steel 57

Yefimov, V. A. Investigation of the Special Features of Top Pouring of Steel 77

Yefimov, V. A. Rational Shape of Killed-Steel Ingots 92

Yefimov, V. A. Effect of Pouring Temperature on Crystallization and Deformation of the Outer Surface of Steel Ingots 115

Chekmarev, A. P., V. A. Yefimov, V. P. Grechko, and I. F. Filichkin. Effect of Aluminum on the Plastic Properties of Steel at High Temperatures 126

Dobrokhotov, N. N. New Techniques in the Production and Teeming of Steel in Open-hearth Plants 129

Dobrokhotov, N. N., and B. Kh. Khan. Review of the Book Raskisleniye martenovskoy stali (Deoxidation of Open-hearth

Problems in Steelmaking; No. 4 SOV/2452

Steel) by A. N. Morozov and A. I. Stroganov 156

AVAILABLE: Library of Congress

GO/jb
10-27-59

Card 4/4

SOV/133-59-4-7/32

AUTHORS: Verkhovtsev, E.V. and Bakumenko, S.P., Engineers

TITLE: An Experience in Accelerated Teeming of Steel (Opyt uskorennoy razlivki stali)

PERIODICAL: Stal', 1959, Nr 4, pp 314-317 (USSR)

ABSTRACT: Recent investigations (ref 1 to 3) indicated that on bottom pouring of steel at a velocity at which the top surface of the metal in the mould is free from crust, an improvement in quality of the upper part of ingots is obtained. In the present paper an investigation of the influence of the velocity of teeming on the quality of the ingots is described. Steels: carbon 10-50, 18KhGT, 35KhGSA, 20KhGSA, 20Kh-40Kh, 12KhN3-30KhN3, smelted in 40 ton furnaces and bottom poured into 3 ton ingots were used for the investigation. The velocity of teeming was controlled by varying the nozzles in the casting ladles from 45 to 75 mm. Frequency distribution of non-metallic inclusions in steels teemed at the usual and accelerated rates are shown in Fig 1. It was found that an increase in the teeming rate by 2 to 2.5 times in comparison with the normal practice improves the macrostructure of the upper part of the ingots and

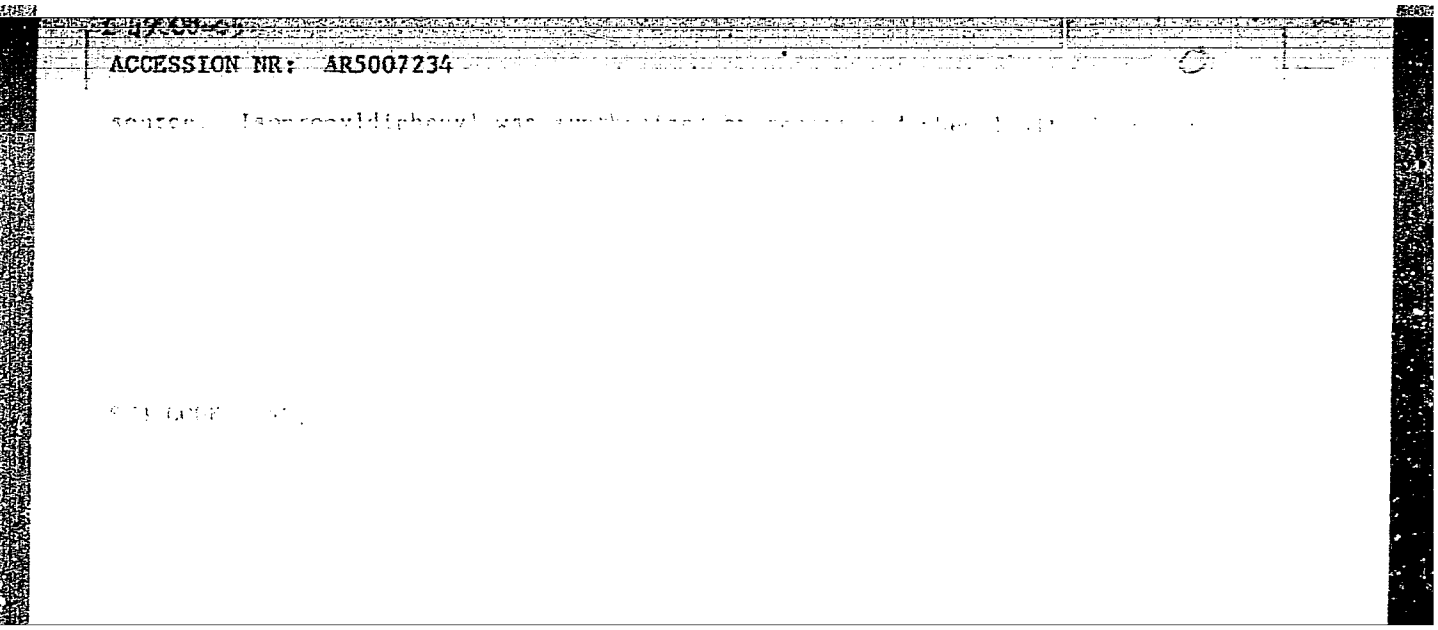
Card 1/3

An Experience in Accelerated Teeming of Steel

decreases the contamination of steel by non-metallic inclusions. However, with increasing teeming velocity the number of cracks on the ingots sharply increases. The formation of hot cracks depends to a large extent on the metal temperature and its chemical composition (Fig 2). In order to decrease the proportion of ingots with hot cracks, the influence of the shape of ingot faces on the phenomenon was tested. Three types of ingot moulds with convex, concave and corrugated faces were tested (Fig 3). The dependence of the proportion of ingots with longitudinal and transverse cracks on the velocity of teeming and profile of ingot moulds is shown in Fig 4 and 5 respectively. It was found that casting into moulds with corrugated faces gave the best results. It is concluded that by increasing teeming velocity so as to obtain a clear surface of the metal in the moulds during teeming and using ingot moulds with corrugated faces, an improvement in the micro-

An Experience in Accelerated Teeming of Steel

structure of ingots and the yield of good metal can be obtained. There are 5 figures and 6 Soviet references.



ACCESSION NR: AR5007234

SOV/137-58-9-18679

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 76 (USSR)

AUTHORS: Prokhorenko, K.K., Verkhovtsev, E.V.

TITLE: Variations in the Hydrogen Content of Steel in the Course of Melting, Tapping, Pouring, and Solidification (Izmeneniye soderzhaniya vodoroda v stali v protsesse yeye vyplavki, vypuska, razlivki i zatverdevaniya)

PERIODICAL: V sb.: Staleplavil'n. proiz-vo, Moscow, Metallurgizdat, 1958, pp 162-171

ABSTRACT: The influence of various factors upon [H] in Nrs 30, 50, and 40 Kh steels melted from charges of solid steel (scrap) in 50-t heavy-oil-heated basic open hearths is investigated. No relationship was found between [H] upon fusion and the composition of the charge (amount of swarf and light scrap). Increase in [H] causes an increase in the charging and melt-down periods, during which the metal is not covered with slag and reacts with the water vapor in the furnace atmosphere. The moisture content of the heavy oil used to fuel the furnaces influences the H content of the furnace atmosphere and consequently that of the metal upon fusion. During boil there is no relationship between the rate of

Card 1/2

Variations in the Hydrogen Content of Steel (cont.)

removal and change in [H]. This is due to the fact that degasification and saturation of the metal with hydrogen occur simultaneously. An increase in the pure boil time, which makes for an increase in the temperature of the metal, leads to an increase in [H]. A considerable diminution of [H] in the steel and, as a result thereof, a reduction in ingot rejection due to blister is attained by tapping the heat without prior deoxidation in the furnace. A special investigation of the metal from 350-t tilting open hearths, tapped into 2 ladles (with and without slag) showed that the [H] in the steel diminishes if the furnace slag does not enter the ladle with the metal, but increases if the metal is tapped with slag. The H undergoes segregation during crystallization of the ingot and enriches the mother liquor. Heating of the hot top and maintenance of an exposed liquid metal surface during the period of crystallization contribute to the removal of the H from the steel into the atmosphere.

L.K.

1. Steel--Melting 2. Hydrogen--Phase studies

VERKHOVTSEV, E.V.

KHAN, B.Kh.; VERKHOVTSEV, E.V.

Quality of chromium steel, deoxidized and alloyed in the ladle with hard addition elements. Vop. proizv. stali no.4:3-13 '56. (MLRA 10:4)
(Chromium steel)

PROKHORENKO, Kim Kondrat'yevich; VERKHOVTSEV, Emil' Vladimirovich; BAKUMENKO, Sergey Panteleyevich; VASIL'YEV, Nikolay Yegorovich; ISHCHUK, Nikolay Yakovlevich; FADEYEV, Ivan Gavrilovich; NOSOV, Viktor Aleksandrovich; SEMENENKO, Petr Pimenovich; ISUPOV, Vasiliy Fedorovich

[Making and pouring quality steels] Vyplavka i razlivka kachestvennykh stalei. Moskva, Izd-vo Metallurgiia, 1964. 200 p. (MIRA 17:3)

VASILENKO, Vasiliy Stepanovich; VERKHOVTSEV, I., red.; TROYANOVSKAYA, N., tekhn.red.

[Labor in the name of victory] Trud vo imia pobedy. Moskva, Gos.izd-vo polit.lit-ry, 1959. 190 p. (MIRA 12:6)
(World War, 1939-1945--Manpower)
(Labor and laboring classes)

KULYSHEV, Yuriy Aleksandrovich; VERKHOVTSEV, L., red.; DANILINA, A., tekhn.red.

[At the dawn of Communist labor] Na zare kommunisticheskogo truda. Moskva, Gos.izd-vo polit.lit-ry, 1958. 46 p. (Iz istorii sovetskoi rodiny) (MIRA 11:12)
(Labor and laboring classes)

LUPALO, I.G.; AYZIKOV, D.V.; KOSTRIKINA, Z.I.; YUKHVETS, M.A.; VERKHOVTSEV, I., red.; DANILINA, A., tekhn.red.

[Builders of socialism tell their stories; reminiscences of some workers who built socialism in the U.S.S.R.] Govoriat stroiteli sotsializma; vospominaniia uchastnikov sotsialisticheskogo stroitel'stva v SSSR. Moskva, Gos.izd-vo polit.lit-ry, 1959. 415 p. (MIRA 13:3)

(Russia--Industries) (Efficiency, Industrial)

VERKHOVTSEV, I., kand.istoricheskikh nauk

Monolithic unity is the principal source of our party's strength.
Komm.Vooruzh.Sil 2 no.1:37-43 Ja '62. (MIRA 14:12)
(Communist Party of the Soviet Union)

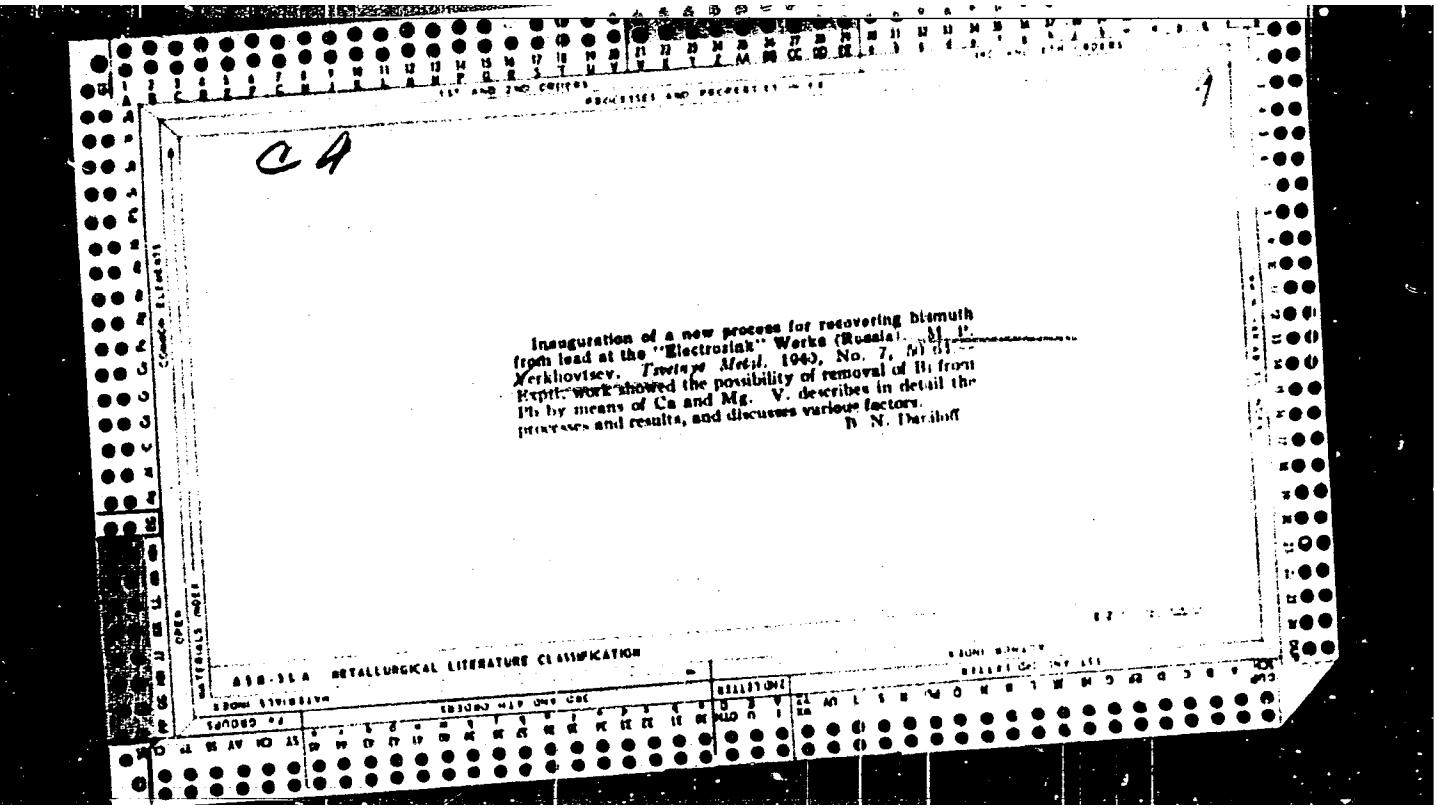
KAZANSKIY, P.A.; MURASHOV, S.I.; VERKHOVTSEV, I.P., red.; POPOVA, T., tekhn.red.

[Light over Russia; studies on the history of electrification in the U.S.S.R.] Svet nad Rossiei; ocherki po istorii elektrifikatsii SSSR. Moskva, Gos.izd-vo polit.lit-ry, 1960. 398 p. (MIRA 13:9)

(Electrification)

VERKHOVTSEV, Ivan Petrovich; VODOLAGIN, V., red.; TROYANOVSKAYA, M., tekhn.red.

[Work and live the communist way] Rabotat' i zhit' po-kommunisticheski. Moskva, Gos.izd-vo polit.lit-ry, 1960. 93 p. (MIRA 14:1)
(Bibliotechka agitatora, no.20).
(Efficiency, Industrial)



C4

Inauguration of a new process for recovering bismuth from lead at the "Electrozink" Works (Russia). M. P. Yerkhovtsev. *Tsvetnye Metal.* 1943, No. 7, 31-33. Experimental work showed the possibility of removal of Bi from Pb by means of Ca and Mg. V. describes in detail the processes and results, and discusses various factors.

D. N. Theriloff

VASIL'YEV, Ye.D.; VERKHOVTSEV, V.S.; VOROBKEVICH, V.Yu.; DANILYUK, I.S.; PETRUSHKO, I.V.; PILIPENKO, N.S.; RAKOV, M.A.; ROZHANOVSKIY, R.V.; SINITSKIY, L.A., kand. tekhn. nauk; SHKOL'NYY, V.A.; SHUMKOV, Yu.M.; YEVSEYENKO-MISYURENKO, I.V., red.

[Direct current measuring converters] Izmeritel'nye preobrazovateli postoiannogo toka. Kiev, Naukova dumka, 1965. 373 p. (MIRA 18:6)

1. Akademiya nauk URSR, Kiev. Fizyko-mekhanichnyi instytut.
2. Fiziko-mekhanicheskiy institut AN Ukr.SSR, g.L'vov (for all except Yevseyenko-Misyurenko).

[redacted]

using a special output divider element by-passing the feedback is fixed by the accuracy of the divider proper and, consequently, high accuracy requirements imposed on [redacted] double sign con- version. Within the first block the signal from the sensor is converted into

VERKHOVTSEV, V.S.; PETRUSHKO, I.V.; RAKOV, M.A.; SINITSKIY, L.A.; SHUMKOV, Yu.M.

Measurement converters with galvanically separated input and output. Avtom. i prib. no.4:78-81 O-D '63. (MIRA 16:12)

1. Institut mashinovedeniya i avtomatiki AN UkrSSR.

L 10015-63

ACCESSION NR: AP3002726 S/0120/63/000/003/0089/0092

AUTHOR: Verkhovtsev, V. S.; Vorobkevich, V. Yu.; Rakov, M. A.; Sinitskiy, L. A.

TITLE: D-c measuring amplifier

SOURCE: Pribory i tekhnika eksperimenta, no. 3, 1963, 89-92

TOPIC TAGS: d-c measuring amplifier, strong negative feedback, d-c to a-c conversion, magnetic modulator, frequency doubling, voltage amplification factor

ABSTRACT: The development of a d-c amplifier capable of measuring extremely small d-c signals is reported. The amplifier uses a strong negative feedback with preliminary d-c to a-c conversion. Use of a magnetic modulator with frequency doubling at the output results in very high stability of the zero level (10 sup -17 to 10 sup -19 w). The modulator gain is 50, while the zero drift

Card 1/2

L 10015-63
ACCESSION NR: AP3002726 0

The two-stage tuned amplifier suppresses first and third harmonics by a factor of 150 and 80, respectively. The voltage amplification factor is approximately 5000. The bright-type trans[illegible] of the phase detector are controlled by a [illegible] voltage of doubled frequency [illegible] period [illegible] the emf [illegible]. As a result, the detector suppresses the signal of odd harmonics by a factor of 200 to 400. The d-c voltage developed at the detector output [illegible] error [illegible] and thermal temperature range, [illegible].

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics AN SSSR)

SUBMITTED: 12Jul62 DATE ACQ: 12Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 000 OTHER: 002

Card 2/2

VERKHOVTSEV, V.S.; SINITSKIY, L.A.; SHUMKOV, Yu.M.

Analysis of the stability of autocompensating networks. Avtom. kont.i izm.tekh. no.6: 144-154 '62. (MIRA 16:2)
(Electric measurements) (Electric networks)

BLAZHKEVICH, B.I.; VERKHOVTSEV, V.S.; VOROBKEVICH, V.Yu.; RAKO, M.A.; SINITSKIY, L.A.; SMIRNOV, N.I.; SHKOL'NYY, V.A.

Magnetic semiconductor millivoltmeter for measuring the electromotive force of thermocouples. Avtom.kont. i izm. tekh. no.5:142-148 '61. (MIRA 14:11)
(Millivoltmeter)

SOURCE: Ref. zh. Fizika, Abs. 2G225

AUTHORS: Tishchenko, V. G.; Verkhovtseva, E. T.; Kutsyna, L. M.; Distanov, B. G.

TITLE: Optical properties of some derivatives of 1, 3, 5-triphenyl- Δ^2-pyrazoline

CITED SOURCE: Sb. Stsintsiyatory i stsintsillyats. materialy. Khar'kov, Khar'kovsk. un-t., 1963, 126-129

TOPIC TAGS: absorption spectrum, fluorescence spectrum, luminescence quantum yield, scintillation activity, scintillator

[illegible] were determined for a series [illegible] were studied [illegible] 1-methyl naphthalene [illegible] With weakening of the electron-dono: properties of [illegible]

L 16710-65
ACCESSION NR: AR5000785

intensity of the two long-wave bands decreases, and the central band disappears com-

effect. The fluorescence spectra do not experience in general any noticeable changes

Card 2/2

Card 1/2

[illegible] 26[illegible]
ACCESSION NR: AR[illegible]

quartz prism. The [illegible] was measured with an [illegible] photo-
multiplier by determining the [illegible] source. The isopropyl
biphenyl was synthesized by [illegible] isopropyl chloride. The absorption
[illegible]

SUB CODE: OP ENCL: 00

Card 2/2

KUTSYNA, L.M.; VERKHOVTSEVA, E.T.

Effect of 1-methylphthalene on the optical characteristics of certain substituted oxazoles and oxadiazoles. Opt. i spektr. 12 no.6:785-787 Je '62. (MIRA 15:5)
(Oxazole--Optical properties) (Oxadiazole--Optical properties) (Nephthalene)