"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUMOVA, Ye. A., ZHERDEVA, L. G., and KROL', B. B.

"Composition of Oils by Means of Adsorptive Separation," p. 81
Compositon and Properties of the High Molecular Weight Fraction of Petroleum; Collection of Papers on the Composition and Properties of Curdes and Petroleum Products, Moscow, Izd-vo AN SSSR, 1958, 370pp (in-ta nefti)
2nd Collection of papers publ. by AU Conf. Jan 56, Moscow.

This paper gives a description of the adsorptive separation method as used in the oil chemistry laboratory of the VNII NP to determine the chemical composition of crudes and oils. It is designed for the determination of group composition of oils, oil distillates, residues and extracts. Application of this method to the analysis of crudes gives an estimate fo the yield and quality of oils produced.

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I-16

USSR /Chemical Technology. Chemical Products and Their Application

Treatment of natural gases and petroleum. Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31974

Author : Nakashidze B.M., Ostroumova Ye. A.

Title : Molecular Distillation of Heavy Petroleum Products.

Orig Pub: Sb.: Metody issledovaniya neftey i nefteproduktov. M., Gostoptekhizdat, 1955, 83-102

Abstract: Description of apparatus for molecular distillation of petroleum products. 1. A metal still for batch operation designed for a charge of up to 2 liters of liquid and permitting the separation of 10 distillate fractions and one residual

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USSR /Chemical Technology. Chemical Products and Their Application

Treatment of natural gases and petroleum
Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31974

fraction. 2. A glass still for batch operation designed for a charge of 300-350 ml of product and separation of 6 distillate and one residual fraction. The apparatus were used in the study of the chemical composition of oil fractions of Emba petroleum and fractional composition of aviation oils. The adequate effectiveness of both apparatus is shown. When oil is fractionated in these apparatus the temperature of distillation is approximately 100° lower than on distillation from a Claisen flask, which makes it possible considerably to increase the thoroughness of separation of distillate fractions with

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USSR /Chemical Technology. Chemical Products and Their Application I-16

Treatment of natural gases and petroleum. Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31974

concurrent decrease of distillation temperature. A description and diagram of the apparatus are included.

Card 3/3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

SHAMRAY, Ye.F. [Shamra., IE.F.] ;DUDCHIK, G.Kh. [Dudchyk, H.Kh.]; OSTROUMOVA, Ye.I.

Use of galascorbin in the compound treatment of children with pulmonary tuberculosis. Pediat. akush. ginek. [illegible] (MIRA [illegible])

1. Kuyavskiy [illegible] Kiyevskogo [illegible] zdravookhraneniya ([illegible] G. Kh. Dudchik [Dudchyk, H.Kh.]; [illegible] kafedra [illegible] ([illegible] - [illegible] Ye.F. Shamray [Shamra , IE.F.]; Kiyevskogo [illegible] (rektor - [illegible] V.D. [illegible]).

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUMOVA, Yu.A., kandidat meditsinskikh nauk

Analysis of causes of lack of effectiveness in treating pulmonary tuberculosis [with summary in French]. Probl.tub.35 no.2:61-66 '57. (MLRA 10:6)

1. Iz vtoroy kafedry tuberkuleza TSentral'nogo instituta usovershenstvovaniya vrachey (zav. - chlen-korrespondent Akademii meditsinskikh nauk SSSR prof. V.A.Ravich-Shcherbo [deceased])
(TUBERCULOSIS, PULMONARY, ther.
cases of non-efficaceous ther. (Rus))

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUPOV, Ye. A.

ON SOME NEW METHODS OF CHEMICAL ANALYSIS WITH THE AID OF PYRIDINE, ALPHA-PICOLINE, AND HEXAMETHYLENETETRAMINE. E. A. Ostroupov. Translated by Lucia Marshak from Zavodskaya Lab. 13, 404-10(1947). 13p. (AEC-tr-1788)

The precipitation of Fe, Al, Cr, Ti, In, Ga, Sr, and several rare metals and their separation from Mn, Ni, Co, Zn, Cu, Cd, alkaline earths, Mg, and alkali metals are described. The precipitation is carried out by heating a weakly acid solution with pyridine in the presence of NH_4Cl. Beryllium can be separated from the other elements in group II by precipitating $Be(OH)_2$ with α-picoline. Mn, Ni, Co, Zn, Fe, Al, Cr, Ti, and Zr can be precipitated with hexamethylenetetramine and separated from the alkaline earths, Mg, and alkali metals. (J.S.R.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

BOCHKOVSKAYA, I.V.; OKUNEV, A.L.; OSTROUKHOV, A.I., redaktor; SINYAVSKAYA, YE.K., redaktor; ANDREYEV, S.P., tekhnicheskiy redaktor.

[Work practice in operating the BES-2 type drilling machine in the Krivoy Rog Basin] Opyt ekspluatatsii burevogo stanka tipa BES-2 v Kriverozhskom basseine. Khar'kov, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 28 p. (MLRA 9:6)
(Krivoy Rog)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

SHOSTAK, A.G.; OSTROUKHOV, A.I.

Results of progressive mine operations in the Krivoy Rog Basin.
Gor. zhur. no.3:29-33 Mr '57. (MLRA 10:4)

1. Nachal'nik tekhnicheskogo otdela tresta Dzerzhinskruda (for Shostak).
2. Nachal'nik tekhnicheskogo otdela tresta Leninruda (for Ostroukhov).
(Krivoy Rog--Iron mines and mining)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

05921

SOV/107-[illegible]

AUTHOR: [illegible]

TITLE: [illegible] VHF Unit

PERIODICAL: Radio [illegible] (USSR)

ABSTRACT: The author describes a VHF/FM receiver unit which was developed at IRIA imeni A.S. Popov for use in modern radio AM/FM radios. The circuit diagram of the VHF/FM unit is shown in Figure 1. One of the most important features is the comparatively low signal radiation from the heterodyne frequency. The r-f amplifier consists of one 6N14I, while the converter is built with one 6F1I tube. The unit works on frequencies of 64.5-73 Mc. IF signal attenuation is more than 60db. Image attenuation at 73 Mc is 4[illegible] db. The actual sensitivity of a receiver with such an FM unit will change from 0.[illegible] to 1.5 microvolts. There are 5 circuit diagrams, [illegible] diagrams and 1 table.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKH, N.P.

Canned tomatoes in infectious colds and laryngotracheitis in chickens. Veterinariia 33 no.9:42 S '56. (MLRA 9:10)

1.Starshiy veterinarnyy vrach Belogorskoy Mashinnotrakternoy stantsii no.2 Krymskoy oblasti.
(Poultry--Diseases) (Tomatoes)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

S/[illegible]
B14[illegible]/B1[illegible]

AUTHORS: [illegible]strovmov, S. A., Volkov, I. I.

TITLE: [illegible] of iron, aluminum, and chromium [illegible] nickel, cobalt, and zinc with cinnamic acid

PERIODICAL: Referativnyy zhurnal. Khimiya, [illegible] 4252 (Tr. Ir-ta okean. AN SSSR, v. [illegible]

TEXT: The method of separating Fe, Al, and Cr from Mn, Ni, [illegible] based on the precipitation of Fe^{3+}, Al^{3+} and Cr^{3+} with cinnamic acid [illegible] which they form insoluble salts while Mn^{2+}, Ni^{2+}, Co^{2+}, and Zn^{2+} [illegible] soluble complex compounds. The most complete precipitation of Fe, Al, [illegible] Cr occurs at pH 5.0 - 5.5. Coprecipitation of divalent elements is prevented by the addition of ammonium chloride. To 500 ml of the [illegible] be analyzed containing about 0.1 g of the sesquioxides, 10 - 15 g of NH_4Cl are added, then a concentrated solution of NH_4OH is added until the appearance of turbidity, which is cleared with 2 - 3 drops of HCl. The solution [illegible]

Card 1/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

Separation of iron, aluminum, and... S/[illegible] B14[illegible]/B[illegible]

is diluted with water to [illegible] ml, and heated [illegible] ammonium [illegible] (I) are added; the beaker is covered, [illegible] gently boiled for [illegible] min and left on a boiling water [illegible] hours, with occasional stirring. The precipitate is filtered, [illegible] with [illegible] ml portions of the following solution: 10 g NH_4Cl [illegible] in hot water, mixed with 20 ml of 5% solution of I and diluted with water to 100 ml, and finally with hot 4% solution of I; it is then dried and calcined. This method is suitable for the analysis of marine ferromanganese concretions. [Abstracter's note: Complete translation.]

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

AUTHOR BEZRUKOV, P.L., OSTROUKHOV, E.A., PA - [illegible]

TITLE On Phosphorus Distribution in the sediments of the Okhotsk Sea (O raspredelenii fosfora v osadkakh Okhotskogo moraya -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 142-145, U.S.S.R.
Received 6/1957 Reviewed 7/1957

ABSTRACT Inorder to explain some questions concerning the origin of phosphorites it is necessary to know the rules governing phosphorus distribution in the sediments of recent seas. In contrast to other seas the Pacific has scarcely been investigated in this respect. Considerable quantities of material of soil sediments was investigated which had been collected by the ship "Vityaz" in the North Western Pacific. The close connection of the Okhotsk Sea with the Pacific, the penetration of phosphorus-rich abyssal-waters from this ocean, the high productivity of its plankton, the variety of geological structure and of the petrographic composition of the surrounding continent, as well as the existence of upper-tertiary phosphorites on Sakhalin render this investigation important. 15c stations on the ground were investigated with respect to surface-samples, (2-5 cm) and a chart (illustration 1) was made. This chart shows that there are two teritories with a relatively high phosphorus-content. 1) A continental shoal in the nothern part of the sea and 2) the Kamchatka- and Kuril Isles shoal. In the former region the coastal zone has less phosphorus (o,o7-o,o4°/o) than the middle parts of the shoal (o,12-o,15°/o). In the latter region the highest phosphorus-content is

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PA - [illegible]

On Phosphous Distribution in the Sediments of the Okhotsk Sea

found in the sand of the shore (0,09-0,135°/o) and it becomes less nearer the sea. In East of Sakhalin the phosphorus-content increases again, not on the shore itself, (0,02-0,04°/o) but somewhat more to the East in the Deryugin depression (0,06-0,07°/o). Summary. Phosphorus distribution in the sediments of the Okhotska Sea is on the whole governed by the same rules that Strakhov, N.M., found to exist for a number of other waters. The phosphorus-compounds come into the Okhotsk Sea as solid phase with denudation- and abrasion products of the [illegible] and partly perhaps with products of volcanic activity.
(1 ill., 13 citations from published works).

ASSOCIATION Oceanographical Institute of the Academy of Science of the U.S.S.R. (Institut okeanologii Akademii Nauk SSSR)
PRESENTED BY STRAKHOV, N.M., Member of the Academy.
SUBMITTED 12.11.1956.
AVAILABLE Library of Congress.
Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUMOV, L. A.

"Hydrodynamic explanations of the electrical properties of insulating fluids."

Report presented at the 1st All-Union Conference on Heat- and Mass-Transfer, Minsk, BSSR, 5-9 June 1961

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, G.D.

OSTROUKHOV, G.D.; YAKOBSON, S.S., redaktor; VORONIN, K.P., tekhnicheskiy redaktor.

[Manual on safety techniques in gas welding and cutting] Pamiatka po tekhnike bezopasnosti dlia gazosvarshchika i gazorezchika. (V voprosakh i otvetakh) Moskva, Gos. energ. izd-vo, 1953. 30 p. (MLRA 7:8)

(Welding—Safety measures)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

ZIL'BEROV, I.S., gornyy inzh.; ZITSER, I.S., gornyy inzh.;
OSTROUKHOV, I.I., gornyy inzh.

Using precast reinforced-concrete supports in the "Grushevskii" Mine of the Nikopol' Manganese Trust. Gor. zhur. no.10:48-50 O '61. (MIRA 15:2)

1. Grushevskiy rudnik tresta Nikopol'-Marganets (for Zil'berov). 2. Nauchno-issledovatel'skiy gornorudnyy institut, Krivoy Rog (for Zitser). 3. Trest Nikopol'-Marganets (for Ostroukhov).
(Nikopol' Region(Denpropetrovsk Province)—Mine timbering)
(Precast concrete construction)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, I.I., gornyy inzh.; DEMCHENKO, V.V., gornyy inzh.

Using new types of equipment to develop strip mines for exploitation. Gor. zhur. no.11:22-25 N '61.

1. Trest Nikopol'-Marganets, g. Marganets.
(Nikopol' region (Dnepropetrovsk Province)--Manganese mines and mining--Equipment and supplies)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

LITVINYUK, A.F., gornyy inzh.; OSTROUKHOV, I.I., gornyy inzh.; SINYAVSKI[illegible] gornyy inzh.

Practice and prospects for over-all mechanized mining of manganese [illegible]. Gor. zhur no.4:41-4[illegible] A, [illegible]. ([illegible])
(Manganese mines and mining--Equipment and supplies)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUHOV, V.

Yugoslavia (430)

Technology

Automatic voltage regulating for alternating current. p. 17, Nova Proizvodnja, Vol. 2, no. 1, February 1951.

East European Accessions List, Library of Congress, Vol. 2, no. 3, March 1953.
UNCLASSIFIED.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUMOV, A. M.

APPLE

Elimination [illegible]

9. Monthly List of Russian Accessions, Library of Congress, [illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, I.J.; TUL'EK, Ye.N.

Analyzing the operation of the planetary tool of the PKG-3 combine. Sbor. nauch. trud. UkrNIISol' no.7:69-77 '62 (MIRA 18:1)

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PA 5[illegible]

OSTROUKHOV, L. Ya.

Jun 1947

USSR/Engineering
Metallurgical Plants
Furnaces, Metallurgical

"Review of 'Construction, Equipment and Operation of Present-Day Dome-Furnace Plants' by Prof V. A. Sorokin," L. Ya. Ostroukhov, Leningrad Polytech Inst, 1 p

"Stal'" No 6

Collection of articles, by various authors, dealing with construction, equipment, and operation of present-day dome-furnace plants in USSR. Reviewer states that although worthwhile, book would have been improved had Sorokin limited himself to discussing subject material he had intended to discuss.

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FDB

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Ostroukov, A I

STESHENKO,A.I.; ZHURAVLEV,S.P.; TARAN,P.N.; KUDRYASHOV,K.V.; ZHUKOV,M.N.; BELYY,P.L.; KADYRVAYEV,R.A.; PASTUSHKIN,P.M.; SHOSTAK,A.G.; OSTROUKHOV,A.I.; POLOESKIY,M.I.; OSTROUKHOV,I.I.; LUGOVSKIY,S.I.; SEMENKO,P.I.; KHOROSHEV,O.V.; IBRAYEV,Sh.I.; NEYKOV,O.D.

"Dust control in the mines of Krivoy Rog Basin." V.V.Nedin. Reviewed by A.I.Steshenko and others. Gor.zhur. no.9:61-62 S '55. (MLRA 8:8)

(Krivoy Rog--Mine dusts) (Nedin,V.V.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

Ostrouhov, I. I.

STESHENKO,A.I.; ZHURAVLEV,S.P.; TARAN,P.N.; KUDRYASHOV,K.V.; ZHUKOV,M.N.; HELYY,P.L.; KADYRVAYEV,R.A.; PASTUSHKIN,P.M.; SHOSTAK,A.G.; OSTROUKHOV,A.I.; POLONSKIY,M.I.; OSTROUKHOV,I.I.; LUGOVSKIY,S.I.; SEMENKO,P.I.; KHOROSHEV,O.V.; IBRAYEV,Sh.I.; NEYKOV,O.D.

"Dust control in the mines of Krivoy Rog Basin." V.V.Nedin. Reviewed by A.I.Steshenko and others. Gor.zhur. no.9:61-62 S '55. (MLRA 8:8)

(Krivoy Rog--Mine dusts) (Nedin,V.V.)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. YA.

Processes Taking Place in the Blast Furnace Bosh. I. P. Bardin and M. Ya. Ostroukhov. (*Izvest. Akad. Nauk K.A S.S.R., Otdelenie Tekh. Nauk*, 1954, (5), 72–82). [In Russian]. *Measurements of temperatures and analyses of samples of materials and gas withdrawn from the bosh of a blast furnace along three different radii during the production of foundry and basic iron were carried out.* It was found that when making basic and sometimes also foundry iron (cold working) the accumulation of ore in the bosh produces low temperatures in the annulus 20–80 in. from the bosh walls. Gas composition also corresponds to temperature distribution in the bosh. The greatest flow of pig iron and slag was observed in the peripheral zone of the bosh. Only during very hot working (foundry iron) were the iron and slag over the whole radius (80 in.) in the liquid state and approximately of their final compositions.—V. G.

Metal

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

Ostroukhov, M. Ya.

3385 Effect of Coke Circulation on Coke Consumption in Blast Furnaces. I. P. Bardin, M. Ya. Ostroukhov, L. Z. Kholak, and L. M. [illegible] Henry Brutcher Translation No. 3841, 20 p. (Abridged from *Izvestiya akademii nauk SSSR*, OTN, 1955, no. 1, p. 80-95.) Henry Brutcher, Altadena, Calif. Aug. 1955.

Metal

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

Ostroukhov, M. Ya.

Methods of economizing coke in blast-furnace smelting. M. Ya. Ostroukhov. *Metallurg* 1956, No. 2, 5-9.—Reduction in consumption of coke by 200 kg./ton of Fe since 1947 was brought about by increased strength of coke, higher blast temps., reduced ash and S content of coke, fluxing of agglomerate to a basicity of 0.7-0.8 (currently 1.3-1.4), thus reducing the limestone charge and lowering the amt. of fayalite, and reduction of Mn content.

V. N. Bednarski

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

057 ROUKKOV, N. Ya.

Novel Interpretations of the Combustion Process of Coke in the Blast Tuyeres of Furnaces. I. P. Bardin, L. M. Tyljev, M. J. Ostrouchow, and L. S. Chodak. (*Neue Hütte*, 1960, 1, Feb., 232-244). Recent investigations in the USSR, U.S.A., and Great Britain (Burns) are summarized. Deviations from "classical" theory are interpreted. Combustion in front of blasting tuyeres was found to occur not in a stationary layer of coke, but in a turbulent motion of coke particles. Coke combustion is characterized by chemical factors, i.e. kinetics, and by physical factors, dependent on the power of the jet. The extent of the combustion zone in the blast furnace has been shown to depend far more on the physics of the process than on combustion velocity.—L. J. L.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. YA.

Influence of certain factors on the extent of oxidizing zone in blast furnaces. B. N. Zherebin, V. M. Minkin, I. D. Nikulinskii, V. M. Olsharov, I. A. Suchkov, and M. Ya. Ostroukhov (Met. Combine, Kuznetsk). Stal' 16, No. 5, 391-6(1956).—A series of studies conducted on com. furnaces (well described) showed that an increased blast vol. lengthens the oxidation zone. A slight lengthening of it was recorded with an increased moisture content, provided the blast temp. was correspondingly raised to compensate for H_2O decompn. Higher blast temp. widens it, but does not lengthen it. Increased kinetic energy of the blast has a beneficial effect only when it is large. Increased top pressure reduces the length of the oxidation zone. I. D. Gat

Metal

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTRUKHOV, M. Ya.

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2647* (Russian.) New Investigation of the Coke-Combustion Process in Tuyere Area of a Blast Furnace. Novye issledovaniia protsessa gorenia koksa u furm domennoi pechi. M. Ia. Ostroukhov and L. Z. Khodak. *Stal*, v. 16, no. 10, Oct. 1956, p. 867-872.

Study of the vortex character of gas motion in the oxidation zone. Useful data for operation.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. YA.

3
1

Distr: 4E2c

The Influence of Moisture in the Blast on the Process of Combustion of Coke in a Blast Furnace. P. A. Markin and M. Ya. Ostroukhov. (Izvest. Akad. Nauk, Otdelenie Tekh. Nauk, 1956, (11), 58-63). [In Russian]. An investigation of the influence of moisture in the blast (up to 50 g/m³) on the size of the combustion zone in front of tuyeres was carried out on a furnace of 700 m³ working volume producing foundry iron. The method consisted of sampling gases in front of tuyeres at various distances from the tuyere nozzle and their analysis. It was established that on increasing the amount of moisture by 10–20 g/m³ no change in the length of the combustion zone takes place. If the consumption of heat for the decomposition of the moisture added is not compensated by an appropriate increase in the blast temperature, the velocity of the combustion of coke decreases. The beneficial influence of moisture in the blast, (when it is not totally compensated by a rise in blast temperature) is explained by a decrease in the temperature on the boundary of the oxidizing zone. This decrease in the temperature is accompanied by a decrease in the volume of the gas i.e. its velocity.—V. U.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

BARDIN, I.P.; TSYLEV, L.M.; OSTROUKHOV, M.Ya.; KHODAK, L.Z.

Combustion of coke in blast-furnace tuyeres. Trudy Inst. met. no.2: 3-8 '57. (MIRA 10:11)

(Combustion) (Blast furnaces) (Coke)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

130-8-3/20

AUTHOR: Ostroukhov, M.Ya.

TITLE: Increasing the Intensity of Blast Furnace Smelting (O povyshenii intensivnosti domennoy plavki)

PERIODICAL: Metallurg, 1957, No. 8, pp. 7 - 10 (USSR)

ABSTRACT: Maintaining that the main factors preventing the acceleration of smelting in blast furnaces are aerodynamical, the author discusses these and also considers operating factors on the basis of experience at various Soviet plants. He shows (Fig.1) that there is a certain intensity of smelting (tons of coke consumed per day per m^3 of furnace volume) which gives a coke-rate minimum, the value of the intensity depending on the type of burden and being 0.8- 0.9 for the unprepared burdens at "Zaporozhstal'" and Azovstal'" works and 1.0 tons/m^3 day for the well-prepared burdens at Magnitogorsk. He distinguishes three regions of the intensity vs. coke-rate relationship (Fig.2): below the optimal, near the optimal and above the optimal smelting intensity. The same figure shows how the make of a furnace actually decreases when the intensity is raised beyond a certain value. He considers factors influencing reductions of coke rate and increases in smelting intensity including the role of coke in maintaining charge permeability, high-top-pressure operation, blast humidification and oxygenation, layer charging, burden

Card1/2

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SOV/180-59-1-7/29

AUTHORS: Ostroukhov, M.Ya., Rudneva, A.V. and Tsylev, L.M. (Moscow)

TITLE: The State of Slag-Forming Materials in the Blast Furnace Oxidizing Zone (O sostoyanii shlakoobrazuyushchikh materialov v okislitel'noy zone domennoy pechi)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 1, pp 37-43 (USSR)

ABSTRACT: The authors point out that most of the comparatively few investigations (Refs 1-6) in which samples of liquids were taken from the blast-furnace hearth relate to furnaces working without raceways in front of the tuyeres. They describe their own investigation which had the aim of studying the behaviour of slag-forming materials under the conditions of present operation, characterised by raceways with their associated strongly oxidizing zones. The work was carried out at the imeni Dzerzhinskogo (Dzerzhinskiy) works with the participation of A.A. Krivosheyev and I.G. Polovchenko of the Central Works Laboratory. The furnace on which the trials were carried out had a hearth diameter of 6.2 m and sixteen 180 mm diameter tuyeres. The burden consisted of 30% raw Krivoy-Rog ore (grades 25 and 34) and 70% fluxed sinter of two basicities (0.25 and

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SOV/136-59-1-7/22

The State of Slag-Forming Materials in the Blast-Furnace Oxidizing Zone

0.5-0.55), the first containing some manganese. The blast temperature and volume were 450-600°C and 3000-3300 m^3/min, respectively. Pig-iron containing 0.4-0.7% Si, 1.7-2.5% Mn, 0.01-0.05% S, 0.08-0.1% P was smelted with a slag basicity ($CaO : SiO_2$) of 1.15 - 1.25. At times furnace working was uneven. Gas and material samples were taken at 200 mm intervals along a hearth radius with a 60 mm diameter water cooled tube. The materials solidifying in the tube were drilled out, separated from pig-iron nodules and the portions corresponding to given sampling points were mixed. Larger (50-100 g) samples were subjected to complete chemical analysis, smaller ones were analysed for metallic iron, FeO and Fe_2O_3. The results of gas sampling are given in Fig 1 which shows composition against distance (mm) from nose of tuyere: the oxygen content falls to 2% at a distance of 1450 mm, CO_2 disappears at 1600 mm and the $O_2 : N_2$ ratio falls over the first 800 mm and then rises. The iron-oxide content of the slag-forming materials and the iron content of the oxides are shown in Fig 2 as functions of distance. A high $CaO : SiO_2$ ratio was found in the oxidizing zone indicating that coke ash

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SOV/180-59-1-7/29

The State of Slag-Forming Materials in the Blast Furnace Oxidizing Zone

does not participate in slag formation there. The manganese content of iron samples taken from the oxidizing zone is below that of the pig iron (Fig 3 shows manganese content against distance from the nose of the tuyeres). A detailed petrological examination of samples (Figs 4-9) indicated that part of the slag-forming materials are in the solid or plastic states in the oxidizing zone, consisting of sintered particles of iron oxide, lime and reoxidized iron sponge as well as droplets of iron and slag frozen by the blast. Sintering processes in the oxidizing zone lead to the formation of high-calcium silicates and calcium ferrites; recrystallisation of materials occurs in the plastic state directly at contact surfaces, but in the interval 1000-1300 mm from the tuyeres melting occurs. A minor part of the materials entering the oxidizing zone in the solid or plastic states

Card 3/4

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SOV/180-58-1-7/24

The State of Slag-Forming Materials in the Blast-Furnace Oxidizing Zone

is not affected appreciably.
There are 9 figures, 3 tables and 9 references, 4 of which are Soviet, 3 German and 2 English.

SUBMITTED: June 5, 1958

Card 4/4

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya.

Impaired performance of large blast furnace hearths.
Metallurg 5 no.9:7-8 S '60. (MIRA 13:8)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya.; KHOLZAKOV, V.I.; POPOV, Yu.A.

Large capacity blast furnace operations. Metallurg 5 no. 12:4-9 D '60. (MIRA 13:11)

1. Chelyabinskiy metallurgicheskiy zavod i Nauchno-issledovatel'skiy institut matematiki.
(Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

TSYLEV, Leonid Mikhaylovich; OSTROUKHOV, Mark Yakovlevich; KHODAK, Leonid Zalmanovich; ZINGER, S.L., red.izd-va; ATTOPOVICH, M.K., tekhn.red.

[Process of coke combustion in blast furnaces.] Protsess goreniia koksa v domennoi pechi. Moskva, Gos.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 98 p. (MIRA 13:5)

(Blast furnaces--Combustion) (Coke)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, Mark Yakovlevich; REBEKO, A.F., red.; YABLONSKAYA, L.V., red.izd-va; KARASEV, A.I., tekhn.red.

[Saving of coke in blast furnaces] Ekonomiia kokса v domennoi plavke. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 142 p. (MIRA 13:6)
(Coke) (Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Effect of the character of gas flow on the rate of iron oxide reduction. Report No.2. Izv.vys.ucheb.zav.; chern.met. 5 no.4:29-36 '62. (MIRA 15:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Iron—Metallurgy) (Gas flow)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

KOPYRIN, I. A.; BYALYY, L. A.; OSTROUKHOV, M. Ya.; VOZNESENSKIY, V. A.; KUDRYAVTSEV, A. V.; PLASTININ, B. G.

Investigating the gas dynamics of the blast furnace process with use of helium. Izv. vys. uchsb. zav.; chern. met. 5 no.12: 29-40 '62. (MIRA 16:1)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Orsko-Khalilovskiy metallurgicheskiy kombinat.

(Blast furnaces—Models) (Gas dynamics)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; BYALYY, L.A.; VOZNESENSKY, V.A.; PLASTININ, B.G.; Prinimali uchastiye: KUDRYAVTSEV, A.V.; CHIRKOV, G.G.; BRADCHENKO, V.P.

Investigation of gas dynaimcs in the blast furnace process using helium. Izv. AN SSSR.Otd.tekh.nauk. Met. i topl. no.5:22-28 S-O '62. (MIRA 15:10)

(Blast furnaces) (Gas dynamics)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya.

Blast furnace coke combustion processes. Stal' 22 no.7:599-603 Jl '62. (MIRA 15:7)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Blast furnaces--Combustion)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

BYALYY, L.A.; KOPYRIN, I.A.; [illegible]

Effect of various factors on a blast furnace oxidati n zone.
Izv. vys. ucheb. zav.; chern. met. 6 no.4:27-33 '63.
(MIRA 16:5)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.
(Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

KHOLZAKOV, V.I.; BRATCHENKO, V.P.; OSTROUKHOV, M.Ya.; LUKIN, P.G.; NEKIPELOV, S.P.; POPOV, Yu.A.; GAVRILYUK, L.Ya.

Investigating the processes in the stack and hearth of a blast furnace during smelting with sinter of Bakal and Sokolovka-Sarbay ores. Stal' 23 no.4:297-300 Ap '63. (MIRA 16:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Chelyabinskiy metallurgicheskiy zavod.
(Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, Mark Yakovlevich. Prinimala uchastiye ZHILO, N.L., kand. tekhn. nauk, MANCHINSKIY, V.G., kand. tekhn. nauk, dots., retsenzent; SHAKOHIN, V.L., red.

[Slag formation process in the blast furnace] Protsess shlakoobrazovaniia v domennoi pechi. Moskva, Metallurgizdat, 1963. 222 p. (MIRA 18:8)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

VYATKIN, N.P.; NEKIPELOV, S.P.; POPOV, Yu.A.; GAVRILYUK, L.Ya.; FONTALIN, V.N.; VYATKIN, G.P.; OSTROUKHOV, M.Ya.

Experience of five years of operating a 1,719m^3 capacity furnace. (MIRA 18:1)
Stal' 24 no.11:964-968 N '64.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

BABARYKIN, N.N.; CALATONOV, A.L.; SAGAYDAK, I.I.; SHPARBER, L.Ya.; TSVERLING, A.L.; YAKOBSON, A.P.; BORTS, Yu.M.; ZHILO, N.L.; KOPYRIN, I.A.; OSTROUKHOV, M.Ya.

Experimental smelting with a reduced slag output. Stal' 24 no.12:1069-1075 D '64. (MIRA 18:2)

1. Magnitorskiy metallurgicheskiy kombinat i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

ZILBER, Fetel' Kushevich, kand. tekhn. nauk; ROZOVSKIY, Leonid Lavidovich, inzh. Prinimali uchastiye: GLADOVSKAYA, T.K., inzh.; KOSTINA, T.F., inzh.; MARCHENKO, A.A., inzh., laureat Leninskoy premii, retsenzent; OSTROUKHOV, M.Ya., kand. tekhn. nauk, red.; SVET, Ye.B., red.

[Slag pumice] Shlakovaia pemza. Cheliabinsk, IUzhno-Ural'skoe knizhnoe izd-vo, 1964. 1[illegible] p.
(MIRA 18:7)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

KOPYRIN, I.A.; OSTROUKHOV, M.Ya.; STEFANOVICH, M.A.; BORTS, Yu.M.; SAGAYDAK, I.I.; SHTARBER, L.Ya.; VOLKOV, Yu.P.

Heat balance of smelting with a low slag yield for the Magnitogorsk blast furnace. Izv.vys.ucheb.zav.; chern. met. 8 no.4:45-52 '65. (MIRA 18:4)

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii, Magnitogorskiy metallurgicheskiy kombinat i Magnitogorskiy gornometallurgicheskiy institut.

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VOLKOV Yu.P., [illegible] N.M., VIYER, V.I., [illegible] M.Ya., RYABTSEV, I.Yu., [illegible] HENKO [illegible], CHATILIN, [illegible], I.Ya.

Blowing in a large capacity blast furnace. Metallurg 10 no.1[illegible] (MIRA 18:4)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

CHERNYATIN, A.N.; OSTROUKHOV, M.Ya.; GIMMEL'FARB, R.A.; VOLKOV, Yu.P.; BABAPYKIN, N.N.; SHPARBER, L.Ya.; GALATONOV, A.L.

Mastering of MMK [Magnitogorsk Metallurgical Combine] blast furnace operations with the use of natural gas. Metallurg 10 no.8:1.-13 Ag '65. (MIRA 18:8

1. Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii i Magnitogorskiy metallurgicheskiy kombinat.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

STARSHINOV, B.N.; OSTROUKHOV, M.Ya.; KOCHINEV, Ye.V.; Prinimali uchastiye: TARASOV, D.A.; SOROKA, P.F.; KARACHENTSEV, M.D.; OS'KIN, V.T.; KORNEV, V.K.; POPOV, Yu.A.; DOLMATOV, V.A.; AYUKOV, A.S.

Blowing-in of large blast furnaces. Sbor.trud. UNIIM no.11:27-32 '65. (MIRA 18:11)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

STARSHINOV, B.N.; [illegible], V.[illegible]; SEN'KO, G.Ye.; [illegible], [illegible]; [illegible], A.A.; KHOPUZHIY, A.[illegible]; Prinimali uchastiye: OSTROUKHOV, M.Ya.; [illegible], N.I.; PLISKAN[illegible]IY, S.T.; [illegible], Y[illegible]; [illegible], [illegible]; TARASOV, F.P.; ZAGREBA, A.[illegible]; KAMENEV, [illegible]; TKACHENKO, [illegible]; FREYDIN, L.M.; [illegible]UKIN, P.G.; POPOV, Yu.A.; MISHIN, [illegible]; [illegible]CHENTSEV, M.[illegible]; DOLMATOV, V.A.; AYUKOV, A.S.; [illegible], [illegible]; VY[illegible]IY, Yu.V.; SOLO[illegible]KIY, Yu.A.; KONAR[illegible], [illegible]; SAPRONOV, [illegible]; [illegible], [illegible]; SAPRONOV, P.[illegible]; [illegible], V.[illegible]; STOLYAR, V.[illegible]; [illegible]KHORENKO, [illegible]; BAN[illegible]INA, Ye.Ye.

Results of the first year of operation of large [illegible] furnaces. Sbor. [illegible] [illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

AGASHIN, A.A.; BABARYKIN, N.N.; VOLKOV, Yu.P.; GALATONOV, A.L.; KRYUKOV, N.V.; MALIKOV, K.V.; OSTROUKHOV, M.Ya.; PISHVANOV, V.L.; CHERNYATIN, A.N.; YUSHIN, F.A.

Experimental operation of blast furnaces on mazut and natural gas. Stal' 25 no.5:393-400 My '65. (MIRA 18:6)

1. Magnitogorskiy metallurgicheskiy kombinat; Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

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PROCESSES AND PROPERTIES INDEX

S

Heat Balances of the No. 1 Blast-Furnace of the Magnitogorsk Works. M. Ostroukhov. (Stal, 1940, No. 4, pp. 9–14). (In Russian). The heat balances of the 1180-cu. m. blast-furnace at the Magnitogorsk Works over three periods during which the furnace was operating on three different types of coke were determined. The amounts of heat supplied from all sources during the three periods amounted to 2844, 2921 and 2877 cal. per kg. of pig iron respectively; the coke consumptions during these three periods were respectively 0·790, 0·853 and 0·826 kg. per kg. of pig iron, and the nominal daily outputs were 1435·6, 1359·0 and 1425·0 tons, whilst outputs without scrap were 1344·9, 1265·5 and 1388·8 tons respectively. Figures for the various heat losses as well as for consumption of ore and other raw materials and for compositions of slag, iron and furnace gas are given, and the results are compared with those for several other furnaces.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

The Viscosity of Primary Blast-Furnace Slags at the Magnitogorsk Works. M. Ostrovskhov. (Stal, 1939, No. 10-11, pp. 11-17). (In Russian). The author describes his investigation of the viscosity of the slag from the Magnitogorsk blast-furnaces. In order to avoid reduction, samples of manganese-bearing slag were not heated above 1400° C. in graphite crucibles. Iron-bearing slags had to be tested in iron crucibles in which the temperature was likewise limited to 1400° C. Synthetic slags falling within a triangle on the silica-alumina-lime ternary diagram bounded by the lines connecting the silica 40%, alumina 20% and lime 30% points were studied together with the effect on their viscosity of additions of 3-6% of magnesia, 6% of magnesia with 4-10% of manganous oxide, and of 6% of magnesia with 7-10%, 15% and 30% of ferrous oxide. In addition several slags approximating to eutectic compositions were studied. The data obtained for the viscosities at different temperatures and the temperatures of primary crystallisation are given in tabular form. Additions of magnesia lowered the viscosity of the silica-alumina-lime slags, particularly those containing appreciable amounts of alumina. At the same time additions of magnesia narrowed the crystallisation temperature range. Additions of ferrous oxide also lowered the viscosity of the slags containing magnesia, particularly when present in large amounts, such as 30%. Additions of manganous oxide had a similar effect, which was further increased when this oxide and ferrous oxide were added together. Some of the results obtained for the ternary slags are compared with those of previous investigators including those of McCaffery. In conclusion, observations by the author and by other investigators on the difficulties of measuring the viscosity of slags are dealt with.

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Formation of Primary Slags in Blast-Furnaces. M. Y. Ostrovskiy. (Metallurgist, Russia, 1937, vol. 12, No. 3, Mar., pp. 38-46) (In Russian). The author presents tabular data respecting the composition and melting points of eutectics with the lowest melting points in the binary and ternary systems containing silica with one or more of the following: Alumina, lime, magnesia and ferrous oxide, in the presence of silicates of potassium, sodium, calcium or manganese. It is suggested that the first slag formed by melting a synthetic mixture of oxides or silicates consists of the lowest melting point eutectic of the corresponding system. But such eutectics are not necessarily the most fluid melts, hence the really fluid slags which eventually appear may have a different composition from the first liquid phase formed. The author discusses the analyses of the primary slags produced in different zones of the blast furnace as determined by Bohn, Kinney and others.

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Temperature of Formation of Globules of Primary Blast-Furnace Slags. M. Y. Ostroukhov. (Metallurgist, Russia, 1937, vol. 12, No. 4, Apr., pp. 80-90). The downward movement of slags in blast-furnaces is determined not only by the relative viscosity of different types of slag but also by their capacity to form globules and detach themselves from the surface of the ore. The author discusses the results of a detailed investigation in which the temperatures at which a number of salts, including alkaline and alkaline-earth chlorides, form droplets were determined in order to test the efficacy of the experimental technique adopted (these results are compared with data derived by other investigators), together with the temperatures of droplet-formation of silica/alumina lime, silica lime ferric oxide, and silica/ferric-oxide mixtures as well as a number of blast-furnace slags. Drops are formed in the first ternary system mentioned at 1395° C. by a mixture of a composition approximating to that of the 1265° C. eutectic, but mixtures with a composition approximating to that of the lowest eutectic (1170° C.) form globules only above 1450° C., hence slags of this composition can only detach themselves from the ore by changing their composition and attaining a fluid state. The addition of 5% of magnesia or of a small quantity of ferric oxide decreases the temperature of drop formation. Actual slags investigated behaved analogously to the quaternary system silica/alumina lime/magnesia.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

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F

2-49. [illegible] S. Ostrouk [illegible] Va.
(Stal, [illegible], vol. [illegible] abstr. in [illegible] [illegible]
vol. [illegible], 4198). Tests were carried out with two kinds [illegible]
coke of varying porosity; [illegible] [illegible] [illegible]
coke the oxidation zone extended farther (ra[illegible]) [illegible]
temperature within the zone was higher than with the less
dense coke. This fact causes the furnace to work [illegible]
charge to [illegible].

METALLURGICAL LITERATURE CLASSIFICATION

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19

B

Behavior of Dense Coke in Blast Furnace. M. Ya Ostroukhov. Henry Brutcher Translation No. 229 8 pages. From Stal (Steel) v. 7 no. 8, 1949 p. 688-690

Discusses importance of porosity as an index of the evaluation of coke quality and difficulties caused by use of dense coke. Gives results of analyses of hearth gases. Tabulates data on properties of coke used.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. YA.

The effect of blast humidification on the coke-burning process in a blast furnace. A. A. Martin and M. Ya. Ostroukhov. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1956, No. 11, 58-63.—The exptl. work was done in a 700-cu. m. blast furnace with cast iron contg. 3.0-3.5% Si. The furnace operated with above normal pressure at the throat. Gas samples were taken every 100 mm., and 200 mm. apart in the oxidizing zone. Thirty-five test series were taken, and 400 gas tests were run. Gas was sampled in the oxidizing zone every 30 min. with the addn. of 10-20 g. H_2O/cu. m. of the blast. H_2O addn. was found to accelerate the coke combustion in 11 tests, and retarded it in 6 tests, while no changes were observed in 6. In general, the combustion zone length is practically unchanged in higher H_2O content in the blast. The combustion process is accelerated when the heat consumption for the H_2O decompn. is compensated by higher temp. Benefits from the blast humidification are seen in the cooling effect near the oxidation zone boundary due to H_2O decompn. A lower temp. reduces the gas vol., and therefore also its velocity, which results in an improved operation. Tests show that when the heat for the H_2O decompn. is not completely compensated, the smelting intensity is considerably increased, and the relative coke-consumption is somewhat reduced. W. M. Sternberg

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. YA.

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1847. COMBUSTION PROCESS AT BLAST FURNACE TUYERES. Ostroukhov, M.Ya. and Khodak, L.Z. (Stal (Steel, Moscow), 1958, vol. 16, 867-872; Abstr. in Chem. Abstr., 1957, vol. 51, 2493). By means of small water-cooled pipes occupying 4-7% of the tuyère opening and swivelling packing in the tuyère stock, samples of gases in the combustion area were obtained. Combustion takes place in a cavity made by the blast in the charge and surrounded by a compact layer of coke 100-200 mm thick. Stereoscopic high speed photography showed that coke entering this cavity from above is circulated by the blast in two planes. In the horizontal, the blast swirls coke to the right and to the left of the tuyère plane along the cavity wall returning it to the tuyère; in the vertical, which practically does not extend below the tuyere level, coke is made to rotate in the plane of the tuyere. Distribution of gas components in the combustion zone is given as diagrams showing it as a function of the distance from the tuyère. They do not agree with the conventional diagrams, because most measurements on which the latter are based were made below the level of the tuyères. The maximum temperature is reached about 100 mm from the boundary line between the stream of gases and the coke shell of the cavity where the temperature, measured with a platinum-silite couple, reaches 1900-2000°. Higher temperatures of the blast do not directly reduce the size of the combustion zone. Combustion takes place in suspension, and the latter is a function of the kinetic energy of the blast, where temperature is only one of the factors. C.A.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, Mark Yakovlevich, TIMOFEYEV, Ivan Georgiyevich; [illegible], Vladimir Timofeyevich, [illegible], F. L., red. izd-va; [illegible], N.T., tekhn. red.

[Life of blast-furnace charging equipment during operation at high gas pressure] Sluzhba z [illegible] apparatov domennykh pecheĭ pri rabote s povyshennym [illegible] vleniem gaza. Sverdlovsk, Metallurgizdat, 19[illegible]. [illegible] p. (MIRA 1[illegible])
(Blast furnaces. Equipment and supplies)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya. (Chelyabinsk), KHODAK, L.Z. (Moskva)

Analysis of the coke combustion process in blast furnaces by furnace gas constitution diagrams. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.6:5-13 N - D '60. (MIRA 13:12)
(Blast furnaces--Combustion)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya. (Moskva); RUDNEVA, A.V. (Moskva); TSYLEV, L.M. (Moskva)

Condition of slag forming materials in the oxidizing zone of a blast furnace. Izv.AN SSSR.Otd.tekh.nauk Met.i topl. no.1:37-43 Ja-F '59. (MIRA 12:6)

(Blast furnaces) (Slag)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

SOV 137-58 9 18524

Translation from: Referativnyy zhurnal Metallurgiya 1958 Nr 9 p48 (USSR)

AUTHOR: Ostroukhov M Ya.

TITLE: On the Disintegration of Coke in a Blast Furnace (O razrushenii koksa domennoy pechi)

PERIODICAL: V sb. Issled. domennogo protsessa. Moscow AN SSSR 1957 pp 176-195

ABSTRACT: The mesh size of coke (C) and its capacity for breaking down into fines in the blast furnace determine the work of the latter to a considerable degree. The best apparatus for the determination of the durability of C is the blast furnace itself. To investigate the behavior of C in the blast furnace, test samples of C weighing 250 - 400 kg were drawn through the tuyere or through the tuyere heat exchanger. After cleansing it from slag, lime and pig and sponge iron the samples of C were subjected to screen analysis. To determine its strength C was subjected to tests in the Rubin barrel mill by the method of successive application of crushing forces. For comparison, C from the disc screen was subjected to the same investigations. Besides in order to evaluate the disintegration of C on the way from the disc screen to the large

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SOV 137 58 4 28524

On the Disintegration of Coke in a Blast Furnace

bell test samples of C were taken from the large bell during a prolonged shut down of the blast furnace. The data thus obtained indicate that the main mass of tuyere C consists of 60 - 40 and 40 - 25 mm fractions while the C from the screen consists mainly of > 60 mm fractions. To reproduce the fractional composition of tuyere C from the initial C (from the screen) a small number of revolutions (from 35 to 120) of the Rubin barrel mill are needed. Likewise a considerable disintegration of C occurs on its way from the screen to the large bell. The analysis of the disintegration curves of test samples of C indicates that the barrel mill tests cannot reproduce fully the process of the breakdown of C which occurs in the blast furnace. No considerable disintegration of C is observed from the action of high temperatures in the lower sections of the blast furnace; the screen size of C has practically no relation to the time (from one to ten days) spent in the heart and the boshes of the blast furnace. To obtain high production indicators for the blast furnace it is necessary that the C should be sufficiently lumpy and homogeneous in screen size and structure.

1. Blast furnace operation 2. Coke--Decomposition F. K.

Card 2/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

LEONIDOV, N K

85(5) PHASE I BOOK EXPLOITATION SOV/1497

Akademiya nauk SSSR. Institut nauchnoy i tekhnicheskoy informatsii

Metallurgiya SSSR, 1917-1957, t. 1 (Metallurgy of the USSR, 1917 - 1957, Vol. 1) Moscow, Metallurgizdat, 1958. 785 p. 3,000 copies printed.

Ed. (Title page): I. P. Bardin, Academician; Ed (Inside book): G V Popova; Tech. Ed : O. G. Bakker

PURPOSE: The book is intended for scientific workers and engineers in metallurgical plants and in the machine-building industry It may also be used by students in advanced courses in metallurgical vuzes

COVERAGE: This collection of articles covers extensively practical and theoretical developments in Soviet metallurgy during the last 40 years The material deals with the discovery and development of the major ore deposits and the growth of the metal industry in various parts of European and Asiatic USSR Research institutes, laboratories, their location and the names of the scientists and engineers involved are listed Many papers contain so many references and names of various personalities that it was considered beyond the scope of the coverage of each article to list them The authors claim that the processes, methods and theories described in this book reflect the most recent developments in Soviet metallurgy.

Card 1/41

Metallurgy of the USSR (Cont.) SOV/1497

Tuylev, L.M., and M.Th. Ostroukhov Development in the USSR of the Theory of Blast Furnace Process 187

The article deals with the design and operation of very large blast furnaces with 950 to 1300 cubic meter capacity A number of experiments were carried out to study the operating regimes in those furnaces The physical and chemical characteristics of the charge were studied to obtain optimum results and to insure free travel of the charge in the furnace and the permeability of the charge to gases. The thermal reactions were investigated and the results graphed Reduction and slag formation as well as the combustion process proper were the object of intensive studies. The need for the proper control of blast furnace operation is stressed. It is claimed that at present Soviet scientists are attempting to develop a fully automated system for blast furnace operation which will automatically compensate for the variables involved in the process. There are 46 Soviet and 3 English references

Polyakov, A.Th. and A.M Samarin The Rise of Steel Production in the USSR 187

The article contains a review of the Soviet steel industry Production figures for the Five Year Plans are given The use of oxygen blowing in the production of converter steel is regarded as an important develop-

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.YA.

ZHEREBIN, B.N., inzhener; MINKIN, V.M., inzhener; NIKULINSKIY, I.D., inzhener; OBSHAROV, V.M., inzhener; SUCHKOV, I.A., inzhener; OSTROUKHOV, M.Ya., kandidat tekhnicheskikh nauk.

Effect of certain factors on the extent of the oxidation zone. Stal' 16 no.5:391-396 My '56. (MLRA 9:8)

1. Kuznetskiy metallurgicheskiy kombinat i Institut metallurgii AN SSSR.

(Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

ARUTYUNOV, N.B., inzh., red.; VOSKOBOYNIKOV, V.G., doktor tekhn. nauk, red.; GOTLIB, A.D., prof., doktor tekhn.nauk, red.; GUSOVSKIY, A.A., inzh., red.; KRASAVTSEV, N.I., kand. tekhn. nauk, red.; NEKRASOV, Z.I., akademik, red.; OSTROUKHOV, M.Ya., kand. tekhn. nauk, red.; POKHVISNEV, A.N., prof., doktor tekhn.nauk, red.; RAMM, A.N., prof., doktor tekhn. nauk, red.; TSYLEV, L.M., prof., doktor tekhn. nauk, red.; POZDNYAKOV, G.L., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Blast furnace process according to most recent developments; on the 100th. anniversary of Academician M.A.Pavlov's birth] Domennyi protsess po noveishim issledovaniiam; k 100-letiiu so dnia rozhdeniia akad. M.A.Pavlova. Moskva, Metallurgizdat, 1963. 325 p. (MIRA 16:8)

1. AN Ukr.SSR (for Nekrasov).
(Blast furnaces)
(Pavlov, Mikhail Aleksandrovich, 1863-1958)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

137-1958-2-2394

Translation from Referativnyy zhurnal Metallurgiya 1958 Nr 2 p 27 (USSR

AUTHORS Bardin, I P., Tsylev L M Ostroukhov M Ya Kaodak L Z.

TITLE On the Process of Coke Combustion at the Tuyeres of a Blast Furnace (O protsesse goreniya koksa u furm domennoy pechi)

PERIODICAL Tr In-ta metallurgii AN SSSR 1957 Nr 2 pp 3-8

ABSTRACT In 1954-55 in different regions of the Soviet Union a study was made on six blast furnaces having effective volumes of 33[illegible] -1386 m^3 Gas samples were taken along the axis and above and below the axis of a tuyere The diagram depicting the change of gas composition in the combustion zone differed markedly from the "classical diagram From the path of the isorithmic lines for CO_2, CO and O_2 in a vertical plane it was possible to establish the direction of the blast and the pattern of circulation of the coke particles These experiments led to the conclusion that combustion of the coke does not occur in the bed layer but inside the blast In addition, the focal combustion zone was found to be distributed along a spherical surface nearly at the boundary of the combustion zone The length of the oxidation zone was determined basically by the kinetic energy of the blast and did not depend appreciably on other factors G C.

Card 1/1

1. Coke--Combustion 2. Blast furnaces--Applications

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

137-1957-12-23335

Translation from: Referativnyy zhurnal Metallurgiya 1957 Nr [illegible] p [illegible] (USSR)

AUTHORS: Gol'mshtok, Ya. M., Ostroukhov, M. Ya.

TITLE: The Effect of the Physical Properties of Coke on the Distribution of Gases and on the Dimensions of the Oxidizing Zones in a Blast Furnace (Vliyaniye fizicheskikh svoystv koksa na raspredeleniye gazov i razmery okislitel'nykh zon v domennoy pechi)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1955, Nr 179, pp 85-104

ABSTRACT: Bibliographic entry

1. Coke-Physical properties-Effects 2. Gas-Distribution-Applications 3. Furnaces-Oxidizing zones-Determination 4. Bibliography

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya.

Increasing the output of blast furnace smelting. Metallurg 2 no.8: 7-10 Ag '57. (MLRA 10:9)

1. Institut metallurgii AN SSSR.
(Blast furnaces)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

DSTROUKHOV, M. YA.

New Investigations of the Coke Combustion

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya., kandidat tekhnicheskikh nauk.

Ways of saving coke in blast-furnace smelting. Metallurg no.2:5-6 F '56. (MLRA 9:9)

1. Institut metallurgii AN SSSR.
(Blast furnaces)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya., kandidat tekhnicheskikh nauk; KHODAK, L.Z.; LEBEDEV, V.V.

Cinematographic study of the process of coke burning. Priroda 45 no.7: 78-81 Jl '56. (MLRA 9:9)

1.Institut metallurgii imeni A.A.Baykova Akademii nauk SSSR, Moskva (for Khodak).2.Laboratoriya nauchno-prikladnoy fotografii kinematografii Akademii nauk SSSR, Moskva (for Lebedev).
(Coke) (Combustion) (Cinematography--Scientific applications)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. YA.

USSR.

62

12988 Processes Occurring in the Bosh of the Blast Furnace. I. P. Bardin and M. Ya. Ostroukhov. *Henry Brutcher Translation No. 5525*, 12 p. (Abridged from *Izvestiya Akademii Nauk SSSR, OTN*, 1954, no. 3, Mar., p. 72-81.) Henry Brutcher, Altadena, Calif.

Importance of state of materials in this zone for the permeability of the stock column; investigational procedure and sampling technique. Tables, graphs, micrographs. 2 ref.

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M. Y., BARDIN, I. P., ZYLYYEV, I. M. and KHODAK, I. S.

"Neue Auffassungen über den Verbrennungsprozess des Kokes an den Windformen des Hochofens," Neue Hütte, No. 4, 1956

Metallurgical Inst., AS USSR

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

Ostroukhov, M. Ya.

M. Yu.

V 5197. EFFECT OF CIRCULATION OF COKE ON COMBUSTION PROCESS IN A BLAST FURNACE. Ostroukhov, M. Ya. (Izv. Akad. Nauk SSSR, Otdel. Tekh. Nauk (Bull. Acad. Sci. U.S.S.R., Sect. Tech. Sci.), Apr. 1955, 143, 144). Samples of combustion gas, cinematograph pictures taken through the tuyères and model experiments have shown that combustion takes place not in a fixed bed but in a suspension of pieces of coke circulating in spherical paths.

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

SOV/24-58-6-1/[illegible]

AUTHOR: Ostroukhov, M.Ya (Moscow)

TITLE: Influence of the Kinetics of the Process of Combustion of Coke on the Dimensions of the Oxidation Zone in the Furnace (Vliyaniye kinetiki protsessa goreniya koksa na razmery okislitel'noy zony v domennoy pechi)

PERIODICAL: Izvestiya akademii nauk SSSR, otdeleniye tekhnicheskikh nauk, 1958, Nr 6, pp 3-6 (USSR)

ABSTRACT: Up to relatively recently, the change in the dimensions of the combustion zone in a blast furnace was attributed to the change in the speed of the combustion process of coke, i.e. to the effect of chemical kinetic factors, namely, the temperature, the speed and pressure of the blast, the size, porosity and the reaction ability of the fuel (Refs 1-4). Thereby, it was assumed that combustion takes place in a coke layer of low mobility. It was found (Ref 5) that there is a circulation of bits of coke and this affects the mechanical factors and the formation of the oxidation zones. The influence of the circulation zone depends on the kinetic energy of the blast. On the basis of available experimental results the author [illegible] the influence of the relations between mechanical [illegible]

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SOV/24-5[illegible]

Influence of the Kinet[illegible] of the Process of Combustion [illegible]
the Dimensions of the Oxidation Zone in the Blast Furnace

and factors of chemical kinetics on the dime[illegible] combustion zone. In the first part, the kinet[illegible] combustion of coke in the oxygen zone, and in the [illegible] part the kinetics of oxidation of the coke in the [illegible] tion zone, are studied. It is concluded that the oxidation zone in a blast furnace can be subdivided into two strictly differing zones: the oxygen zone and the reduction zone. The first coincides with the [illegible] zone of the coke and the length of this zone is determined by the kinetic energy of the blast, since analysis of the conditions of the progress of the reaction $O_2 + C$ [illegible] CO indicates that this reaction takes place in the diffusion zone. The dimensions of the reduction zone where the coke layer is subjected to the reaction $C + CO_2$ [illegible] CO depend on chemical kinetics factors (speed of filtrat[illegible] of the gases, temperature, etc). The decrease in the width of the reduction zone which occurs simultaneously with an increase in the length of the oxidation zone as the blast quantity increases, indicates that the

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SOV/24-58-6-1/35

Influence of the Kinetics of the Process of Combustion of Coke on the Dimensions of the Oxidation Zone in the Blast Furnace

reaction $C + CO_2 = 2CO$ takes place in the intermediate zone. The absolute dimensions of the reduction zone are small and change little in the case of change in chemical kinetics factors, and therefore the effect of this on the length of the oxidation zone as a whole can be disregarded. Experimental results of various authors, including the author of this paper, indicate that the length of the oxidation zone of a blast furnace does not decrease and in some instances even increases in the case of temperature increases.
There are 2 figures and 11 references (9 Soviet, 1 English and 1 German)

SUBMITTED: May 30, 1957

Card 3/3

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OSTROUKHOV, M. YA.

4

The Influence of Coke Circulation on the Combustion Process in Blast Furnaces. I. P. Bardin, M. Ya. Ostroukhov, L. Z. Khodak and L. M. Tsylev. (*Izvest. Akad. Nauk, SSSR, Otdelenie Tekn. Nauk*, 1955, (1), 80-86). [In Russian]. The combustion zone in front of tuyeres was investigated in four blast furnaces. The distributions of oxygen, carbon dioxide, carbon monoxide, temperatures, and static pressures along the radius in front of the tuyere nozzle were measured and samples of slag and metal were collected. On the basis of results obtained it is concluded that the combustion in a blast furnace takes place not in a layer of coke but in a stream of blast in which pieces of coke are suspended. Only the last stage of combustion, the reduction of carbon dioxide to carbon monoxide, takes place in the boundary layer of coke surrounding race ways.—V. G.

Metal

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510005-6

OSTROUKHOV, M.Ya.

5520. EFFECT OF MOISTENING THE BLAST ON THE COMBUSTION ZONE IN A BLAST FURNACE. Markin, A.A. and Ostroukhov, M.Ya. (Inv. Akad. Nauk SSSR, Otdel. Tekh. Nauk (Bull. Acad. Sci. U.S.S.R., Sect. Tech. Sci.), Nov. 1956, 58-63). Experiments in a blast furnace with an effective volume of 700 cu.m are recorded. They show that the addition of 10 to 20 g/cu.m (h.l.p.) of moisture has practically no effect on the size of the combustion zone. The beneficial effect of moisture is ascribed to the reduction in temperature at the edge of the zone, which reduces the volume and velocity of the gases and hence their tendency to support the charge. Thus the blast furnace operates more evenly.

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OSTROUKHOV, M. YA

Influence of Some Factors on the Size of the Oxidizing Zone. B. N. Zherebin, V. M. Hinkin, I. D. Nikulinskii, V. M. Obcharov, I. A. Suchkov and M. Ya. Ostroukhov. (*Stal'*, 1956, (5), 391-396). [In Russian]. The blast furnace oxidizing zone is defined as the space in front of the tuyeres with CO_2-content > 2%. The influence of various factors on the size of this zone was studied over a number of years on furnaces with a useful volume of 1163 m³ and hearth diameter 7620 mm. Increasing blast volume from 2275 to 2500 m³/min appreciably increased the size of the zone with or without control of blast moisture at 20 g/m³. Increases were also obtained with increasing blast moisture when the blast temperature was increased to compensate. Higher blast temperatures as such actually resulted in longer oxidizing zones and this is attributed to kinetic energy effects. Higher blast pressures led to shorter zones.—S. K.

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OSTROUKHOV, M. Ya

1917. STUDY OF COKE COMBUSTION WITH CINE-FILM. Ostroukhov, M.Ya. Fuel 1
(Priroda (Nature, Moscow), 1955, (7), 78-81).

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[Investigation of blast furnace processes] Issledovanie domennogo protsessa. Moskva, 1957. 255 p. (MLRA 10:4)

1. Akademiya nauk SSSR. Institut metallurgii.
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(Blast furnaces)

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Translation from: Referat[illegible] Met[illegible] SOV [illegible]

AUTHOR: O[illegible] M[illegible]

TITLE: Heat [illegible] Proc[illegible] [illegible] F[illegible] [illegible]

PERIODICAL: V[illegible] Domen[illegible] Mos[illegible] Met[illegible]

ABSTRACT: [illegible] I. Kitayev [illegible] of heat [illegible] (HE) [illegible] (F) (RZ) Met[illegible] abstract [illegible] It is pointed out that not all HE curves taken [illegible] of a blast F at points [illegible] from its walls possess [illegible] This is attributable [illegible] that the components of the [illegible] distribute themselves [illegible] in a radial direction during the charging of the blast F [illegible] evolving his theory of HE. [illegible] I. Kitayev proceeded from [illegible] tion that the charge is homogeneous throughout the [illegible] tion of the blast F. The HE [illegible] S shaped [illegible] eral portions of the charge [illegible] areas where [illegible] encounters practically no [illegible] HE processes [illegible]

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SOV [illegible]

Heat-exchange Processes [illegible] a Blast F[illegible]

intermediate regions [illegible] of the blast F[illegible] which there is no idle height. The author contends B. I. Kitaev [illegible] that modern blast F's are excessively high, owing to the presence of a [illegible] able amount of idle height, and that it is therefore more rational to [illegible] blast F's with a smaller height. A reduction in the over-all height of a blast F does not eliminate the idle height. In order to preserve the original [illegible] volume and productivity when reducing the height of a blast F, it is necessary that the lateral dimensions of the F be increased, a procedure which is [illegible] pedient since it will result in a reduction of the degree of utilization of [illegible] and chemical energy of gases and will lower the smelting efficiency. M. O.

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