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So. East European Accessions List Vol. 5, No. 9 September, 1956

BRUJAN, N.

BRUJAN, N. To please the consumer. p. 3.
Automatic molding cutter. p. 3.
Life and fight of construction workers in capitalist countries. p. 4.

Vol. 7 no. 301, Oct 1955
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Bucuresti, Rumania

So: Eastern European Accession Vol. 5 No. 4 April 1956

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We shall learn from our friends. p. 3. CONSTRUCTORUL. (Ministerul Constructiilor si Industriei Materialelor de Constructii si Uniunea Sindicatelor de Salariati din Intreprinderile de Constructii) Bucuresti. Vol. 7, no. 303, Nov. 1955.

So. East European Accessions List Vol. 5, No. 9 September, 1956

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Why prime cost in the deramics industry increased. p.2

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SO: East European Accessions List (EEAL) Library of Congress, Vol 5, No. 7, July, 1956

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So. East European Accessions List Vol. 5, No. 9 September, 1956

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Rumania

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BRUJAN, N.

Problems discussed at the production conference. p.4.
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Concern for saving the resinous timber. Constr Buc 15 no.700:3 8 Je '63.

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On the construction site of the new cement plant. Constr Buc 16 no.777:2,3 28 N '64.

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[Grassland crop rotations on irrigated soils; for collective farms of Rostov Province] Travopol'nye sevooboroty v usloviiakh oroshenniia; dlia kolkhozov Rostovskoy oblasti. Rostov-na-Donu, 1952. 29 p. (MLRA 9:7)
(Rostov Province--Irrigation)
(Rotation of crops)

BRUK, A. B.

Vegetable Gardening - Rostov (Province)

Organization of vegetable gardening and dairying in the suburban areas of the Rostov Province; Sad. i og. no. 3, 1952.

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Experience in the redesigning of exhaust fans. Prom. energ. 19 no.1:13-14 Ja '64. (MIRA 17:2)

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BRUK, A.D., inzh.; KHOROLENKO, V.A., inzh.

Use of a condensate injection for increasing the efficiency of a piston compressor. Prom. energ. 18 no.9:30-31 S '63.
(MIRA 16:10)

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Wear of the rotors of agglomerate exhaust fans. Prom. energ. 19 no.5:25-27 My '64. (MIRA 17:6)

BRUK, A.D., inzh.

Means for decreasing electric power expenditures in the drives of draft and blast machines. Elek. sta. 34 no.9:79-81 S '63.
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Effectiveness of using exhaust pumps with flat runner blades. Izv. vys. ucheb. zav.; energ. 7 no.8:65-69 Ag '64. (MIRA 17:12)

1. Kommunarskiy gornometallurgicheskiy institut. Predstavlena kafedroy teplotekhniki i gidravliki.

BRUK, Aleksandr Davidovich. Prinimal uchastiye ZIL'BERBLAT, M.E., inzh.; NEVEL'SON, M.I., kand. tekhn. nauk, red.

[Draft and blast machines in metallurgy] Tiagodut'evye ustanovki v metallurgii. Moskva, Metallurgiia, 1965. 179 p. (MIRA 18:3)

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Vein pressure in various cond of Cardiac + pulmonary Cardiac

25833 Bruk, A. I. Venoznoe Davleniye Pri Razlichnykh Formakh Serdechnoy I Legochno. Serdechnoy Nedosta - Tochnosti. Sporniknauch. Rabot Lecheb. Uchrezhdeniy Nosk. Voen. OKR. Gor'kiy, 1948, S. 214-26.

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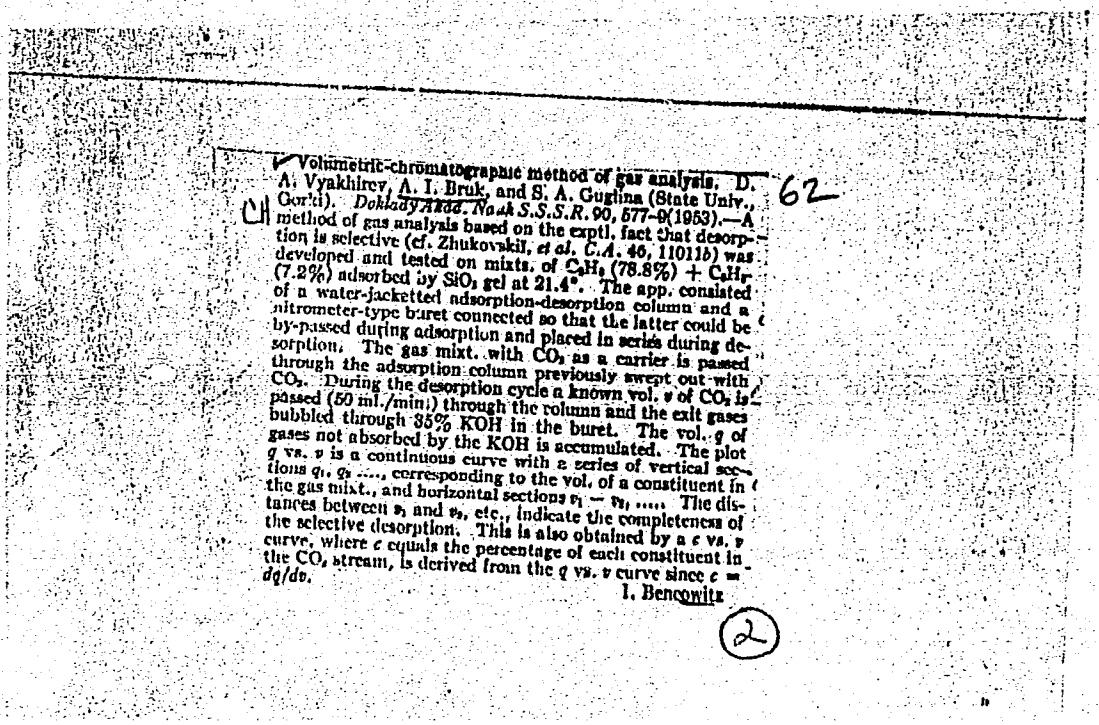
BRUK, A.I.

Immediate and remote results of complex therapy of acute pulmonary suppurations. Klin.med.,Moskva 29 no.1:62-64 Jan 51.
(CLML 20:5)

1. Moscow.

BRUK, A. I.



Volumetric-chromatographic method of gas analysis. D. A. Vyakhirev, A. I. Bruk, and S. A. Guglina (State Univ., Gor'ki). *Doklady Akad. Nauk S.S.S.R.* 90, 677–9(1953).—A method of gas analysis based on the expti. fact that desorption is selective (cf. Zhukovskii, *et al.*, *C.A.* 46, 11011*b*) was developed and tested on mixts. of C_2H_6 (78.8%) + C_3H_8 (7.2%) adsorbed by SiO_2 gel at 21.4°. The app. consisted of a water-jacketted adsorption-desorption column and a nitrometer-type buret connected so that the latter could be by-passed during adsorption and placed in series during desorption. The gas mixt. with CO_2 as a carrier is passed through the adsorption column previously swept out with CO_2. During the desorption cycle a known vol. v of CO_2 is passed (50 ml./min.) through the column and the exit gases bubbled through 35% KOH in the buret. The vol. q of gases not absorbed by the KOH is accumulated. The plot q vs. v is a continuous curve with a series of vertical sections q_1, q_2 ...., corresponding to the vol. of a constituent in the gas mixt., and horizontal sections $v_1 - v_2$, ... The distances between v_2 and v_3, etc., indicate the completeness of the selective desorption. This is also obtained by a c vs. v curve, where c equals the percentage of each constituent in the CO_2 stream, is derived from the q vs. v curve since $c = dq/dv$.

I. Bencowitz

62

(2)

BRUK, A.I.

V 9718. ANALYSIS OF MIXTURES OF GASEOUS HYDROCARBONS BY A VOLUMETRIC-CHROMATOGRAPHIC METHOD. Vyakhirev, D.A., Bruk, A.I. and Guglina, E.A. (Zavod. Lab. (Fact. Lab., Moscow), 1954, vol. 20, (7), 803-807; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1955, (16), 34764). There are two versions of the method: a simple development in the analysis of a two component system (ethane and propane), and chromathermography for a five-component mixture of ethylene, propylene and butylenes. Both are described. The latter takes about 1 h.

FU

BRUK, A.I.

Volumetric chromatographic method of analysis of mixtures of hydrocarbon gases. D. A. Vyakhirev, A. I. Bruk, and S. A. Guglina (State Univ., Gorki). *Zhur. Anal. Khim., Akad. Nauk S.S.S.R., Inst. Geokhim. i Anal. Khim.* 6, 137-45(1955); cf. C.A. 48, 12[illegible]; 49, 158[illegible] Shuftan, *Analiz gazov v tekhnike* (Energoizdat) 1953. Combustion app. for checking the chromatographic results is connected to the chromatographic app. C_3H_8 and C_3H_6 are sepd. in a jacketed silica-gel column kept at [illegible]. C_2H_6, C_2H_4, C_3H_8, C_3H_6, and the sum of isomers of C_4H_{10} are sepd. in a silica-gel column which has a [illegible]. Both columns are connected to a [illegible] 30% KOH. [illegible] is used for sweeping out the app. and desorbing components. [illegible] of gas [illegible] atm. pressure in the buret are plotted vs. time to produce a curve with steps which can be measured. Correction must be made for the vol. of impurities in the CO_2. Data are given for 5 air-C_3H_8 mixts. and 6 air-C_3H_6 mixts. Relative error of the volumetric-chromatographic method, compared to combustion method, for C_3H_8 was 0.2-4.7%; relative error for C_3H_6, compared to Br-H_2O absorption method, was 0-2%.

Eurilla Mayerle

CL (2)

BRUK, A. I.

Distr: 4E4j/4E2c(j)/4E3d

Effects of experimental conditions on chromatographic separation in the gas or vapor phases. I. The temperature effects on the elution separation of methane, ethane, and propane mixture from silica gel. D. A. Vyakhirev and A. I. Bruk (N. I. Lobachevskii State Univ., Gorki). *Zhur. Fiz. Khim.* 31, 1713–16(1957).—The sepn. of CH_4–C_2H_6–C_3H_8 mixt. and C_2H_6–C_3H_8 mixt. by elution from an SiO_2 adsorbent in a column was investigated at −10–(+25°). The hydrocarbon concn. in the eluting air stream was detd. by measurements of heat cond. The max. elution yields and the min. retention amts. shifted unequally with the temp. towards higher values with lower temps. The heats of adsorption of the gases were calcd. from the relation between the retention vol. of the gases and the elution temp.

W. M. Sternberg

5(4) SOV/76-33-6-22/44

AUTHORS: Vyakhirev, D. A., Bruk, A. I.

TITLE: Effect of the Experimental Parameters on the Chromatographic Separation of Substances in the Gaseous and Vapor Phase (Vliyaniye parametrov opyta na khromatograficheskoye razdeleniye veshchestv v gazovoy i parovoy fazakh). II. Influence of the Nature of the Carrier Gas on the Separation of the Mixtures of Gaseous Hydrocarbons (II. Vliyaniye prirody gaza-nositelya na razdeleniye smesey gazoobraznykh uglevodorodov)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6, pp 1309-1317 (USSR)

ABSTRACT: On the basis of certain considerations it is assumed that in the series $H_2 \rightarrow N_2 \rightarrow CO_2$ as carrier gas (CG) a blurring of the chromatogram bands at the absorbed substance becomes stronger with respect to a finiteness of kinetics, while blurring becomes lower with longitudinal diffusion. Here, an investigation is made of the influence exerted by these factors on the band blurring (BB); the above mentioned carrier

Card 1/3

Effect of the Experimental Parameters on the Chromatographic Separation of Substances in the Gaseous Vapor Phase. II. Influence of the Nature of the Carrier Gas on the Separation of the Mixtures of Gaseous Hydrocarbons

gases are applied in this connection. The adsorbent used was pre-treated silica gel MSM. The adsorption isotherms and adsorption heats of n-butane (I) in H_2, N_2 and CO_2 were determined according to the dynamic method (Ref 10) in an appropriate apparatus (Fig 1). The obtained adsorption isotherms of (I) in H_2, N_2 and CO_2 obey the Langmuir equation (Figs 2, 3). The adsorption coefficients and values of the maximum adsorption of (I) in H_2, N_2 and CO_2 were derived from the diagrams (Table 1). Experimental results showed that the nature of the (CG) considerably influences the above mentioned factors. The numerical values obtained concerning the effective coefficients of the longitudinal diffusion (Table 2) with (CG) gas flow rates of 12 - 100 cm/min, as well as the obtained elution- and chromatographic curves of the gaseous hydrocarbons point to a quicker and more complete separation in the CO_2 current (as compared to

Effect of the Experimental Parameters on the Chromatographic Separation of Substances in the Gaseous Vapor Phase. II. Influence of the Nature of the Carrier Gas on the Separation of the Mixtures of Gaseous Hydrocarbons

H_2 and N_2), because a weaker effect of the factors acting on the (BS) is observable. The last mentioned factors are given for various gas flow rates and the individual (GC) are mentioned (Table 3). Finally, gratitude is expressed to Professor A. A. Zhukhovitskiy. There are 8 figures, 3 tables, and 20 references, 8 of which are Soviet.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo (Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: November 16, 1957

S/076/60/034/05/26/038
B010/B003

5.5600(A)

AUTHORS: Vyakhirev, D. A., Chernyayev, N. P., Bruk, A. I.

TITLE: Effect of the Experimental Parameters on the Chromatographic Separation of Substances in the Gaseous and Vapor Phases. III. Effect of the Structure of Silica Gel on the Separation of Gaseous Hydrocarbons by Volumetric Chromatography

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 5, pp. 1096-1103

TEXT: The authors investigated the effect of the structure of silica gel on the separation of gaseous hydrocarbons, thus evaluating the efficiency of separation by the difference in the adsorption heats of the components and the criteria of separation K_1 and K_2 (Ref. 5). A pyrolytic gas (10% H_2, 40% CH_4, 12% C_2H_6, 20% C_2H_4, 2% C_3H_8, 12% C_3H_6, 2% C_4H_{10}, and 3% C_4H_8) was investigated, however, only the separation of the pair C_2H_6 - C_2H_4 was examined. Z. P. Kuznetsova, Laboratory

Card 1/3

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Effect of the Experimental Parameters on the Chromatographic Separation of Substances in the Gaseous and Vapor Phases. III. Effect of the Structure of Silica Gel on the Separation of Gaseous Hydrocarbons by Volumetric Chromatography

S/076/60/034/05/26/038
B010/B003

Assistant, participated in the experiments. A device described in Ref. 6 was used, which renders chromathermographic and elution tests possible. Two series of silica gel served as samples; one was prepared by I. Ye. Neymark's method, and the other was treated with hydrochloric acid and aftertreated with 0.1 N of KOH. In addition to the latter MCM (MSM) silica gels, also non-treated MCK (MSK) and MCM (MSM) silica-gel samples were examined. The authors determined the structural characteristics (Tables 1,2) by a method of B. A. Lipkind. The authors found that a better separation can be obtained by increasing the specific surface and reducing the pore diameter of the silica gel. A comparison of the adsorption isothermal line of butane (Figs. 1,2) and the adsorption coefficients G derived therefrom, the maximum adsorption z, and the ratio G/z reveals that less convex adsorption isothermal lines were obtained on MCM(MSM) silica gel treated with HCl and aftertreated

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Card 2/3

80735

Effect of the Experimental Parameters on the Chromatographic Separation of Substances in the Gaseous and Vapor Phases. III. Effect of the Structure of Silica Gel on the Separation of Gaseous Hydrocarbons by Volumetric Chromatography

S/076/60/034/05/26/038
B010/B003

with 0.1 N of KOH. This treatment lowers the adsorptive capacity of silica gel (Table 3) since the pore diameter is enlarged and the specific surface reduced. Thus, the authors succeeded in avoiding a polymerization of unsaturated hydrocarbons (propylene and butylene) which, however, takes place with untreated silica gel. Table 4 lists the values of ΔG and K_1 for ethane and ethylene of the various silica-gel samples. Finally, the authors thank Professor A. A. Zhukhovitskiy for his interest in the present investigation. There are 4 figures, 4 tables, and 10 references: 7 Soviet, 1 German, 1 Czech, and 1 American.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo (Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: July 22, 1958

Card 3/3

BRUK, A.I.; VINOGRADOVA, L.M.; VYAKHIREV, D.A.

Theoretical calculation of certain parameters in gas-chromatographic separation. Trudy po khim.i khim.tekh. no.1:99-101 '63.
(MIRA 17:12)

BRUK, A.M.; VILIANSKIY, M.P.

Problem of the significance of serial vasography during life as a diagnostic method in diseases of the arterial system (answer to A.N. Shabanov's artrila "Arteriography in endarteritis obliterans"). Khirurgiia, Moskva No.2:51-59 Feb 51. (CLML 20:6)

1. Of the Faculty Surgical Clinic of the Sanitary-Hygienic Faculty (Director--Prof.I.S.Zhorov), First Moscow Order of Lenin Medical Institute, attached to the Clinical Hospital of Zhdanovskiy Rayon, and of the Department of Operative Surgery (Head--Docent A.M.Bruk) of Chelyabinsk Medical Institute attached to Chelyabinsk Oblast Hospital of Restorative Surgery (Head--M.M.Orzhekhovskaya).

BRUK, A.M.; VILYANSKIY, M.P.

Collateral circulation in experimental section of the saphenous nerve; roentgenovasographic study. Vopr. neirokhir. 16 no. 3:43-47 May-June 1952. (CLML 22:5)

1. Docent for Bruk; Candidate Medical Sciences for Vilyanskiy.
2. Of the Department of Operative Surgery (Head -- Docent A.M. Bruk), Chelyabinsk Medical Institute (Director -- Prof. G. D. Obraztsov).

BRUK, A.M.; VILYANSKIY, M.P.

Pathogenesis of appearance of trophic disorders in gun-shot injuries of the sciatic nerve. Vest. khir. Grekova, Leningr. 72 no. 4:49-53 July-Aug. 1952. (CLML 22:5)

1. Docent for Bruk: Candidate Medical Sciences for Vilyanskiy.
2. Of the Department of Operative Surgery (Head -- A. M. Bruk, Chelyabinsk Medical Institute located at Chelyabinsk Oblast Hospital of Restorative Surgery (Head -- M. M. Orzhekhovskaya).

BRUK, A. M., Docent; VIL'YANSKIY, M. P.; [illegible], A.; [illegible], N.

Heart - Diagnosis

Methods of experimental contrast angiocardiography. Vest. rent. i rad. No. 1, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

BRUK, A.M.

Local application of penicillin and streptomycin in chronic suppurative inflammation of the maxillary sinuses. Vest. oto-rin. 18 no.1:36-42 Ja-F '56. (MLRA 9:6)

1. Iz kliniki bolezney ukha, gorla i nosa (dir.-prof. A.G. Likhachev) I Moskovskogo ordena Lenina meditsinskogo instituta.

(MAXILLARY SINUS, dis.
sinusitis, suppurative, ther., penicillin & streptomycin, local admin.)
(PENICILLIN, ther. use
sinusitis, maxillary suppurative, local admin.)
(STREPTOMYCIN, ther. use)

BRUK, A.M.

Case reports of congenital defects of the nasopharyngeal vault.
Vest.otorin. 21 no.3:89-90 My-Je '59. (MIRA 12:9)

1. Iz kliniki bolezney ukha, gorla i nosa (dir. - prof.A.G. Likhachev) I Moskovskogo meditsinskogo instituta.
(NASOPHARYNX, abnorm.
(Rus))

BRUK, A.M.

Local use of cortisone in the treatment of patients with vasomotor rhinitis. Vest.otorin. 23 no.1:11-16 Ja-F '61.
(MIRA 14:2)

1. Iz kliniki bolezney ukha, nosa i gorla (dir. - zasluzhennyy deyatel' nauki prof. A.G. Likhachev) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(CORTISONE) (HAY FEVER)

BRUK, A. S. Cand Tech Sci

Dissertation: "Investigation and Development of Structural Clu.."

31/10/50

Central Sci Res Inst of Industrial Constructions-TsNIPS.

EO Vecheryaya Moskva
Sum 71

BRUK, A.S., kandidat tekhnicheskikh nauk.

Water-repellent substances for sizing wood fibre boards. Der.i lesokhim.prom. 2 no.12:19-20 D '53. (MLRA 6:11)

1. TSentral'noye proyektno-konstruktorskoye byuro Glavstandartdoma Ministerstva promyshlennosti stroitel'nykh materialov SSSR.
(Wall board--Permeability)

BRUK, A.S., kandidat tekhnicheskikh nauk; GODILO, P.V., inzhener.

New xylenol resin used for treatment of wood fiber floor slabs.
Biul. stroi.tekh. 13 no.12:15-16 D '56. (MLRA 10:2)

1. Nauchno-issledovatel'skiy institut-200. Glavstandartdom.
(Hardboard) (Resins, Synthetic)

BRUK, A.S., kand.tekhn.nauk

Treatment of fiberboard to prevent rotting. Bum. prom. 33 no.9:13-14 S '58. (MIRA 11:10)
(Wood preservatives)

SEREBRENNIKOV, A.A., inzh.; KRAVCHENKO, V.A., kand.tekhn.nauk; DEKHANOV, N.M., inzh.; BRUK, A.S., prof., doktor tekhn.nauk; LEYBOVICH, R. Ye., dotsent, kand.tekhn.nauk; BONCHAROV, V.F., inzh.

Making 75 percent ferrosilcon with molded coke. Stal' 23 no.1:44-46 Ja '63. (MIRA 16:2)

1. Zaporozhskiy zavod ferrosplavov i Dnepropetrovskiy metallurgicheskiy institut.

(Ferrosilocon—Electrometallurgy)

PEREPELITSA, Aleksandr Lavrovich; GUSEV, Nikolay Zakharovich; BRUK, A.S., prof., doktor tekhn. nauk, otv. red.; BANKVITSER, A.L., red.; POLENOVA, T.P., tekhn. red. MAKAGONOVA, I.A., tekhn. red.

[Use of solid heat carriers in a flow sheet for the continuous coking of Irkutsk Basin coals] Primenenie tverdogo teplonositelia v skheme nepreryvnogo koksovaniia uglei Irkutskogo basseina. Moskva, Izd-vo Akad. nauk SSSR, 1963. 143 p. (MIRA 16:4)
(Irkutsk Basin--Coal) (Coke ovens)

BRUK, A.S.; LEYBOVICH, R.Ye.; KRAVCHENKO, V.A.; SEREBRENNIKOV, A.A.

Coke for the production of ferroalloys. Koks i khim. no.11:29-31 '62. (MIRA 15:12)

1. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Leybovich). 2. Zaporozhskiy ferrosplavnyy zavod (for Kravchenko, Serebrennikov).

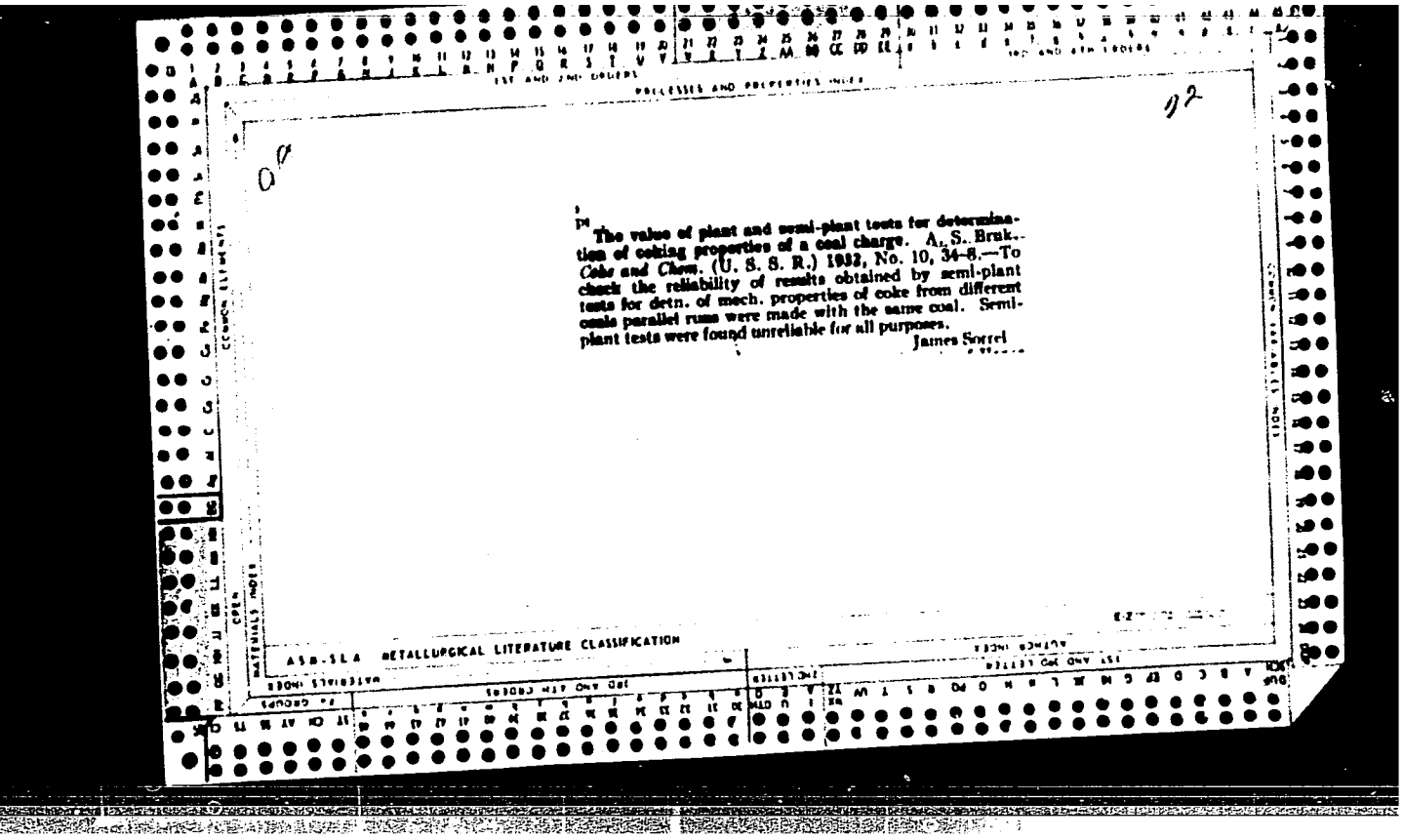
(Iron alloys—Metallurgy) (Coke)

BRUK, A.S.; LEYBOVICH, R.Ye.; IVANOV, Ye.B.; SMUL'SON, A.S.; BELUKHA, A.A.; MUCHNIK, D.A.; FARTUSHNAYA, R.M.; Prinimali uchastiye: KUTEVOY, P.M.; GOL'DBERG, P.Ya.; NECHAYEVA, A.P.; KUBYSHKINA, L.I.; SHEYKHET, A.M.; VASIL'CHENKO, S.I.; BARASH, D.A.; KARPOVA, K.K.; KHODANKOV, A.T.

Effect of temperature changes in the control heating flues on the quality of the metallurgical coke. Koks i khim. no.7:26-27 '63. (MIRA 16:8)

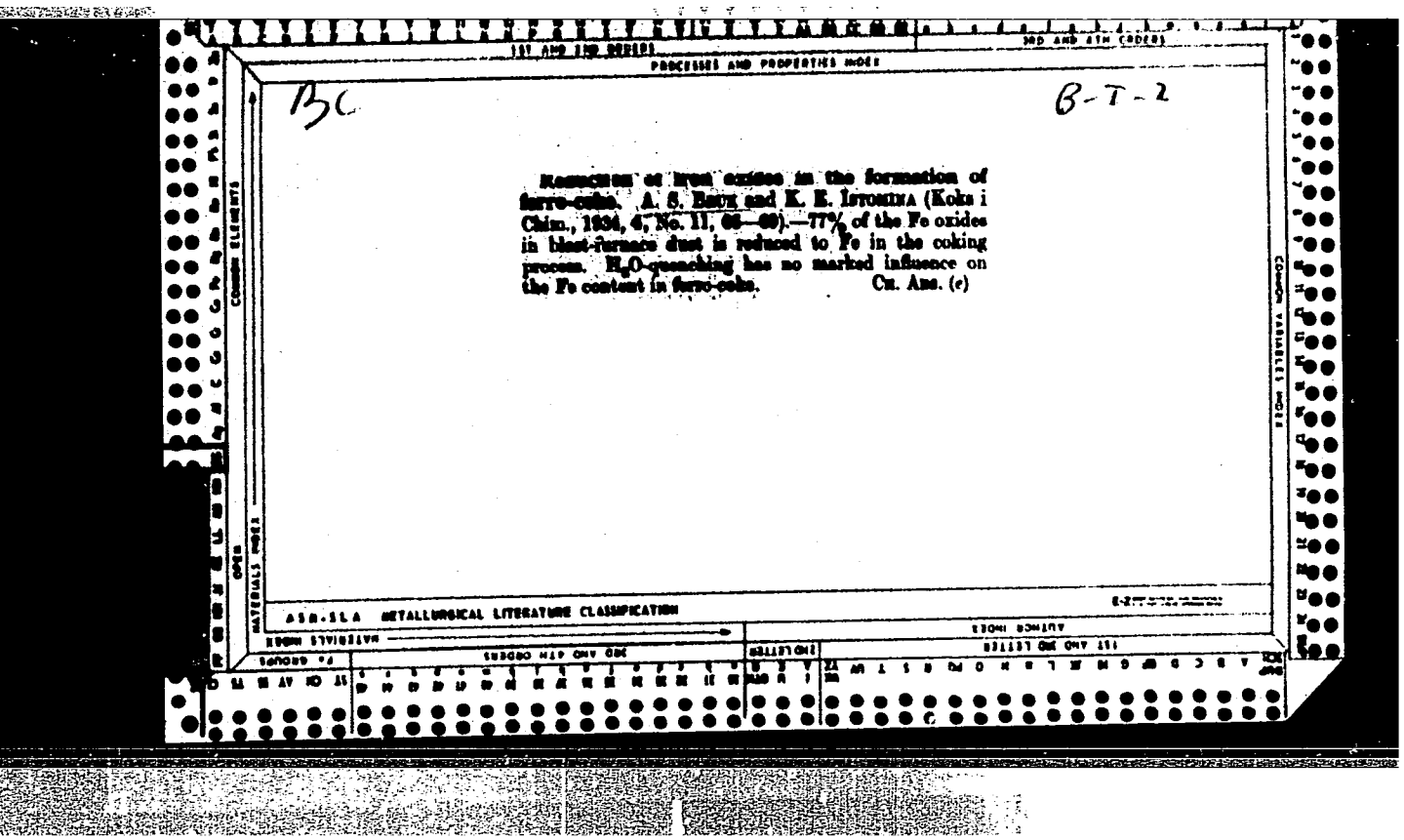
1. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Leybovich, Kutevoy, Gol'dberg, Nechayeva, Kubyshkina, Sheykhet). 2. Krivorozhskiy metallurgicheskiy zavod (for Ivanov, Smul'son, Belukha, Muchnik, Fartushnaya, Vasil'chenko, Barash, Karpova, Khodankov).

(Coke ovens) (Coke--Testing)



The value of plant and semi-plant tests for determination of coking properties of a coal charge. A. S. Brak.. *Coke and Chem.* (U. S. S. R.) 1952, No. 10, 34–8.—To check the reliability of results obtained by semi-plant tests for detn. of mech. properties of coke from different coals parallel runs were made with the same coal. Semi-plant tests were found unreliable for all purposes.

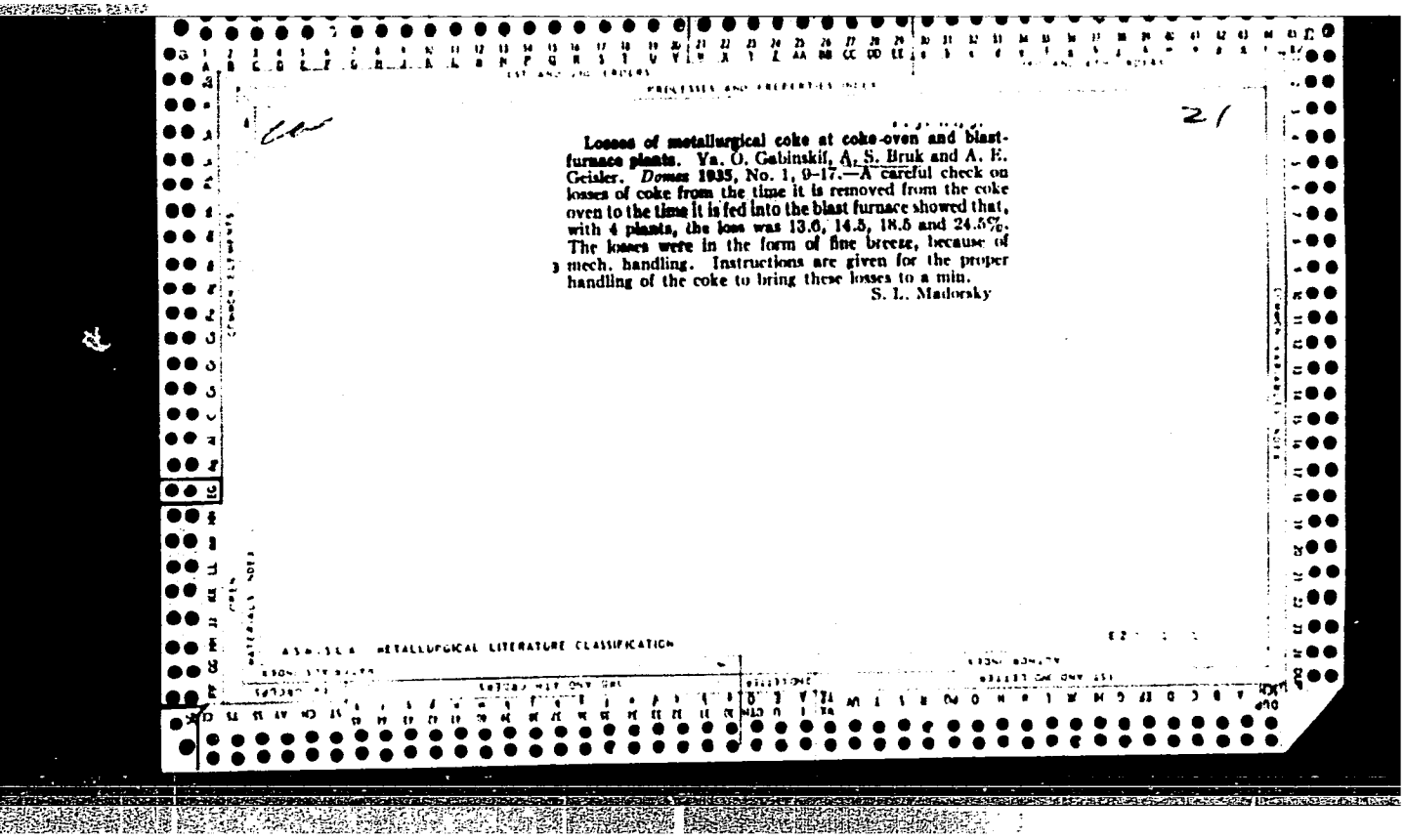
James Sorrel



BC

B-T-2

Reduction of iron oxides in the formation of ferro-coke. A. S. Bent and K. E. Istomina (Koks i Chim., 1934, 4, No. 11, 66—69).—77% of the Fe oxides in blast-furnace dust is reduced to Fe in the coking process. H_2O-quenching has no marked influence on the Fe content in ferro-coke. Ch. Abs. (e)



Losses of metallurgical coke at coke-oven and blast-furnace plants. Ya. O. Gabinskiĭ, A. S. Bruk and A. E. Geisler. *Domen* **1935**, No. 1, 9–17.—A careful check on losses of coke from the time it is removed from the coke oven to the time it is fed into the blast furnace showed that, with 4 plants, the loss was 13.6, 14.5, 18.5 and 24.5%. The losses were in the form of fine breeze, because of mech. handling. Instructions are given for the proper handling of the coke to bring these losses to a min.

S. L. Madorsky

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

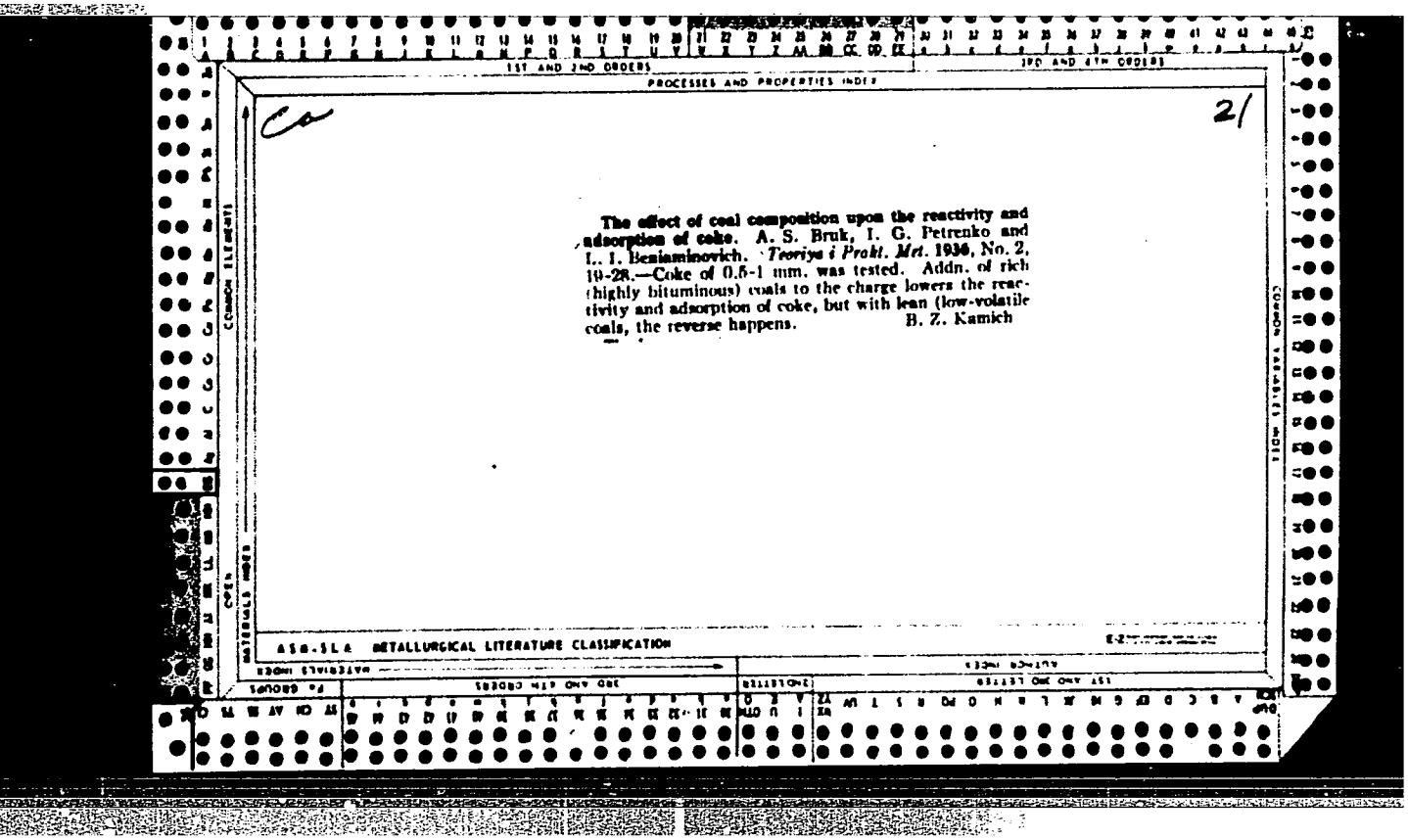
B6

8-I-2

Determination of superficial fissureness of cokes. A. S. [illegible] and M. R. [illegible] (Koks i Khim., 1935, No. 10, 33—36).—Superficial fissureness is defined as the ratio of total length of visible fissures to the superficial area. By means of a net of threads giving 1-cm. squares, longitudinal and transverse fissureness is determined, the sum of these vals. giving the total fissureness.

D. R. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

2/

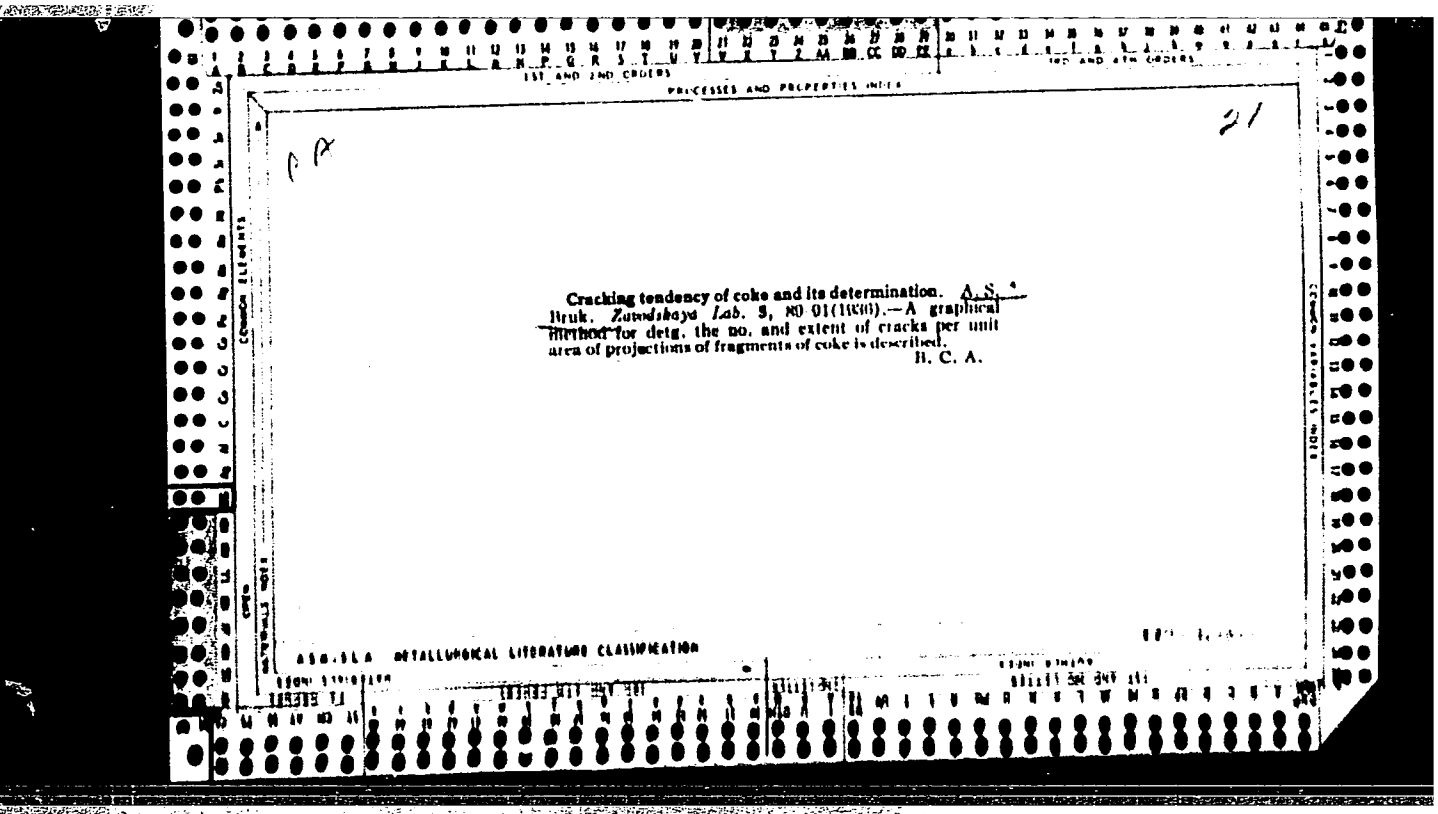
The effect of coal composition upon the reactivity and adsorption of coke. A. S. Bruk, I. G. Petrenko and L. I. Beniaminovich. *Teoriya i Prakt. Met.* 1936, No. 2, 19-28.—Coke of 0.5-1 mm. was tested. Addn. of rich (highly bituminous) coals to the charge lowers the reactivity and adsorption of coke, but with lean (low-volatile coals, the reverse happens. B. Z. Kamich

COMMON ELEMENTS

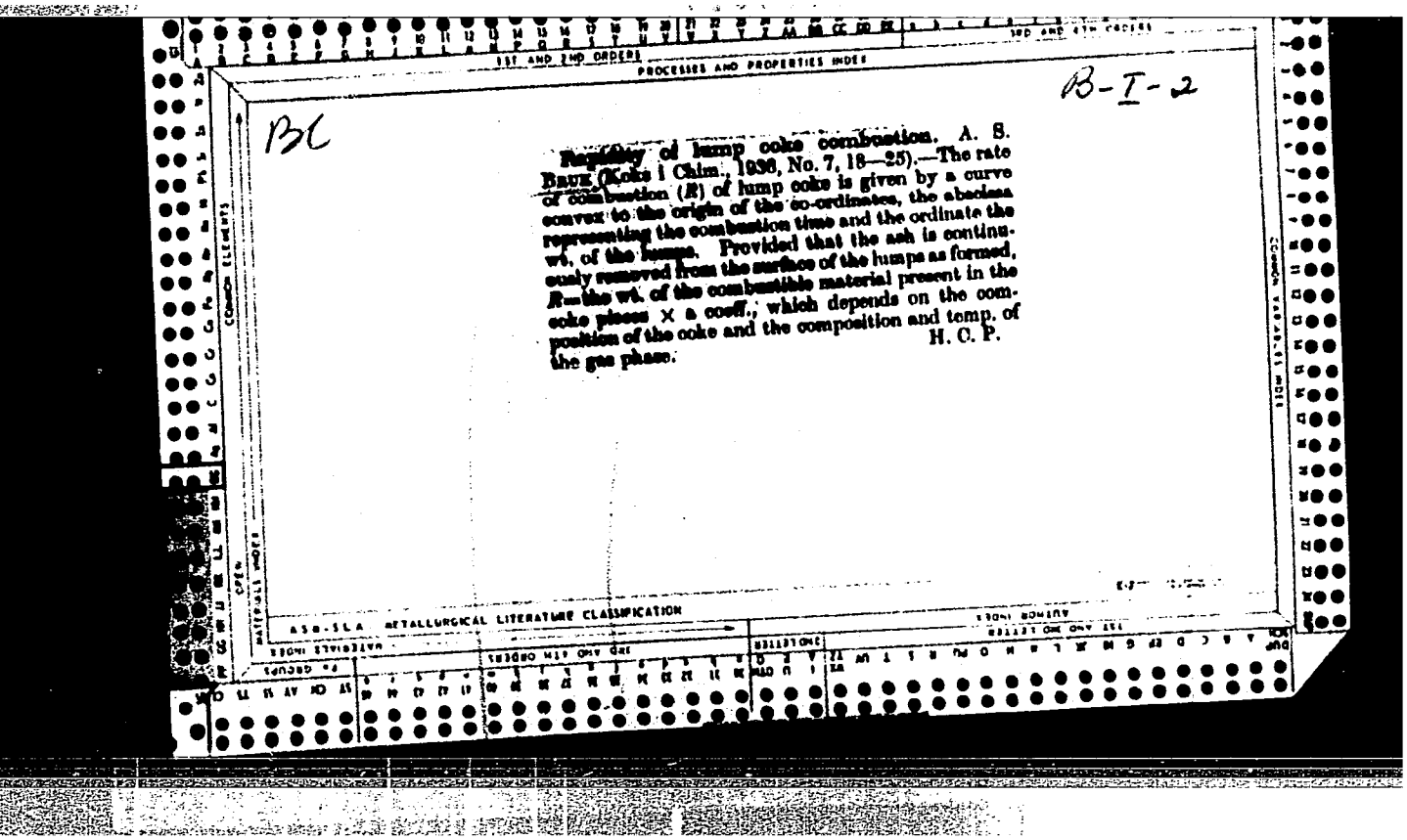
MATERIALS INDEX

COKE

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Cracking tendency of coke and its determination. A. S.
Iiruk. *Zavodskaya Lab.* 9, 80-91(1940).—A graphical method for detg. the no. and extent of cracks per unit area of projections of fragments of coke is described.
B. C. A.



PROCESSES AND PROPERTIES INDEX

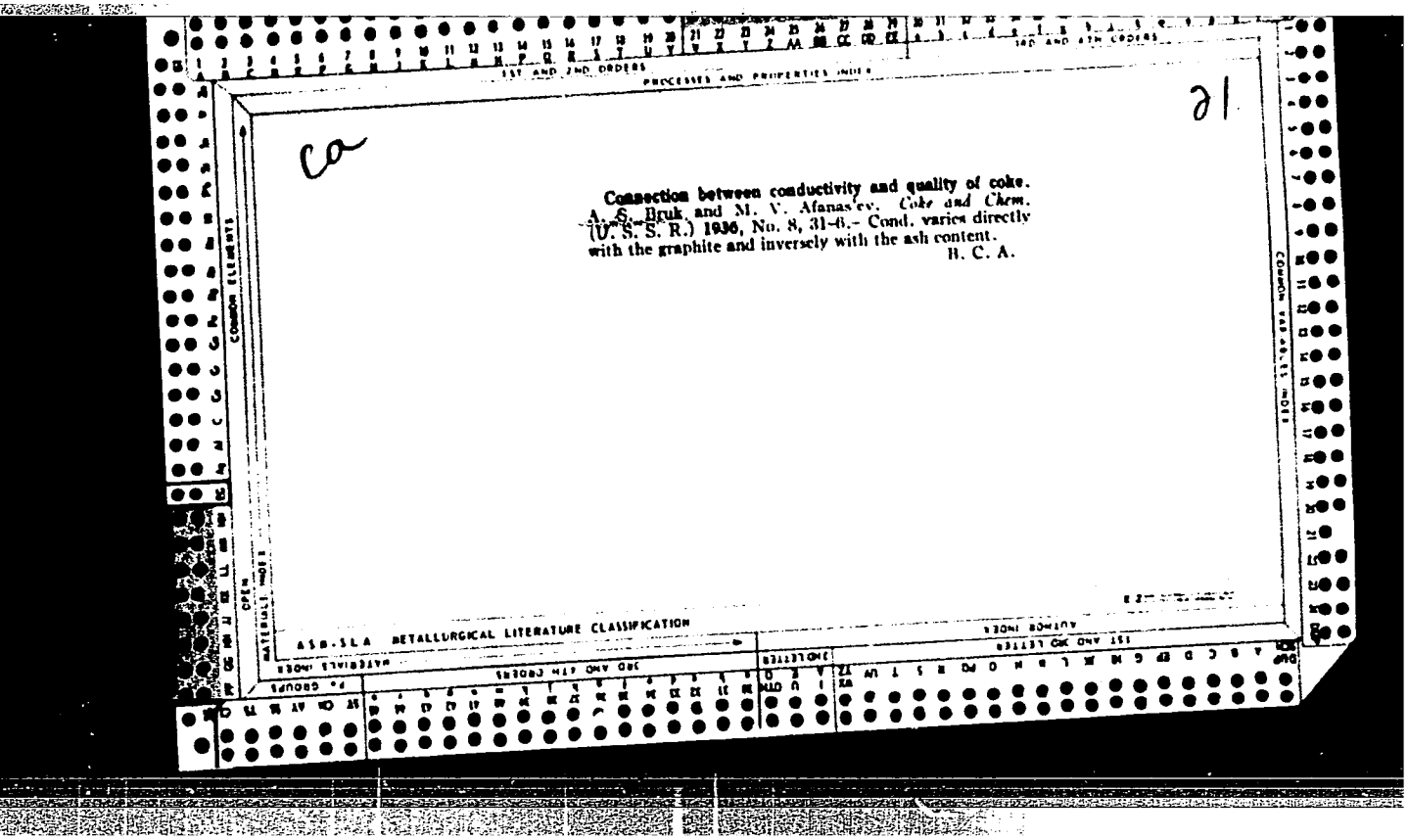
B-I-2

BC

Rapidity of lump coke combustion. A. S. Baux (Koks i Chim., 1936, No. 7, 18—25).—The rate of combustion (R) of lump coke is given by a curve convex to the origin of the co-ordinates, the abscissa representing the combustion time and the ordinate the wt. of the lumps. Provided that the ash is continuously removed from the surface of the lumps as formed, R=the wt. of the combustible material present in the coke pieces × a coeff., which depends on the composition of the coke and the composition and temp. of the gas phase.

H. C. P.

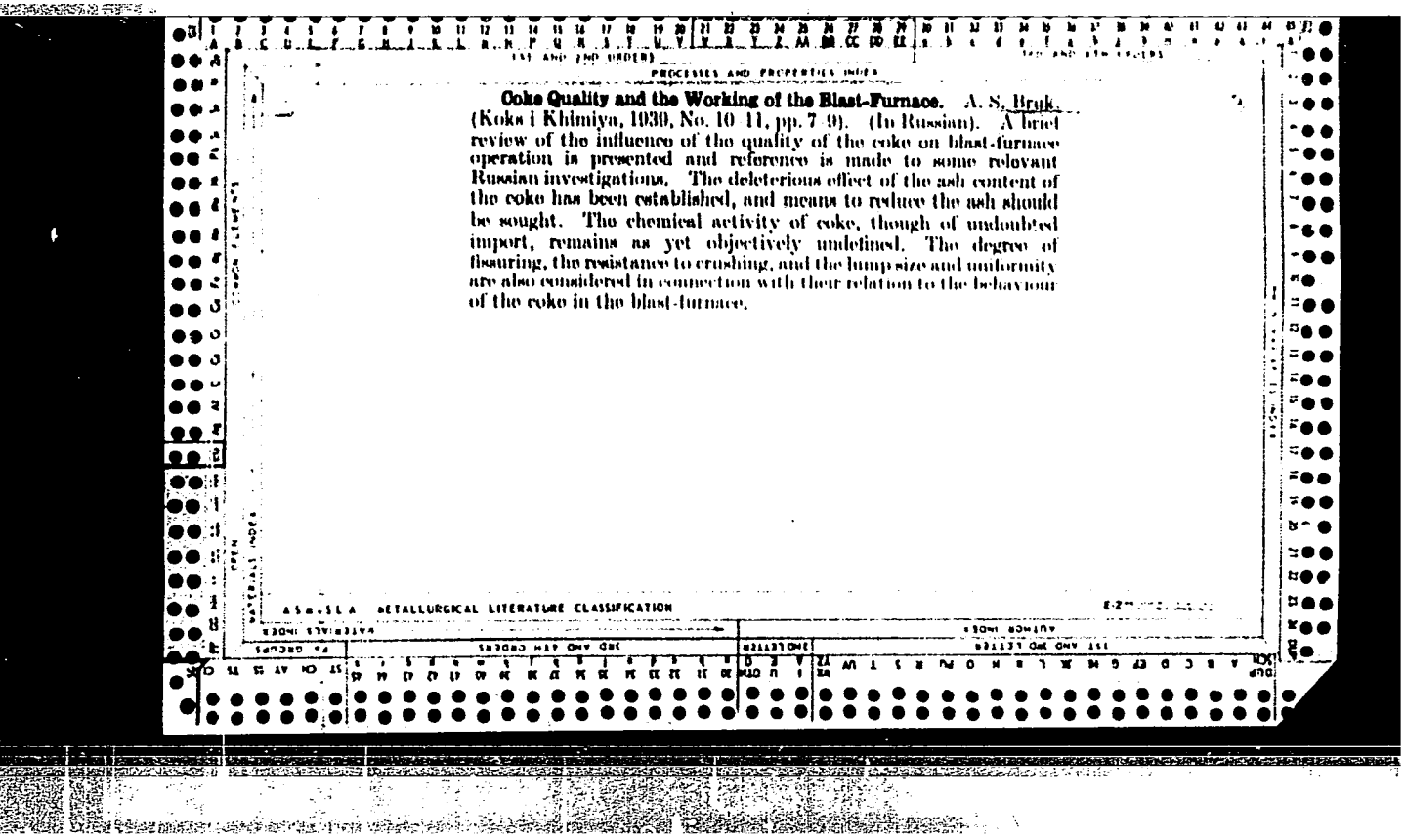
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



ca

21

Connection between conductivity and quality of coke. A. S. Bruk and M. V. Afanas'ev. *Coke and Chem.* (U. S. S. R.) **1936**, No. 8, 31–6.– Cond. varies directly with the graphite and inversely with the ash content.
B. C. A.



Coke Quality and the Working of the Blast-Furnace. A. S. Bruk. (Koks i Khimiya, 1939, No. 10–11, pp. 7–9). (In Russian). A brief review of the influence of the quality of the coke on blast-furnace operation is presented and reference is made to some relevant Russian investigations. The deleterious effect of the ash content of the coke has been established, and means to reduce the ash should be sought. The chemical activity of coke, though of undoubted import, remains as yet objectively undefined. The degree of fissuring, the resistance to crushing, and the lump size and uniformity are also considered in connection with their relation to the behaviour of the coke in the blast-furnace.

Investigation of the aerodynamic properties of bulk coke. A. S. Bruk, M. Ya. German, I. I. Korobov, K. T. Zhdanovskii, and E. A. Liberzon. *Stal* 7, 101-5(1947). The distribution and movement of gases through the charge of a blast furnace greatly affects the utilization of the thermal and chem. energy of the gases. Therefore, the physico-mech. properties of the charge, and primarily of the coke, are important in the processes taking place within the shaft. The ease with which gases rise through the coke dets. the run of the furnace. It is suggested to replace the time-consuming screen analysis by a detn. of the aerodynamic properties of bulk coke, from the relation $\Delta P = f(\gamma/2g)(S/V_f^3)Q^2$, where ΔP is the pressure drop, f is a resistance coeff., S is the total surface area in sq. m. per cu. m., V_f is the free vol. of bulk coke in cu. m. per cu. m., γ is the sp. gr. of the air blown through the coke in kg. per cu. m., Q is the quantity of air passed in cu. m. per sq. m. per sec., and g is acceleration due to gravity in m. per sec. per sec. f was detd. by a series of hydraulic tests carried out on the coke. Upon simplification the above formula becomes $\Delta P = k(S^{1.8}/V_f^3)Q^{1.8}$ where $k = 5.9\gamma\nu^{0.2}/g$, ν being the kinematic viscosity of the gas in sq. m. per sec. Under the conditions of the expts. γ = 1.2 kg. per cu. m. and $\nu = 14.5 \times 10^{-6}$ sq. m. per sec. Therefore, k = 0.0215. An app. for carrying out these detns. is described. A detn. requires 30 sec.

M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Bruk, A.S.

Properties of Different Size Fractions of Metallurgical Coke. A. S. Bruk and Z. A. Volkova. (*Stal'*, 1955, (8), 688–692). [In Russian]. An account is given of an investigation of the mechanical and aerodynamical properties of various size fractions of coke samples obtained from railway wagons or transporters conveying coke to blast-furnace plants. Coke in the size range 40–80 mm was found to have the best properties and a scheme for increasing the content of this range is proposed.—S. F.

AUTHORS: Bruk, A.S., Dr. Tech.Sc. and Laybovich, R.E., Cand. Tech. Sc. (Dnepropetrovsk Metallurgical Institute). 159

TITLE: The behaviour of coke at high temperatures. (Povedeniye koksa pri vysokikh temperaturakh).

PERIODICAL: "Koks i Khimiya" (Coke and Chemistry), 1957, No.3, pp.24-29 (U.S.S.R.)

ABSTRACT: The literature dealing with changes of mechanical properties of coke heated to high temperatures is surveyed. It is concluded from this survey that on secondary heating to high temperatures the strength of coke decreases. An experimental investigation of the following problems was carried out: changes in the degree of fissuring during secondary heating of coke; thermomechanical strength of coke during the static test under pressure and thermomechanical strength of coke during a dynamic test. It was shown that under the influence of heating the structure and texture of coke changes. These changes undoubtedly must lead to a decrease in its mechanical strength. Changes in the thermomechanical strength of coke appears at temperatures above 1000°C. A sharp increase in the formation of small fractions (below 25 mm) takes place in the temperature region 1200-1250°. It was found that coke produced from blends containing a small proportion of mineral impurities and coal grain above 3 mm (3-5%) is

The behaviour of coke at high temperatures. (Cont.)

considerably stronger on secondary heating than coke produced from the same blend but containing larger proportions of coal grains above 3 mm (8-12%). Methods of coke testing at high temperatures used in these investigations are described in some detail. There are 2 tables, 7 figures and 16 Russian references.

BRUK, A.S.

О КАТАЛИТИЧЕСКОМ ДЕЙСТВИИ РАЗЛИЧНЫХ ВЕЩЕСТВ ПРИ ПИРОЛИЗЕ СЛОЖНЫХ ОРГАНИЧЕСКИХ ВЕЩЕСТВ (КАМЕННЫХ УГЛЕЙ)

А. С. Брук, [illegible]

VIII Mendeleyev Congress for General and Applied Chemistry an Section of Chemistry and Chemical Technology of Fuels, publ. by Acad. Sci. USSR, Moscow 1959

abstracts of reports scheduled to be presented at above mentioned congress, Moscow, 15 March 1959.

SOV/68-59-1-6/26

AUTHORS: Bruk, A.S., Doctor of Technical Sciences, Volkova, Z.A., Leybovich, R.Ye., Obukhovskiy, Ya.M., Candidates of Technical Sciences and Leytes, V.A.

TITLE: Physico-mechanical and Physico-chemical Properties of Narrow-size Fractions of Blast Furnace Coke (Fiziko-mekhanicheskiye i fiziko-khimicheskiye svoystva uzkikh klassov domennogo koksa)

PERIODICAL: Koks i Khimiya, 1959, Nr 1, pp 21 - 24 (USSR)

ABSTRACT: Properties of size fractions of coke: above 80 mm, 80-60 mm, 60-40 mm and 40-25 mm were investigated. Mechanical properties were tested by standard drum tests (GOST 5953-51); results are given in Table 1; coke reactivity by reduction of carbon dioxide to monoxide according to Ref 6; results - Table 2; the hardness of the coke substance according to Ref 7; results - Table 3 and the degree of carbonisation of the coke by measurements of its electro-conductivity, according to Ref 8; results - Table 4. It was found that the quality of blast-furnace coke is determined by properties of its individual fractions and is non-uniform not only in respect of size fractions but also in respect of other properties characterising these size fractions such as strength,

Card1/2

Physico-mechanical and Physico-chemical Properties of Narrow-size Fractions of Blast Furnace Coke

hardness, reactivity and the degree of carbonisation. Differences in properties of the individual size fractions of coke, while the quality of the coal blend remains constant, are determined by thermal conditions of coking. The most uniform in respect of all the properties tested are size fractions 60-40 and 80-60 mm. Separation of these most uniform fractions may secure the supply of blast furnaces with the most uniform fuel. There are 4 tables and 8 Soviet references.

ASSOCIATIONS: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute); and Gosplan of the Ukrainian SSR (V.A. Leytes)

ARONOV, Samuil Grigor'yevich; NESTERENKO, Leonid Lavrent'yevich; BRUK, A.S., red.; BAZILYANSKAYA, I.L., red.; TROFIMENKO, A.S., tekhred.

[Chemistry of solid mineral fuels] Khimiia tverdykh goriuchikh iskopaemykh. Pod red. A.S.Bruka. Khar'kov, Izd-vo Khar'kovskogo gos.univ. im. A.M.Gor'kogo, 1960. 371 p. (MIRA 13:10)

(Fuel--Analysis)

BRUK, A.S.

"Ways of increasing the supply of coking coal" by A.A.Agroskin. Reviewed by A.S.Bruk. Koks i khim. no.1:63 '60. (MIRA 13:6)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Coal--Carbonization)

ORLOV, V. I., KRUTITSKAYA, M. N., BRUK, A. S., IVANOVA, B. S.

Antiseptics containing arsenic as wood preservatives. [Trudy] NIUIF no.167:201-207 '60. (MIRA 13:8)
(Arsenic) (Wood preservatives)

BRUK, A.S.; OBUKHOVSKIY, Ya.M.; VOLKOVA, Z.A.; BELETSKIY, V.G.; ANTONOV, A.T.; SHEVCHENKO, A.I.

Effect of bulk weight of coal charges on the mechanical properties of coke. Koks i khim. no.11:20-25 '60. (MIRA 13:11)

1. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Obukhovskiy, Volkova, Beletskiy). 2. Yasinovskiy koksokhimicheskiy zavod (for Antonov, Shevchenko).

(Coke)

SHTROMBERG, B.I.; MIROSHNICHENKO, A.M.; MOYSEYEVA, Kh.M.; KRIVOKON', Yu.G.; BRUK, A.S.; VOLKOVA, Z.A.; GEYD, G.P.; OBUKHOVSKIY, Ya.M.

Investigation of the coals of the Lvov-Volyn' Basin. Koks i khim. no.1:12-17 '61. (MIRA 14:1)

1. Ukrainskiy uglekhimicheskiy institut (for Shtromberg, Miroshnichenko, Moyseyeva, Krivokon'). 2. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Volkova, Geyd, Obukhovskiy).
(Lvov-Volyn' Basin—Coal)

BRUK, A.S., doktor tekhn.nauk; OBUKHOVSKIY, Ya.M., kand.tekhn.nauk; LEVIN, S.T.

"Coal sulfur" by A.Z. IUrovskii. Reviewed by A.S. Bruk, IA.M. Obukhovskii, S.T.Levin. Koks i khim. no. 5:63-64 '61. (MIRA 14:4)

1. Dnepropetrovskiy metallurgicheskiy institut (for Levin).
(Sulfur) (Coal)
(IUrovskii, A.Z.)

BRUK, A.S.; OBUKHOVSKIY, Ya.M.; BELETSKIY, V.G.; LEYBOVICH, R.Ye.; KULESHOV, P.Ya.; GOLUBCHIK, A.L.; SITALO, M.V.; EYDEL'MAN, A.Ye.

Improving the stability of coke quality at the Zaporozh'ye By-Product Coke Plant. Koks i khim. no.16:10-12 '61. (MIRA 15:2)

1. Dnepropetrovskiy metallurgicheskiy institut (for Bruk, Obukhovskiy, Beletskiy, Leybovich). 2. Zaporozhskiy koksokhimicheskiy zavod (for Kuleshov, Golubchik, Sitalo, Eydel'man) (Zaporozh'ye—Coke)

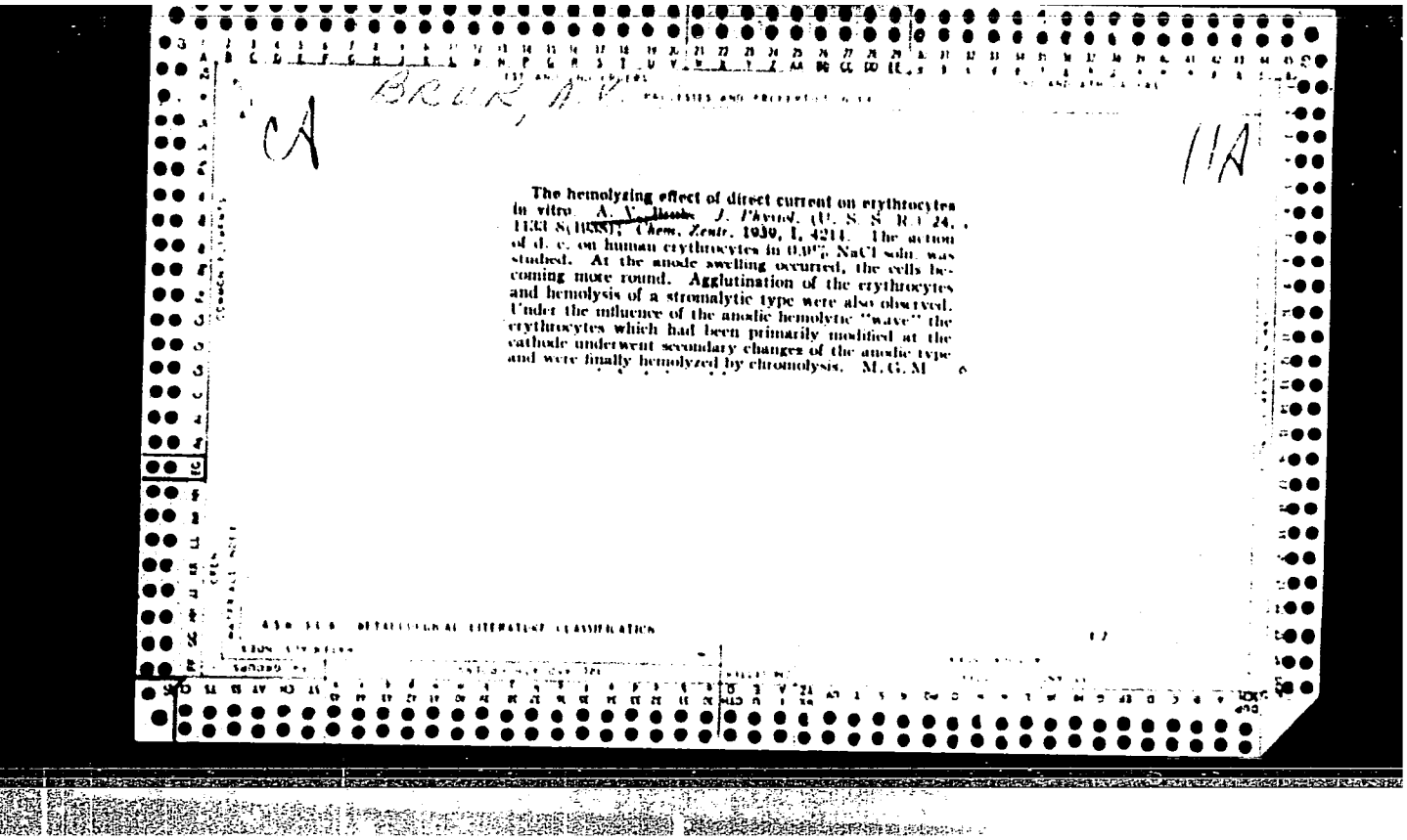
PEREPELITSA, Aleksandr Lavrovich; BRUK, A.S., prof., doktor tekhn.nauk, otv. red.; KONDRAT'YEVA, V.I., red.izd-va; DOROKHINA, I.N., tekhn. red.

[Pyrogenic sizing of Irkutsk Basin coals] Pirogeneticheskoe okuskovanie uglei Irkutskogo basseina. Moskva, Izd-vo AN SSSR, 1963. 218 p. (MIRA 16:10)
(Irkutsk Basin--Coal preparation)

GOTLIB, A.D.; BRUK, A.S.; OBUKHOVSKIY, Ya.M.; VOLOVIK, G.A.

Coke quality and the new technology of blast furnace smelting. Koks i khim. no.1:26-30 '64. (MIRA 17:2)

1. Dnepropetrovskiy metallurgicheskiy institut.



CA

11A

The hemolyzing effect of direct current on erythrocytes in vitro. A. V. [illegible]. *J. Physiol. (U. S. S. R.)* 24, 1133 S(1938); *Chem. Zentr.* 1939, I, 4214. The action of d. c. on human erythrocytes in 0.9% NaCl soln. was studied. At the anode swelling occurred, the cells becoming more round. Agglutination of the erythrocytes and hemolysis of a stromalytic type were also observed. Under the influence of the anodic hemolytic "wave" the erythrocytes which had been primarily modified at the cathode underwent secondary changes of the anodic type and were finally hemolyzed by chromolysis. M. G. M

SITKHINA, Dina Yefimovna, dots.kand.ekon.nauk; DELIMOV, A.I., kand.ekon. nauk, retsenzent; BOYTSOV, K.P., kand.ekon.nauk, retsenzent; PETROV, B.S., prof., doktor ekon.nauk, otvetstvennyy red.; BRUK, A.Ya., red.

[Organization and planning of production at enterprises of the wood pulp and wood chemical industries; manual on planning for students in engineering and economics departments] Organizatsiia i planirovanie proizvodstva na predpriiatiiakh tselliulozno-bumazhnoi i lesokhimicheskoi promyshlennosti; rukovodstvo k kursovomu proektirovaniiu dlia studentov inzhenerno-ekonomicheskogo fakul'teta. Leningrad, Izd. VZLTI, 1956. 86 p. (MIRA 11:4)
(Wood-using industries)

BRUK, B.F., TERLO, F.B. i BANDUROVSKAYA, N.F.

22046 Bruk, B. F., Terlo, F. B. i Bandurovskaya, N. F. Znacheniye issledovaniya promyvnykh vod zhelucka (p.v.zh.) na BK v rannem vyyavlenii tuberleza u detey. Uchen. Zapiski Nauch-issled. in-ta tuberkuleza v Odesse, Ch. 1, 1948, s.23-25.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

BRUK, B.F.

22074 Sukernokov, V.A. i Bruk, B.F. Nabor dlya izgotovleniya sukhikh mazkov makroty pri issledovanii na tuberkuleza. Uchen. Zapiski Nauch-issled in-ta tuberkuleza v Odesse, ch. 1, 1948, s. 61-63.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

BRUK, B. F.

ROSENBLATT, M. S., KRICHEVSKAIA, E. R., BRUK, B. F.

Importance of examination of gastric and bronchial lavage for tubercle bacilli. Probl. tuberk., Moskva No. 3, May-June 50. p. 9-12

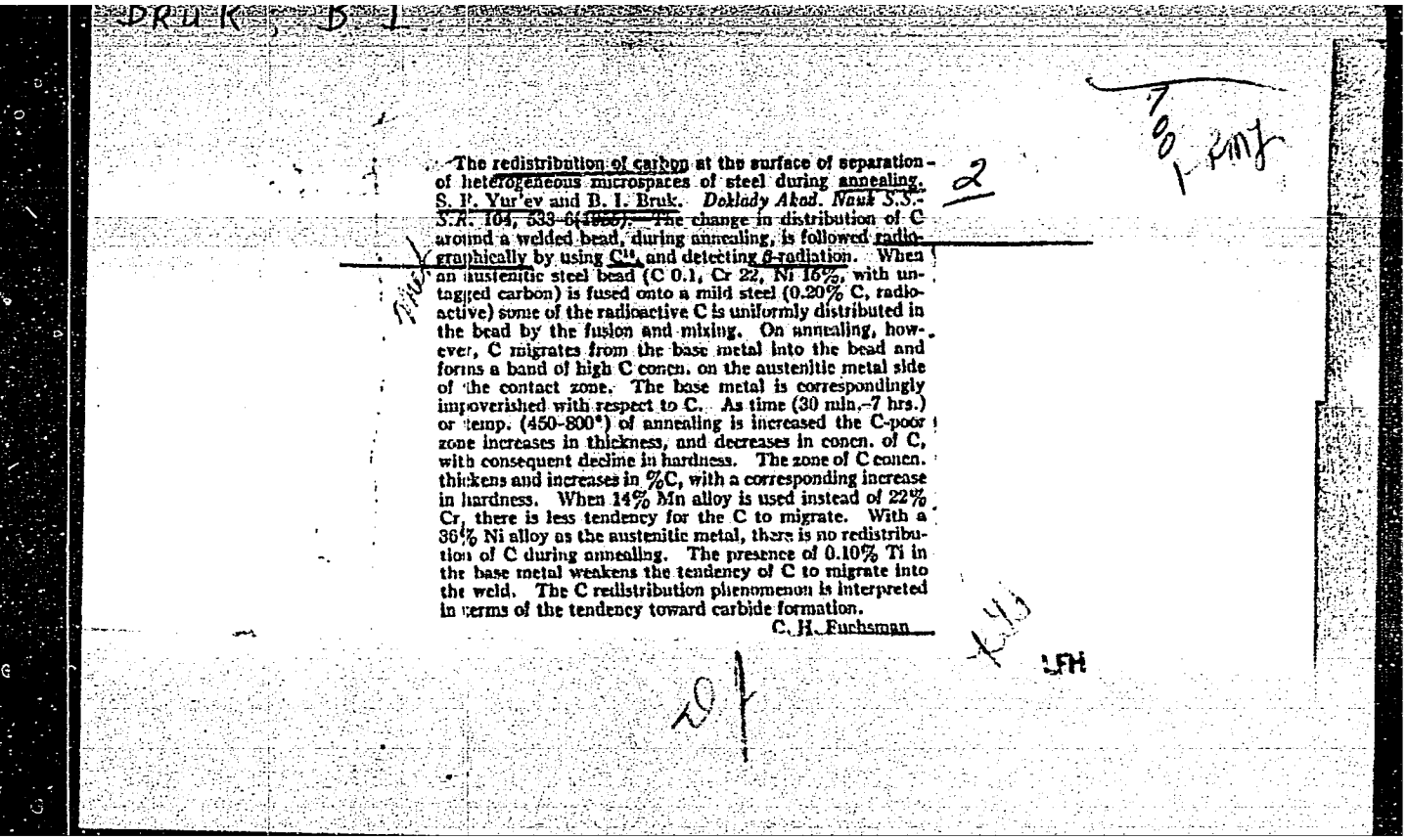
1. Of the Scientific-Research Institute for Tuberculosis in Odessa (Director--Docent Ya. I. Rozenblit).

CLML 19, 5, Nov., 1950

Bruk, B.I.

10292 Structure of Weld Metal Studied by Autoradiography. B. I. Bruk. *Henry Brutcher Translation No. 3715*, 11 p. (Abridged from *Svarochnoe Proizvodstvo*, 1955, no. 11, p. 8-13.) Henry Brutcher, Altadena, Calif.

Review of current Russian theories about layer formation and the nature of segregation in weld metal. Sulfur-35 is used as autoradiographic tracer. Graph, photographs, micrographs. 12 ref.



DRUK, B. I.

The redistribution of carbon at the surface of separation of heterogeneous microspaces of steel during annealing. S. P. Yur'ev and B. I. Bruk. *Doklady Akad. Nauk S.S.S.R.* 104, 533-6 (1955). The change in distribution of C around a welded bead, during annealing, is followed radiographically by using C^{14} and detecting β-radiation. When an austenitic steel bead (C 0.1, Cr 22, Ni 16%, with untagged carbon) is fused onto a mild steel (0.20% C, radioactive) some of the radioactive C is uniformly distributed in the bead by the fusion and mixing. On annealing, however, C migrates from the base metal into the bead and forms a band of high C concn. on the austenitic metal side of the contact zone. The base metal is correspondingly impoverished with respect to C. As time (30 min.–7 hrs.) or temp. (450-800°) of annealing is increased the C-poor zone increases in thickness, and decreases in concn. of C, with consequent decline in hardness. The zone of C concn. thickens and increases in %C, with a corresponding increase in hardness. When 14% Mn alloy is used instead of 22% Cr, there is less tendency for the C to migrate. With a 36% Ni alloy as the austenitic metal, there is no redistribution of C during annealing. The presence of 0.10% Ti in the base metal weakens the tendency of C to migrate into the weld. The C redistribution phenomenon is interpreted in terms of the tendency toward carbide formation.

C. H. Fuchsman

BRUK B.I.

AID P - 4815

Subject : USSR/Engineering

Card 1/2 Pub. 107-a - 1/13

Authors : Bruk, B. I. and S. F. Yur'yev

Title : Determination of welding stability by means of radioactive detectors.

Periodical : Svar. proizv., 3, 1-4, Mr 1956

Abstract : The problem of thermodynamic balance in welding has been studied in theory and practice without definite conclusions. These authors have undertaken an investigation of the fusion process by using the isotope of sulfur (S 35/16.) as a radioactive agent. They have come to the conclusion that at no time during the manual welding does there occur an equilibrium of elements of slag and metal. The UONI-13/45 and OMM-5 electrodes of 4 mm diameter and 100 to 250 amperes direct current with reversed polarity were used in all

Svar. proizv., 3, 1-4, Mr 1956

Card 2/2 Pub. 107-a - 1/13

experiments. Two tables and 2 graphs. 10 Russian references (1949-51).

Institution : Central Scientific Research Institute of the Ministry of the Shipbuilding Industry (TsNIIMSP).

Submitted : No date

BRUK, B.I.

AID P - 5241

Subject : USSR/Engineering

Card 1/2 Pub. 107-a - 1/9

Author : Bruk, B. I., Kand. of Tech. Sci. (TsNII MSP)

Title : Determination of the coefficients of transition of elements in welding with the help of radioactive isotopes.

Periodical : Svar. proizv., 8, 1-7, Ag 1956

Abstract : The author describes the use of the S 35/16 radioactive isotope of sulfur for determination of the amount of metal deposited into the welded seam from base metal, electrode and slag. The UONI-13/45 and the OMM-5 electrodes of 4 mm in diameter were used for welding with the Kel'berg semi-automatic machine (direct current with reverse polarity). Twenty-one formulae, 5 tables, 3 graphs and 3 drawings. Six Russian references (1946-56).

Svar. proizv., 8, 1-7, Ag 1956 AID P - 5241

Card 2/2 Pub. 107-a - 1/9

Institution : Central Scientific Research Institute of the Ministry of the Shipbuilding Industry (TsNII MSP).

Submitted : No date

137-58-5-9681

BRUK, B.I.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 116 (USSR)

AUTHORS: Zenzin, V.N., Petrov, G.L., Bruk, B.I.

TITLE: The Latest Achievements of the Scientific Research Organizations of Leningrad in the Welding of Alloy Steels (Noveyshiye dostizheniya nauchno-issledovatel'skikh organizatsiy Leningrada v oblasti svarki legirovannykh staley)

PERIODICAL: V sb.: Svarochnoye proiz-vo. Leningrad, Lenizdat, 1957, pp 38-55

ABSTRACT: The results of investigations in the field of the welding of alloy steels related to problems of the chemical inhomogeneity of welded joints, determination of a rational composition of austenitic heat-resistant facing metal, and study of the zone of fusion of welds of different steels are presented. Radioactive isotope and metallographic methods of analysis were employed in the investigations.

B.V.

1. Alloy steels--Welding 2. Welded joints--Chemical properties
3. Welds--Properties

Card 1/1

Bruk, B. I.

137-58-1-1967

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 263(USSR)

AUTHORS: Zav'yalov, A. S., Bruk, B. I.

TITLE: Radiographic Investigation of the Distribution of Carbon in Iron Alloys (Radiograficheskoye issledovaniye raspredeleniya ugleroda v zheleznykh splavakh)

PERIODICAL: V sb.: Metallovedeniye. Leningrad , Sudpromgiz. 1957, pp 206-219

ABSTRACT: The results of an investigation of the distribution of small amounts of C in Fe alloys by autoradiography employing radioactive C^{14} are presented. The following was the percentage content of the alloys: C 0.003-0.05; Cr 0.08-4.6; Ni 0-4; Mn 0-6.3; Si 0.10-4.4; Mo 0-12.5. Radioactive C is introduced in the form of $BaCO_3$ by cementation at 970° C. Grade MR NIKFI nucleonics film, permitting 100x enlargement, was exposed. A calculation is presented showing that a 10-day exposure for the purpose of obtaining an unmistakable spot in the emulsion will be successful with a localized segment containing C^{14} of about 10^4 interatomic distances. The minimum thickness of the layer of steel enriched by C^{14} should be about 500 interatomic distances.

Card 1/2

137-58-1-1967

Radiographic Investigation of the Distribution of Carbon in Iron Alloys

The nature of the interrelation between the distribution of C on the various conditions of heat treatment and various contents of alloying substances is established: a) if the percentage of alloying and carbide-forming elements and C at a given temperature of heating does not exceed their saturation solubility in Fe, then the C and the inclusions spread relatively uniformly throughout the volume of the grain. The process of redistribution of C in the direction of enriching the grain boundaries is impaired; b) if the concentration of carbide formers exceeds their maximum solubility in Fe, the grain boundaries will become enriched by these elements, and consequently by C as well; c) if the concentration of non-carbide-forming elements does not exceed their solubility in Fe, they will undergo uniform distribution throughout the volume of the grain and will facilitate an increase in C at the boundaries; d) if the concentration of non-carbide-forming elements exceeds their solubility in Fe, the grain boundaries will gain therein and will lose C. Bibliography: 26 references.

V. G.

1. Alloys—Carbon distribution 2. Alloys—Iron distribution 3. Radiography—Applications

Card 2/2

BRUK, B. I.

AUTHORS: Zav'yalov, A.S. and Bruk, B. I. 126-1-19/40

TITLE: Radiographic investigation of the distribution of carbon in ferrous alloys. (Radiograficheskoye issledovaniye raspredeleniya ugleroda v zheleznykh splavakh).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.1, pp. 127-136 (USSR)

ABSTRACT: The problem of the distribution of alloying elements, particularly of carbon in the microscopic zones of α and γ-solid solutions of ferrous alloys, has so far not been solved satisfactorily from the experimental point of view. The nonuniform distribution of individual elements in the microstructure is considered as being of decisive importance from the point of view of the behaviour of metallic alloys. Numerous metallurgists accept the hypothesis of V. I. Arkharov who assumes that in polycrystalline aggregates the Gibbs surface effect extends to layers of a thickness of many atoms; according to this hypothesis, the surface layers of a crystallite are enriched by an admixture which is capable of reducing its free energy and an over-concentration of the admixture in the alloy is sufficient for forming such layers (Refs.1 and 2). In spite of satisfactory inter-

Card 1/4

Radiographic investigation of the distribution of carbon in ferrous alloys.

pretation by means of this hypothesis of a number of phenomena taking place during heat treatment, this hypothesis has not been experimentally confirmed. Although mentioned by various authors, the nonuniformity of the distribution of individual elements inside the austenite grains has not been confirmed by direct experiments. In this paper the results are described of investigations of the distribution of small quantities of carbon in alloyed iron, effected by means of auto-radiography, using radio-active C^{14} as a tracer element. The investigations were carried out on six types of low carbon steels alloyed respectively with Ni, Cr, Mo, Mn and Si, the analyses of which are given in a table, p.128. The radio-active C^{14} was introduced by means of carburisation at 970°C with $BaCO_3$ without addition of carbon and, therefore, the increase in the carbon content above the initial value did not exceed 0.03 to 0.05%. The specimens were treated so as to obtain coarse grains (annealing at 970°C for 50 hours) and to detect more clearly the distribution of the

 carbon inside the individual crystallites. The

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exposures reproduced in the paper have been obtained after various conditions of heat treatment, i.e. in the annealed state, in the hardened state (quenched in water from 1200 and 900°C respectively) and in the tempered state. On the basis of the established relations between the carbon distribution at various heat treatment regimes and the contents of the above mentioned elements the following can be assumed as being generally valid:

1. If the concentration of the alloying elements in the carbon at a given heating temperature does not exceed the limit solubilities in the iron, the carbon and the alloying elements will be distributed relatively uniformly throughout the grain volume.

2. If the concentration of carbide forming elements at a given heating temperature does not exceed the limit solubility in iron, the elements will be distributed relatively uniformly throughout the grain volume and thereby will slow down the process of redistribution of carbon (enrichment with carbon of the grain boundaries); if the concentration of carbide forming elements exceeds

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the limit solubility at the given temperature, the grain boundaries will become enriched with the respective elements and thus also with carbon.
3. If the concentration of non-carbide forming elements at a given temperature is below the limit solubility, these elements will distribute relatively uniformly throughout the grain volume which will bring about a redistribution of the carbon, namely, enrichment of the grain boundaries with carbon; if the concentration of the non-carbide forming elements exceeds the limit solubility in iron, the grain boundaries will become enriched with these elements and, as a result of this, they will combine with the carbon.

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There are 6 figures, 1 table and 9 references, all of which are Slavic.

SUBMITTED: October 22, 1956.

ASSOCIATION: Central Scientific Research Institute of the Ministry for Ship-Building of the U.S.S.R. (Tsentral'nyy Nauchno-Issledovatel'skiy Institut Ministerstva Sudostroitel'noy Promyshlennosti SSSR).

AVAILABLE: Library of Congress.

BRUK, B.I.

135-7-1/16

SUBJECT: USSR/Welding

AUTHOR: Bruk, B.I., Candidate of Technical Sciences.

TITLE: Investigation of Re-Distribution of Chrome During Welding of Stainless Steel by Radioactive Indicators (Issledovaniye metodom radioaktivnykh indikatorov pereraspredeleniya chroma pri svarke nerzhaveyushchikh staley).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, # 7, pp 1-4 (USSR)

ABSTRACT: Subject investigation had the purpose to determine during the welding process the quantities of chrome transferred into the weld metal from the base metal, the welding rod, and the rod coating. Chrome isotope Cr_{24}^{51} was used as radioactive indicator. The content in the weld metal and in the welding slag was calculated by formulas derived by B.I. Bruk, (4). The coefficients found for the transition of chrome into the metal of the welding seam were: 0.88-0.96 from the base metal; 0.81-0.89 from electrode metal and 0.87-0.92 from electrode coating. The chrome contained in the slag originated to only $\frac{1}{4}$ from the coating. The chrome particles originating from the base metal and from

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135-7-1/16

TITLE: Investigation of Re-Distribution of Chrome During Welding of Stainless Steel by Radioactive Indicators (Issledovaniye metodom radioaktivnykh indikatorov pereraspredeleniya chroma pri svarke nerzhaveyushchikh staley).

the electrode indicate conditions of chrome transfer, though the dissimilarity was considerably less than previously observed in the case of sulfur (4).
Recommendation is made to regulate the chrome concentration in the electrode coating in a wide range in accordance with nickel concentration in the weld metal.
Electrolytic precipitation of radioactive chrome has been carried out in the "ВНТИ МТМ" Coating Laboratory, under the direction of Candidate of Technical Sciences L.Ya. Bogorad.
The article contains 7 tables, 2 sketches, 2 diagrams, 12 formulas, and 6 references (all of which are Russian).

ASSOCIATION: "ЦНИИ МСП" (TsNII MSP)
PRESENTED BY:
SUBMITTED:
AVAILABLE: At the Library of Congress.

Card 2/2

BRUK, BI

AUTHORS: Bruk, B.I. and Yur'yev, S.F.(Leningrad). 24-12-14/24

TITLE: Radiometric investigation of zones of interaction of slag with liquid metal during electric arc welding. (Radiometricheskoye issledovaniye zon vzaimodeystviya shlaka s zhidkim metallom pri elektrodugovoy svarke).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.12, pp.66-71 (USSR).

ABSTRACT: In numerous papers the role of the liquid bath on the metallurgical reactions of weld joints is either not considered at all or is considered as being insignificant, since the temperature conditions in the weld bath are assumed as being much less favourable for interaction between the slag and the metal than in the arc gap or the tip of the electrode. However, the results of a number of investigations (Refs.9-15) indicate that in principle interaction between the slag and the metal is possible in the weld pool in spite of the fact that the metal in the bath is conserved in the liquid state for only a very short time. In this paper some results are given of investigations of the reaction ability in the pool of the molten metal, which were obtained by means of the radioactive S^{35}_{16}. The zone of the most intensive passage

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of this element into the slag was also investigated, which permits establishing additional possibilities of desulphuring of the weld joint of a metal during welding. Furthermore, the possibility was investigated of the development of reactions of transfer of sulphur from the coating into the rod and vice versa at the melting end of the electrode. The test conditions and the test results are described. It was established that,during manual welding,the weld pool does not play merely the role of a mould in which the metal solidifies; there is intensive interaction between the liquid metal of the pool and the slag. The participation of the weld pool in the interaction between the slag and the metal is of considerable interest from the point of view of elucidating the general relations governing metallurgical reactions in the zone of electric arc welding; it was established that,with increasing current intensity, the role of the weld pool in the general process of interaction of the phases decreases somewhat,probably due to increasing volumes of phases reacting in the pool. By means of the autoradiography method it was confirmed that

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there is a possibility of reactions between the metal and the slag developing directly on the electrode tip prior to the molten drop tearing away from it; with decreasing dimensions of the drops tearing off the electrode, the intensity of interchange of sulphur between the metal and the slag decreases.
There are 8 figures, 1 table and 16 references, all of which are Slavic.

SUBMITTED: March 6, 1957.

AVAILABLE: Library of Congress.

Card 3/3

BRUK, B.I.

AUTHOR ZAV'YALOV A.S., BRUK B.I., 20-1-25/54

TITLE Distribution of Small Quantities of Carbon in Iron Alloys. (Raspredeleniye malykh kolichestv ugleroda v legirovannom zheleze -Russian)

PERIODICAL Doklady Ak.Nauk SSSR,1957,Vol 115,Nr 1, pp 94 - 96 (U.S.S.R.)

ABSTRACT The problem of distribution of alloying elements,especially of carbon,on the microscopic α- and γ-section of the solid solution in iron alloys has hitherto not found a convincing experimental solution. In the present work this investigation was performed by autoradiography and the radioactive isotope C^{14}. Low-carbon iron alloys were treated,that is chromium,nickel,silicon- and molybdenum-alloys separately. C^{14} was introduced into the alloys be "cementation"in the environment of radioactive barium carbonate.Since no coal was added, the carbon content did not exceed the already existing 0.03-0,05%. The introduction of C^{14} took place according to a scheme given here. After the prescribed heat-treatment the samples were photographed on a granular film mark NIKFI,type PN. From the consideration of the autoradiograms of the annealed alloys there follows a very marked irregularity of carbon within the area of one grain; it becomes especially noticeable in Fe-Si and Fe-Mo alloys in which C on the whole is concentrated at the grain boundaries.Autoradiograms of alloys quenched in water from a temperature of 950 and 1200° C have a completely uniform darkening in the enlargement used.This indicates that no concentration of C took place at the austenite-grain boundaries

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BRUK, B. I.

AUTHORS: Bruk, B. I., and Nikolayev, G. I. 20-1-21/44

TITLE: On the Possibility of Using Tritium in the Radiographic Investigation of the Distribution of Hydrogen in Titanium and Zirconium (O vozmozhnosti primeneniya tritiya dlya radiograficheskogo issledovaniya raspredeleniya vodoroda v titane i tsirkonii).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 1, pp. 78-80 (USSR).

ABSTRACT: When the two latter metals are used as construction material, great attention is paid to the problem of the distribution of H_2 in them, since it sharply reduces their plasticity and increases their stress-concentration index. The current metallographic methods give no complete conception of the true distribution of H_2 in the alloys, Therefore the experiment of the use of tritium (= dadioactive H_2-isotope) for this purpose comes at the right time. There exist no published data on the possibility of this use. The chied difficulty to produce radiograms with it lies in the small decomposition energy of this isotope. In order to be able to act upon the photo-emulsion, either tritium with a very high specific activity has to be used or the alloy to be investigated has to be saturated with tritium to the highest

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possible concentration. The task of producing tritium-autoradiograms of titanium and zirconium is facilitated by a high solubility of H_2 (e. g. compared with steel) in these two metals. Quite distinct radiograms of it were also obtained, when the samples of the metals were saturated with a tritium-H_2-mixture to a concentration of 700-1000 ml gas per 100 g metal. The figures 1 - 3 show "negative" autoradiograms. their darker sections correspond to the higher concentration of H_2 and inversely. From the comparison of this radiogram with an optical microphotograph of a titanium sample follows that the structural image in commercially pure titanium is connected with the occurrence of titanium hydrides. The position of the structural components in titanium with a comparatively high content of H_2 indicates a phase-recrystallization-process according to the type of the Widmannstedt structure. This position of the structural components, one of whom (titanium hydride) is very brittle, must naturally lead to the initially mentioned impairment of the plastic properties etc. Furthermore from the stronger darkening of the photoemulsion in the places where eutectoid is deposited (H_2-content near to 40 %) it may be seen that

the solubility of H_2 in the α-phase at room temperature is very small. It is known, that the verification of this fact by means of other methods is very diffidult. In the autoradiogram of zirconium (figure 3) the microstructural imago does not render the distribution of the hydride-inclusions, as it was the case in titanium. A complete analogy of the systems Ti - H and Zr - H is apparently completely lacking. The elaboration of the method of autoradiograms with tritium made it possible to determine a number of important laws governing the distribution of H_2 in titanium and zirconium alloys which metallographically often remain invisible. By the same method the distribution of H_2 in titanium welding was investigated and it was found that the H_2-transition from the basic metal into the metal of the weld seam takes place uniformly and without any marked concentration of the hydride phase on the boundary of fusion.

There are 3 figures (8 microphotographs) and 6 references, 3 of which are Slavic.