

SHVARTSMAN, Grigoriy Mikhaylovich, kand. tekhn. nauk; REBRIN, S.P., red.;
DONNIKOVA, A.A., red. izd-va; VDOVINA, V.M., tekhn. red.

[Production of particle board] Proizvodstvo drevesno-struzhechnykh
plit. Moskva, Goslesbumizdat, 1961. 178 p. (MIRA 14:8)
(Hardboard)

SHVARTSMAN, G.M.

Use of high temperature heat carriers as the way to intensify
the pressing process of particle boards. Der.prom. 10 no.1249
10 D '61. (MIRA 14819)

1. Tsentral'nyy nauchno-issledovatel'skiy institut fanery i
mebeli.

(Hardboard)

SHVARTSMAN, G.M., kand.tekhn.nauk

Some problems in designing particle board workshops. Der. prom. 11
no.9:13-15 S '62. (MIRA 17:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut fanery i mebeli.

SHVARTSMAN, G.M.

Reviewing the state standard 9381-60 for wood-particle boards.
Standartizatsiia 26 no.9:21-23 S '62. (MIRA 15:9)
(Wood particle board--Standards)

TSYTLENOK, A., inzh.; TSINMAN, A., inzh.; SHVARTSMAN, G., inzh.;
SVITKIN, M., inzh.

Window units made of wood wastes. Na stroi.Ros. 4 no.6:20-21
Je '63. (MIRA 16:6)

(Windows)

(Wood waste)

SHVARTSMAN, G.M.

Concerning B.D.Modlin's article "Presses for making boards from
woodchips." Der. prom. 12 no.1:26-27 Ja '63. (MIRA 16:5)
(Hardboard) (Modlin, B.D.)

SHVARTSMAN, G.M., kand.tekhn.nauk; ZAV'YALOVA, Z.V., inzh.

A new standard for wood particle boards. Der. prom. 12 no.10:1-2
0 '63. (MIRA 16:10)

MIKHAYLOV, Aleksey Nikolayevich, dots., kand. tekhn. nauk;
SHVARTSMAN, G.M., st. nauchn. sotr., kand. tekhn. nauk,
retsenzent; NEKHAMKIN, N.O., kand. tekhn. nauk, dots.,
retsenzent; VASECHKIN, Yu.V., dots., kand. tekhn. nauk,
otv. red.; FILONENKO, K.D., red.

[Role of pressure in the technological process of the production of gluing materials; lecture in the course "Technology of the production of gluing materials and boards" for students of the Faculty of the Mechanical Technology of Wood] Rol' davleniia v tekhnologicheskoi protsesse izgotovleniia kleemykh materialov; lektsiia po kursu "Tekhnologiya proizvodstva kleemykh materialov i plit" dlia studentov fakul'teta mekhanicheskoi tekhnologii drevesiny. Leningrad, Vses. zaachnyi lesotekhn. in-t, 1964. 34 p. (MIRA 18:3)

SHVARTSMAN, G.M., kand.tekhn.nauk

Improve the quality of particle boards. Der. prom. 13 no.4:1-3
Ap '64. (MIRA 17:4)

1. Tsentral'nyy nauchno-issledovatel'skiy institut fanery i
mebeli.

SHVARTSMAN, C.M., kand. tekhn. nauk

Proportioning the components of binders in the manufacture of
particle boards. Der. prom. 14 no.2:3-5 F '65.

(MIRA 18:6)

1. TsNIIF.

SHVARTSMAN, I. N.

Shurupnye avtomaty. (Vestn. Mash., 1950, no. 12, p. 24-25)
Refers to Stankozavod im. 23 oktiabria Ministerstva stankostroeniia.

Automati screw-cutting machines.

DLC: TN4.V4

SO: Manufacturing and Mechanical engineering in the Soviet Union, Library of
Congress, 1953.

S/065/60/000/008/009/010/XX
E030/E112

AUTHORS: Piguzova, L.I., Nikitin, Yu.S., and Shvartsman, I.P.

TITLE: Dependence of Pore Structure and Activity of an Alumina/Silica Catalyst on Change in Chemical Composition

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No. 8, pp. 15-21

TEXT: Adsorption isotherms of a series of alumina/silica catalysts have been obtained using methanol. The effect of the chemical composition on the pore size, catalytic activity, and chemical stability, was determined by studying catalysts with alumina contents from 0.5 up to 80%, and it appears to dominate most other effects, including the pore size distribution of the fresh catalyst. The differential pore size distribution of the catalyst has three types of behaviour, depending on the chemical composition: for alumina contents greater than 40% it is very uniform, but for smaller contents it has strong peaks, around 40 Å for 15-40% alumina content and around 120 Å for alumina contents between 15 and 1.5%. The effect of subjecting the

Card 1/3

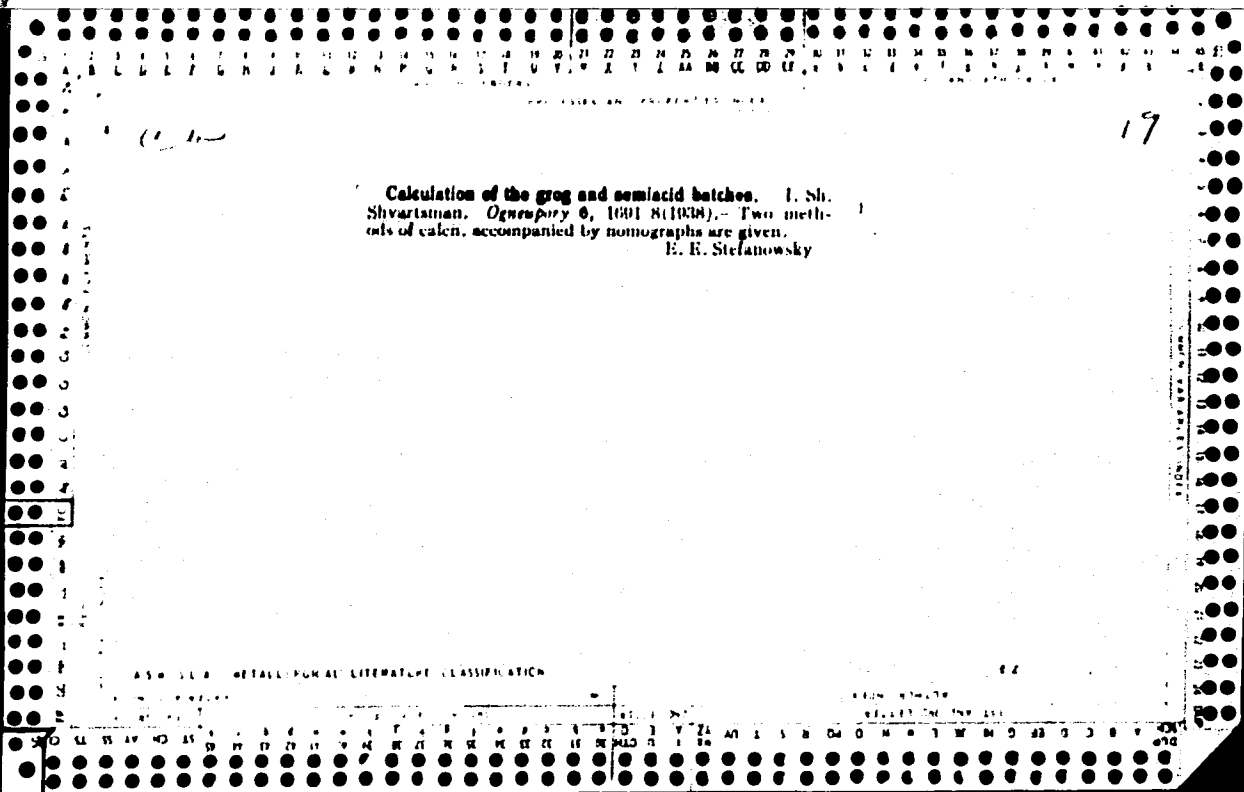
✓

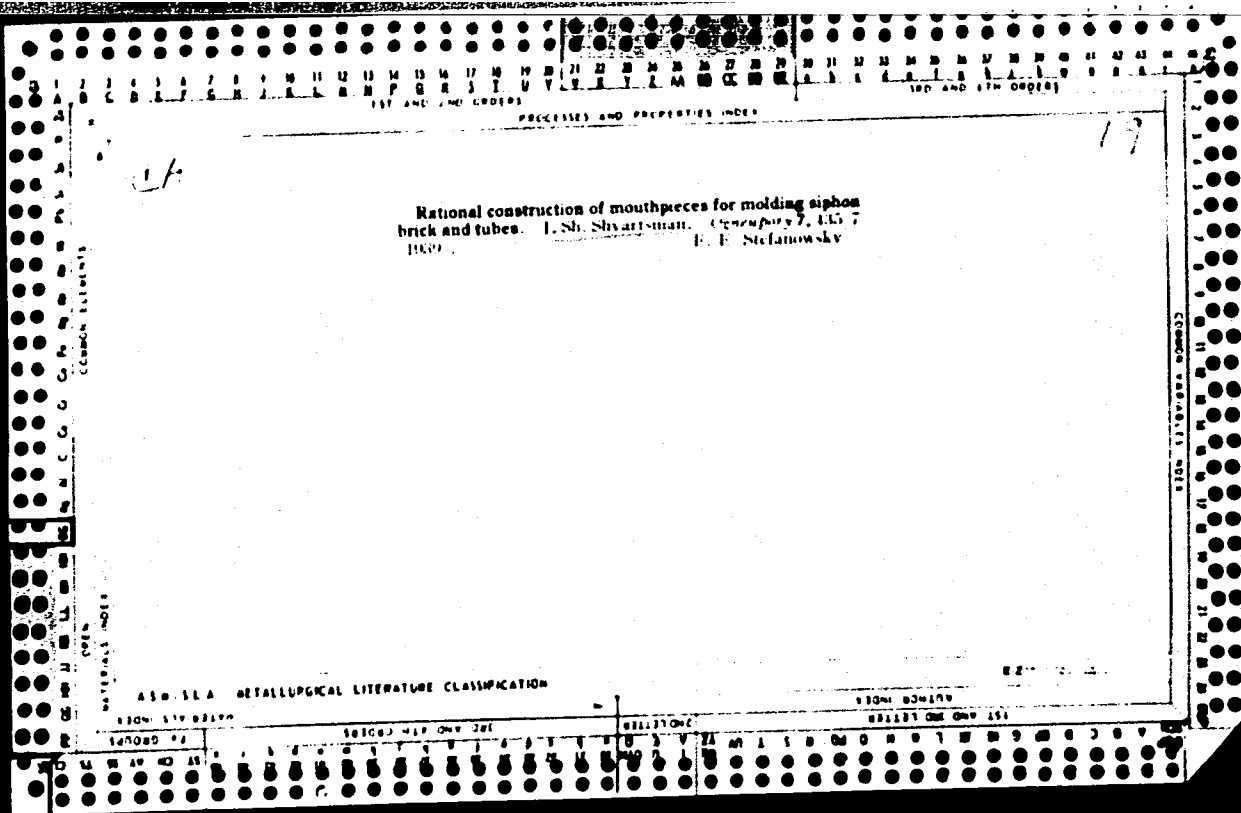
S/065/60/000/008/009/010/XX
E030/E112

Dependence of Pore Structure and Activity of an Alumina/Silica
Catalyst on Change in Chemical Composition

catalyst to water vapour at 750 °C is always to decrease the pore volume and specific surface area, and shift the differential pore size distribution peaks towards the larger dimensions; the decrease in volume is greatest (55 to 60%) for alumina contents of 30 to 40%. The effect on catalytic activity was judged by the cracking of a straight run benzene and a kerosene/gas oil fraction. No definite correlation was obtained between catalytic activity and specific surface area. The peak in surface area at 15.0% alumina content did not have a correspondingly marked peak in activity, and the minimum in area at 30-40% alumina content had no corresponding minimum in activity so that, apart from other conditions known to affect the catalytic activity, the main correlation of activity is with chemical composition. Stability of the catalyst towards 0.1N HCl and alkali at 20 °C was greatest for 40% alumina (where Al-O-Si groups would be dominant) and least at very small or high alumina concentrations

Card 2/3





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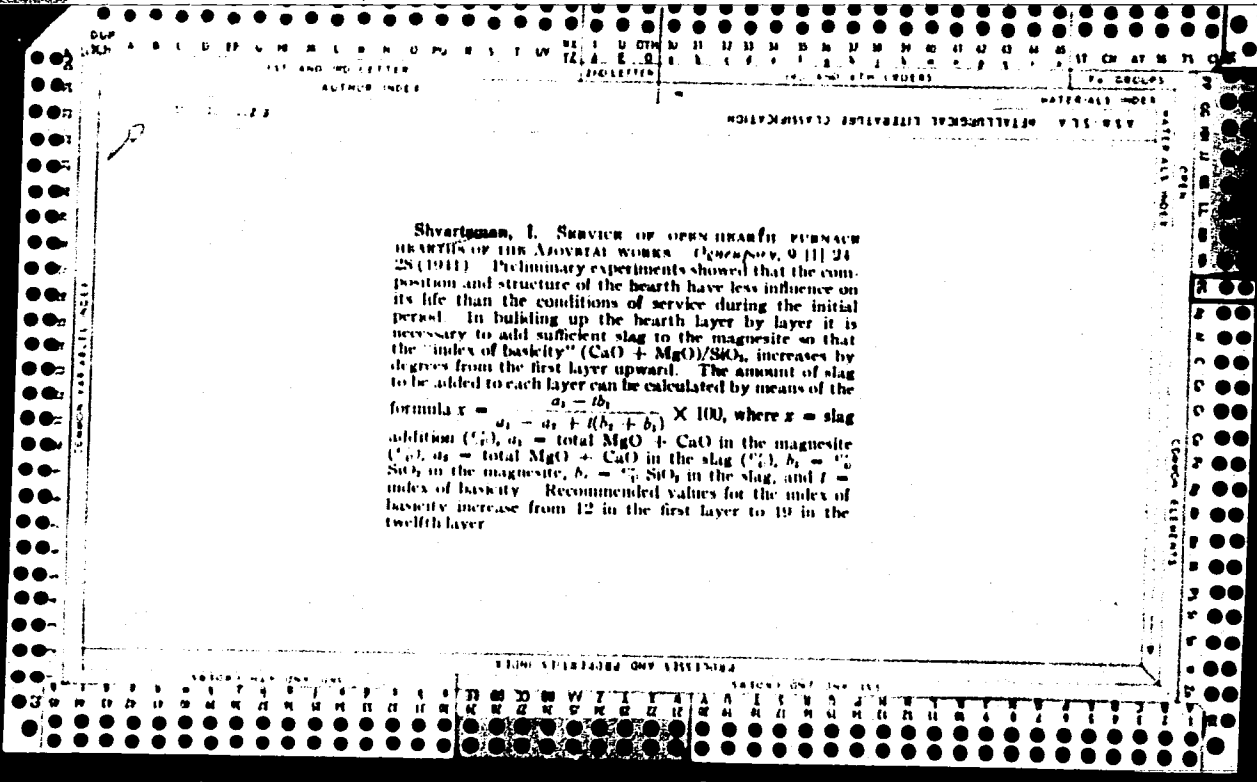
Refractories

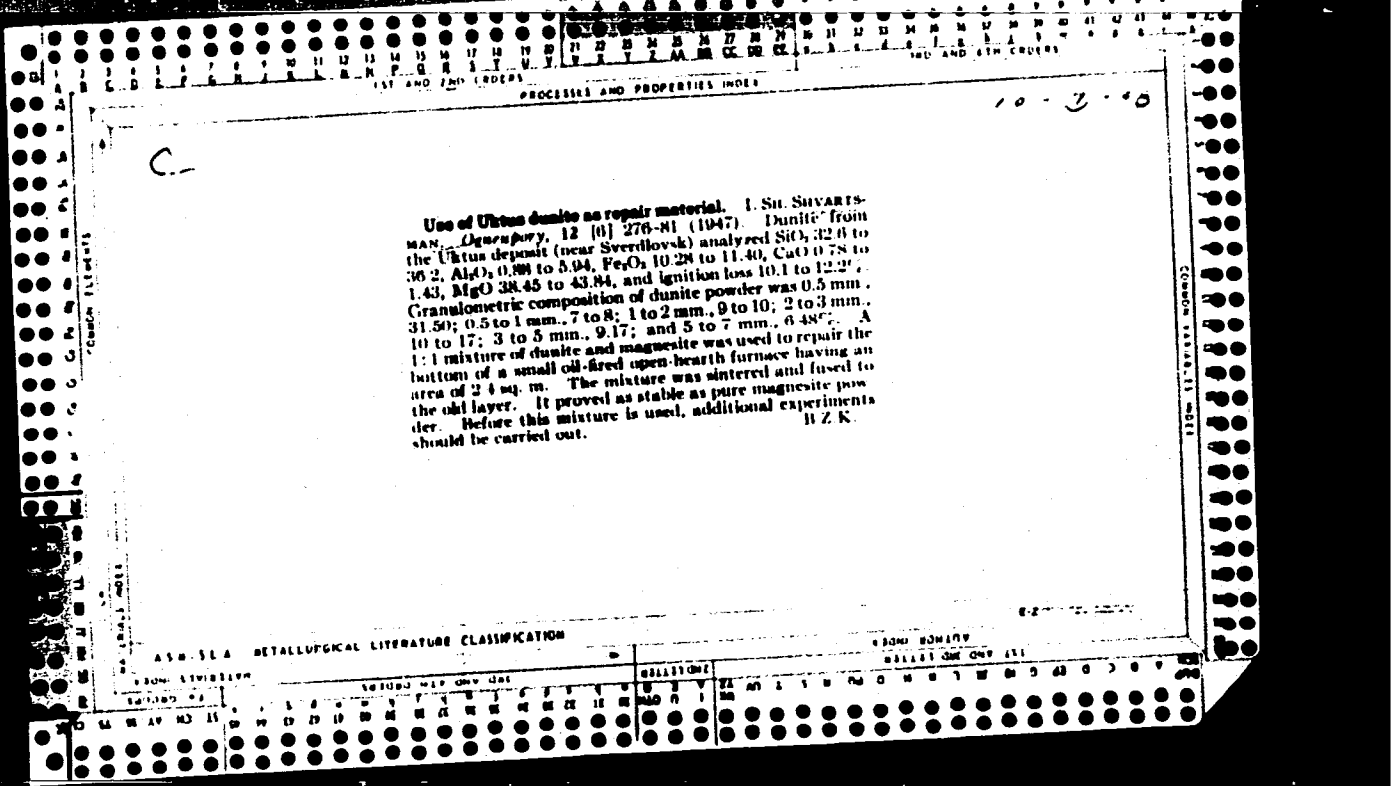
Rational selection of refractories for lining mixers.
I. NEVARTSEVA. *Otkrytiya*, 1968, No. 10, pp. 226-28;
Khim. Promysl. Zhur., 6 [8] 22 (1968).—On the basis of a
study of the service of refractories in a mixer of the
Azovstal works, S. suggests the following selection of
refractories for the various zones of a mixer. For lining
the roof, the most suitable material is Diama, but for the
slag zone, magnesite is best. The central part of the pot,
which is exposed to the stream of molten iron in casting,
must be lined with magnesia, whereas the other parts
are lined with grog. The spout is lined with magnesite.
Grog or semisecul products are used for lining the tapchok
for molten iron. M.No.

A. S.

ref. 1000

Service of open-hearth furnace hearths of the Anovtal
 work. I. SHVARTSMAN, *Uspenyye*, 1961, No 1, pp.
 24-28; abstracted in *Trans. Brit. Ceram. Soc.*, 41 [8] 90A
 (1942).—Preliminary experiments showed that the com-
 position and structure of the hearth have less influence on
 its life than the conditions of service during the initial
 period. In building up the hearth layer by layer it is
 necessary to add sufficient slag to the magnesite so that
 the "index of basicity," $(CaO + MgO)/SiO_2$, increases by
 degrees from the first layer upward. The amount of slag
 to be added to each layer can be calculated by means of the
 formula $x = \frac{a_1 - b_1}{a_1 - a_2 + t(b_1 + b_2)} \times 100$, where x = slag
 addition (%), a_1 = total MgO + CaO in the magnesite
 (%), a_2 = total MgO + CaO in the slag (%), b_1 = %
 SiO_2 in the magnesite, b_2 = % SiO_2 in the slag, and t =
 index of basicity. Recommended values for the index of
 basicity increase from 12 in the first layer to 19 in the
 twelfth layer.





CA

The character of the surface cracks on Dinas products.
I. L. Piryatinski and I. Sh. Shvartsman. *Otencopy* 13,
211-16(1948); *Chem. Zvest. (Russian Zone Ed.)* 1949, I,
1155.—Straight cracks may penetrate deeply. Network
cracks, however, are usually less deep. While depth in-
creases with width there is no direct relation. Electro dinas
and open-hearth Dinas showed the greatest no. of straight
cracks; chrome-magnesite brick showed less. Electro dinas
showed the greatest network crazing; magnesite products
showed almost none. The length of the cracks was almost
the same in Dinas and grog products; the cracks were
shorter in magnesite and chrome-magnesite products. With
decreasing d. of the Dinas products, the no. of both straight
and network cracks and their width increased.
M. G. Moore

SHVARTSMAN, I. SH.

Technology

Radial'naiia kladka metallurgicheskikh pechei (Radial lining of metallurgical furnaces).
Moskva, Metallurgizdat, 1951. 100 p.

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

SHVARTSMAN, I. S.

Wear of joints in the lining of steel-casting ladles. I. S. Shvartsman (*Ognesopny*, 1961, 20, 512; *Brit. Ceram. Adv.*, 1962, 235A).—Severe wear of the joints is attributed to vitrification of the working face of the firebricks, followed by cracking and splitting off of mortar. To prolong the life of the lining the α of the ladle bricks should be increased and their tendency to vitrify during use should be reduced. The more severe wear of vertical joints in comparison with that in horizontal joints is probably due to vertical movement of metal and slag caused by movement of the ladle, and to vertical movement of metal during teeming. The use of SiO_2 mortar (ground quartzite 80–85 and fireclay 15–20%) instead of grog fireclay mortar decreases the wear of joints. *BRIT. CERAM. RES. ASS. (C)*.

DUBROV, N.F.*; SHVARTSMAN, I.Sh.

Using heat insulation for open-hearth furnace crowns made of chrome
magnesite refractories. Ogneupory 21 no.7:289-299 '56.

(MLRA 10:1)

1. Verkh-Isetskiy metallurgicheskiy zavod(for Dubrov). 2.Gisogneupor
(for Shvartsman).

(Open-heart furnaces) (Firebrick) (Insulation (Heat))

SHVARTSMAN, I. SH.

2039. Effect of design on durability of stoppers during service. I. SH. SHVARTSMAN
(Ogneupor), 22, 169, 1957). In Russian. The behaviour of bolted and screw-type
stoppers is compared. The end of the screw-type is thicker than that of the bolted
type. During service, the former develop continuous cracks and flake off, whilst the
bolted types do not usually crack and show surface spalling only. Thermal stability
tests showed that type of cracking to be governed by shape and thickness of the stopper
body; to reduce cracking it is suggested that the thickness of screw-type stoppers be
reduced by c. 30 mm. (7 figs., 1 table.)

MT

SHVARTSMAN, I. S.H.

Distr: 4E2c

18
Increase in durability of plugs for casting transformer steel
I. A. Ol'khovskij, Z. S. D'yachkova, I. Sh. Shvartsman, A. M. Prokop'eva, and Ya. I. Kuznetsov (Met. Plant Upper-Istebk). *Ogneupory* 24, 520-3 (1957); cf. McGill and McDowell, *C.A.* 46, 2257b.—Casting transformer steel is done under very severe conditions: temp. of the melt 1570-1650°, O-enriched flame. The chief corrosion by the metal melts on the ends of the plugs occurs where the bolt is inserted in the cylindrically-drilled channel. This portion of the plug is remodeled in a new shape, and the end made of a stopper of a highly aluminous Cr slag (from the ferroalloy process) with Al₂O₃ 83-86, Cr₂O₃ 9-12, SiO₂ below 0.3, P₂O₅ 2-4, Fe₂O₃ 0.5-0.7, MgO 0.6-2.0%. This unplastic slag is bonded with 10% fire clay, by using a sulfite cellulose waste brine as plasticizer. Whereas plug batches of quartzite and magnesite in contact with the fire-clay body did not stand the service, the unusually high percentage of waste dropped to practically zero when the highly aluminous slag material was introduced into plug construction.
W. Eitel

8
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12

15(6)

OV/134-58-11-319

AUTHORS: Ol'knovskiy, I. A., Shvartsman, I. M.

TITLE: Experiments for the Increase of Heat Stability of Siphon Bricks
(Opyty povysheniya termicheskoy stoykosti sifonnogo kirpichna)

PERIODICAL: Ogneupory. 1958, Nr 11, pp 498-504 (USSR)

ABSTRACT: It is often observed that in siphon casting of steel the siphon bricks burst, which causes loss of metal. It was assumed that this happens because of the ferrostatic pressure of the metal. In order to check this assumption, a device was developed by I. P. Bas'yas and T. F. Shutenko (Ref 1) to determine the tearing strength of siphon bricks. It was discovered that ferrostatic pressure during the casting process is much lower in the bricks (1.5-2kg/sq.cm) than their tearing strength (34 kg/sq.cm). Tests of heat stability according to the method of the Leningradskiy institut ogneporov (Leningrad Institute of Refractory **Materials**) showed that in these tests siphon bricks burst in the same way as in steel casting. Tests with pre-heated bricks (see table) did not yield any positive results either. A. V. Izbukin and T. N. Bushuyeva took part in the experiments. Shvartsman suggested to produce siphon bricks in two layers by means of a

Card 1/3

SOV/131-18-11-3/9
Experiments for the Increase of Heat Stability of Siphon Bricks

nozzle (Figs 2 and 3). A comparison of nozzle sizes for regular and two-layer siphon bricks can be seen in table 1. In the Department of Refractory Products of the NTMK two experimental series of two-layer siphon bricks were produced whose physico-mechanical properties did not differ from those produced in the traditional way. V. S. Turchaninov, Kh. M. Papkin, N. D. Gan, and L. P. Siyalova took part in the production of these experimental series (Ref 4). One series of bricks had an interstitial space of 0,82 mm and the other of 0,60 mm (Fig 4). The heat stabilities of two-layer and traditional siphon bricks are given in table 2. The nature of the cracks after tests according to the method of the Leningrad Institute of Refractory **Materials** is shown in figures 5, 6, and 7. As can be seen in table 3, the majority of the two-layer bricks were not cracked all the way through. In figures 8 and 9 regular and two-layer siphon bricks are shown after the casting of liquid cast-iron, demonstrating that two-layer bricks, in spite of bursting on the surface, were impermeable to the metal, as the inner layer was not damaged. Conclusions: siphon bricks possess sufficient strength for withstanding the ferro-static pressure in steel casting; the

Word 373

SOV/151-58-11-319

Experiments for the Increase of Heat Stability of Siphon Bricks

cause of bursting of siphon bricks is their insufficient heat stability; a considerable increase of heat stability can be obtained by producing two-layer siphon bricks. There are 9 figures, 3 tables, and 3 references, which are Soviet.

ASSOCIATION: Ural'skoye otdeleniye Leningradskogo instituta ogneporov
(Ural Department of the Leningrad Institute of Refractory Products)

Card 3/3

S/131/60/000/05/03/016
B015/B011

AUTHORS: Ol'khovskiy, I. A., Shvartsman, I. Sh., Diyesperova, M. I.

TITLE: Experiments of Producing and Utilizing Unburned Fire-clay Products From Ural Raw Materials

PERIODICAL: Ogneupory, 1960, No. 5, pp. 207-213

TEXT: On the basis of techniques worked out by the Vostochnyy institut ogneuporov (East Institute of Refractories), the department of refractories of the Nizhne-Tagil'skiy metallurgicheskiy kombinat (NTMK) (Nizhniy Tagil Metallurgical Kombinat) produced sample sets of unburned fire-clay and fire-clay-quartz products by the half-drying method. The following persons took part in this work: V. S. Turchaninov, Kh. M. Papakin, P. T. Timchenko, V. V. Klopov, V. K. Golov (Deceased), Zh. A. Vydrina, N. A. Novoselov, P. P. Borodin, V. G. Flyagin. The binding part of the layer consisted of a mixture of belkinskaya and nizhnevel'skaya clay types. The products were dried at 200-220°. Table 1 shows the properties of unburned products tested in the furnaces of the Nizhniy Tagil Metallurgical Kombinat. Table 2 shows results

Card 1/2

Experiments of Producing and Utilizing Unburned
Fire-clay Products From Ural Raw Materials

S/131/60/000/05/01/010
B015/B011

obtained from the utilization of ordinary bricks in the lining of steel flow ducts. Burned and unburned bricks after their utilization in sinkheads are shown in Fig. 1. The microstructure of unburned firebricks after use is shown in Figs. 2 to 4. Petrographic analyses were conducted by T. F. Rajchenko. The stability of unburned casting ladle bricks with a high fire-clay content is shown in table 3. The working surface of a burned and an unburned casting ladle brick after 10 melting processes is shown in Fig. 5. It is stated in conclusion that unburned fire-clay products having a high leanness degree are not inferior to burned refractory fire clay products as to their stability when used in furnaces, steel-melting ducts, and sinkheads of ingot molds. Unburned fire-clay and fire-clay-quartz products did not exhibit sufficient stability when tested in the lining of steel casting ladles. In order to introduce unburned fire-clay products in industry, it is necessary to improve their technology still more, so as to decrease their shrinkage, and to increase their density and mechanical strength. There are 5 figures, 3 tables, and 10 references, 9 of which are Soviet.

ASSOCIATION: Vostochnyy institut ogneporov (East Institute of Refractories)

Card 2/2

S/081/62/000/024/067/073
B166/B186

AUTHORS: Shvartsman, I. Sh., Ustyuzhanina, N. N., Turchaninov, V. S.,
Papakin, Kh. M.,

TITLE: Improvement in the process for producing aluminosilicate raw
refractories

PERIODICAL: Referativnyy zhurnal. Khimiya; no. 24, 1962, 578, abstract
24K292 (Tr. Vost. in-ta ogneuporov, no. 3, 1961, 120 - 132)

TEXT: Research was carried out on a less expensive binder than phosphoric
acid for use in the production of aluminosilicate unburned refractories.
The investigations resulted in two suggested versions of a process for
producing aluminosilicate unburned refractories.: the first without a
binding agent, the second with the addition of 2 % aluminum sulfate and 0.5%
phosphoric acid. [Abstracter's note: Complete translation.] ✓

Card 1/1

STRELOV, K.K.; MAMYKIN, P.S.; Primali uchastiye: BAS'YAS, I.P.;
BICHURINA, A.A.; BRON, V.A.; VECHER, N.A.; VOROB'YEVA, K.V.;
D'YACHKOVA, Z.S.; D'YACHKOV, P.N.; DVORKIND, M.M.;
IGNATOVA, T.S.; KAYBICHEVA, M.N.; KELAREV, N.V.;
KOSOLAPOV, Ye.F.; MAR'YEVICH, N.I.; MIKHAYLOV, Yu.F.;
SEMKINA, N.V.; STARTSEV, D.A.; SYREYSHCHIKOV, Yu.Ye.;
TARNOVSKIY, G.I.; FLYAGIN, V.G.; FREYDENBERG, A.S.;
KHOROSHAVIN, L.B.; CHUBUKOV, M.F.; SHVARTSMAN, I.Sh.;
SHCHETNIKOVA, I.L.

Institutes and enterprises. Ogneupory 27 no.11:499-501
'62. (MIRA 15:11)

1. Vostochnyy institut ogneuporov (for Strellov).
2. Ural'skiy politekhnicheskiy institut im. S.M. Kirova (for Mamykin).
(Refractory materials---Research)

SHVARTSMAN, I.Sh.; MIKHALEVA, Z.I.; TURCHANINOV, V.S.; PAFAKIN, Kh.M.;
KOVALENKO, I.D.; YUZVUK, D.I.; SAPAROV, V.V.

Stoppers and nozzles from Ural Mountain raw materials.

Ogneupory 28 no.12:538-543 '63.

(MIRA 16:12)

1. Vostochnyy institut ogneuporov (for Shvartsman, Mikhaleva).
2. Nizhne-Tagil'skiy metallurgicheskiy kombinat im. V.I. Lenina (for Turchaninov, Papakin, Kovalenko).
3. Bogdanovichskiy ogneupornyy zavod (for Yuzvuk, Saparov).

SHVARTSMAN, I.B.; MIKHAYLOV, Yu.F.; PAPAKIN, Kh.M.; VYDRINA, Zh.A.;
KUZNETSOVA, N.V.; VISLOGUZOVA, E.A.; KUL'CHITSKAYA, I.B.

Optimum apparent density of steel pouring stoppers made by the
stiff mud process. Ogneupory 30 no.6:9-14 '65. (MIRA 19:1)

1. Vostochnyy institut ogneuporov (for Shvartsman, Mikhaylov).
2. Nizhne-Tagil'skiy metallurgicheskiy kombinat imeni Lenina
(for Papakin, Vydrina, Kuznetsova, Visloguzova, Kul'chitskaya).

MORDUKHOVICH, R.V.; SHVARTSMAN, I.Ya.

Increasing the capacity of existing coke oven batteries in connection with their reconstruction in an important factor in the development of the coal chemical industry. Koks i khim. no.12:18-21 '62. (MIRA 16:1)

1. Gosudarstvennyy institut po proyktirovaniyu predpriyatiy koksokhimicheskoy promyshlennosti. (Coke industry)
(Coke ovens)

TAYTS, Ya.M., doktor tekhn. nauk; SHVARTS, S.A., kand. tekhn. nauk [deceased]; PEYSAKHZON, I.B., inzh.; GEL'FER, M.L., inzh.; DMITRIYENKO, M.T., inzh.; DORFMAN, G.A., inzh.; IZRAELIT, Ye.M., inzh.; KULAKOV, N.K., inzh.; KUSHLYANSKIY, B.S., inzh.; MEYKSON, L.V., inzh. [deceased]; LEONOV, A.S., inzh.; SHVARTS, G.A., inzh.; SHVARTSMAN, I.Ya., inzh.; YATSENKO, N.Ya., inzh.; BABIN, P.P., inzh.; KHANIN, I.M., doktor tekhn. nauk, prof., red.; KOZYREV, V.P., inzh., red.; KUPELMAN, P.I., inzh., red.; LGALOV, K.I., inzh., red.; LEYTES, V.A., inzh., red.; LERNER, B.Z., inzh., red.; POTAPOV, A.G., inzh., red.; SHELKOV, A.K., red.

[By-product coke industry worker's handbook in six volumes]
Spravochnik koksokhimika v shesti tomakh. Moskva, Metal-
lurgiya. Vol.2. 1965. 288 p. (MIRA 18:8)

SHVARTSMAN, L.

Student training in making visual aids. Politekh.obuch. no.12:
79-80 D '59. (MIRA 13:5)

1. Srednyaya shkola No.27, g.Zlatoust.
(Zlatoust--Models and model making)

SHVARTSMAN, L. A. (Medicine)

"Experimental Immunology Study of the Semivaccine NIISI" (or of the NIISI - Sci. Research
Inst. of Sanitary Testing ((of the Army))

Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, #2, 1948 p 63

Item 9427 in 1948 Letopis' Zhurnal'nykh Statey #11, Unclassified

SHVARTSMAN, L.A.

Conference of administrative personnel of vaccine and serum institutes.
Zhur.mikrobiol.epid. i immun. 27 no.7:126-127 Jy '56. (MLRA 9:9)
(VACCINES) (SERUM)

SHVARTSMAN, L. A.

USSR/General Problems of Pathology - Immunity.

U.

Abs Jour : Ref Zhur - Biol., No 21, 1953, 98077

Author : Shvartsman, L.A., Perova, K.S.

Inst : Moscow Scientific Research Institute of Vaccines and Sera

Title : Study of Qualities of "Complete" Antigens With the Assistance of the Reaction of Hemagglutination.

Orig Pub : Nauchn. tr. Mosk. n.-i. in-t vaktin i syvorotok, 1956, 3, 669-685.

Abstract : The reaction of agglutination of erythrocytes, saturated with dissolved specific antigen (A), was used in order to determine the accumulation of complete A by cultivation of dysenteric bacteria of Flexner in a liquid culture medium with aeration or by determination of dry A of intestinal bacillus. The results of determining the dry, complete A by a method of hemagglutination (MH) and by a biological

Card 1/2

- 5 -

USSR / Microbiology. Microorganisms Pathogenic to Humans
and Animals.

F-3

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 33797

Author : Shvartsman, L. A., Perova, K. S.

Inst : ~~Not given~~

Title : Hemagglutination Reaction as a Method for Selecting Vaccine
Strains.

Orig Pub : Nauchn. tr. Mosk. n.-i. in-t vaktsin i syvorotok, 1956, 8,
653-668.

Abstract : A method is described, based on hemagglutination reaction;
in which rabbit erythrocytes were used saturated with a
dissolved specific polysaccharide. Strains of Flexner dys-
sentery and paratyphoid A and B were tested. The correla-
tion between the specific antigen content by this method
and immunogenicity of the given strain to mice was not

Card 1/2

USSR/Microbiology - General Microbiology

F-1

Abs Jour : Ref Zhur - Biol., No 10, 1958, 4309⁴

Author : Zarnukhovskaya, A.N., Shvartsman, L.A., Finkelshteyn, N.R.,
Kasyanova, L.K.

Inst : -

Title : Biological Properties of B. Coli When Cultivated on a
Liquid Medium with Aeration.

Orig Pub : Tr. Mosk. n.-i. in-ta vaktsin i syvorotok, 1956, 8, 191-
201.

Abstract : No abstract.

Card 1/1

BESSMERTNYI, Boris Semenovich; KHEYFETS, Leonid Borisovich;
SHVARTSMAN, L.A., red.; BASHMAKOV, G.M., tekhn. red.

[Evaluation of the effectiveness of measures on the prevention of infectious diseases; theory, statistics, organizational problems] Otsenka effektivnosti meropriyatii po profilaktike infektsionnykh boleznei; teoriia, statistika, organizatsionnye voprosy. Moskva, Medgiz, 1963. 201 p. (NIRA 17:3)



SUROVOY, Yu.N.; ALEKSEYEV, V.I.; SHVARTSMAN, L.A.

Effect of iron on the thermodynamic activity of carbon in complex carbides of the $(Fe_xMo_y)_2C$ type. Izv. AN SSSR. Neorg. mat. 1 no.10:1816-1821 0 '65.

(MIRA 18:12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni I.P.Bardina. Submitted July 5, 1965.

KAPLEVICH, S.B.; SHVARTSMAN, I.A.

Stability of calcium metaphosphate in contact with liquid
ferrophosphorus. Trudy NIIF no.208:122-133 '65.
(MIRA 18:11)

SURCOVAY, Yu.N.; SHVETSHEN, L.V.; SHCHERBA, V.I.

Character of the chemical bonding in transition metal carbides and nitrides. Fiz. met. i metalloved. 20 no.2:251-257 45 fig. (MIRA 1979)

1. Centralnyy nauchno-issledovatel'skiy institut Chernykh metallov
Leningradskiy filial. Leningrad.



L 44451-66 EWT(m)/T/EWF(t)/ETI/EWP(k) IJP(c) JD/HW
 ACC NR: AP6018946 (A) SOURCE CODE: UR/0126/66/021/006/0881/0886

AUTHORS: Itkin, V. P.; Mogutnov, B. M.; Shvartsman, L. A. 45

ORG: Institute for Study of Metals and Metal Physics. TsNIICHERMET imeni I. P. Bardin (Institut metallovedeniya i fiziki metallov. TsNIICHERMET) B

TITLE: Effect of preliminary annealing and plastic deformation on the aging of martensite

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 6, 1966, 881-886

TOPIC TAGS: alloy steel, nickel containing alloy, aluminum containing alloy, martensite steel, metal aging

ABSTRACT: The effect of preliminary annealing and plastic deformation of iron-aluminum martensite on the aging and mechanical properties of the latter was investigated. The work supplements the results of an earlier study by V. P. Itkin, B. M. Mogutnov, and L. A. Shvartsman (DAN SSSR, 1965, 161, 1073); the experimental procedure employed is described by the same authors (FMM, 1966, 21, 732). The experimental results are presented graphically (see Fig. 1). It was found that aging of iron-aluminum martensite is a complex process accompanied by positive and negative heat effects. The alloy is strengthened by a high temperature aging, and the authors attribute this strengthening effect to precipitation of (Ni, Fe)Al. The authors thank G. V. Kurdyumov and M. D. Perkas for their valuable advice and critical appraisal of

UDC: 548.53

Card 1/2

Card 2/2 10

SHVARTSHAN, L. A.

I. F. Stalin Moscow Inst. (? for steel ?), (-1946-).

"The Equilibrium of Distribution of Sulphur between Metals and Slag from the standpoint of Ionic Nature of Slags."

Zhur. Fiz. Khim., No. 1, 1946.

109 AND 6TH COPIES

PROCEDURES AND PROPERTIES INDEX

2

The ionic nature and solubility of oxides and sulfides in melts. A. M. Samarin and L. A. Shvartsman (Moscow Steel Inst.), *J. Phys. Chem. (U.S.S.R.)* 20, 1202-1211 (1946).—The solubility of oxides and sulfides in melts depends on the product L of the activities of their ions. The activity of a cation (or anion) is defined as its mole fraction in the melt. Literature data (cf., e.g., Fotters and Chipman, *C.A.B.* 20, 2078) show that L is a const. as μ is in eq. solns. J. J. Blatherman

METALLURGICAL LITERATURE CLASSIFICATION

EDITH SCHMIDT

EDITH SCHMIDT

EDITH SCHMIDT

SHVARTSMAN, L. A.

USSR/Engin

Metallurgy

Furnaces, Electric-Arc

Dec 1947

"Quantitative Determination of Status of Oxidized Slag in Electric-Arc Furnaces," A. M. Samarin, A. Yu. Polyakov, L. A. Shvartsman, Corr Members, Acad Sci USSR; Metal Inst imeni A. A. Baykov, Acad Sci USSR, 9 pp

"Izv Akad Nauk SSSR, Otdel Tekh Nauk" No 12

One of the more difficult contemporary tasks is to discover some method to determine amount of iron ore used during smelting in Martin furnaces, or the oxidizing period necessary in single electric-arc furnace. Authors present results of their quantitative determination of necessary oxidation ability of slag, with aid of method they consider to be the most exact yet suggested. Submitted 15 Jul 1947.

PA 57T22

SHVARTSMAN, L. A.

USSR/Metals
Diffusion
Math, Applied

Dec 1947

"Diffusion in Molten Metals," A. M. Samarin, L. A. Shvartsman, Corr
Members, Acad Sci USSR, Metal Inst imeni A. A. Baykov, Acad Sci USSR, 2½ pp

"Izv Akad Nauk USSR, Otdel Tekh Nauk" No 12

Authors wish to point out that equations suggested by Stokes and Einstein
give correct approximations for diffusion of metals, for low and high
temperatures. Mention, however, that all experiments on observation of
diffusion in molten metals are very limited. Submitted, 15 Jul 1947.

PA 57T60

evaluation B-76.608

PA-24T71

Iron/Steels
Carbon
Steel

Sep 1947

"Kinetics of Burning Carbon Out of Steel Vats," L. A. Shvartsman, A. M. Samarin, M. I. Fankin, 6 pp

"Zaur Pizhosh Enin" Vol XII, No 9

The author investigated the rate of burning carbon out of molten steel in the crucible of induction furnaces while air is in contact with the surface of the metal. He discovered that the speed of the process under these conditions is determined by the speed of diffusion of the carbon over the surface of the metal. Experiments were conducted at the Moscow Institute of

24T71

Iron/Steels (Contd)

Sep 1947

Steel. Reference is made to a US article, "Basic Open-Hearth Steelmaking," Physical Chemistry of Steelmaking Committee, New York, 1944.

SHVARTSMAN, L. A.

24T71

9

CA

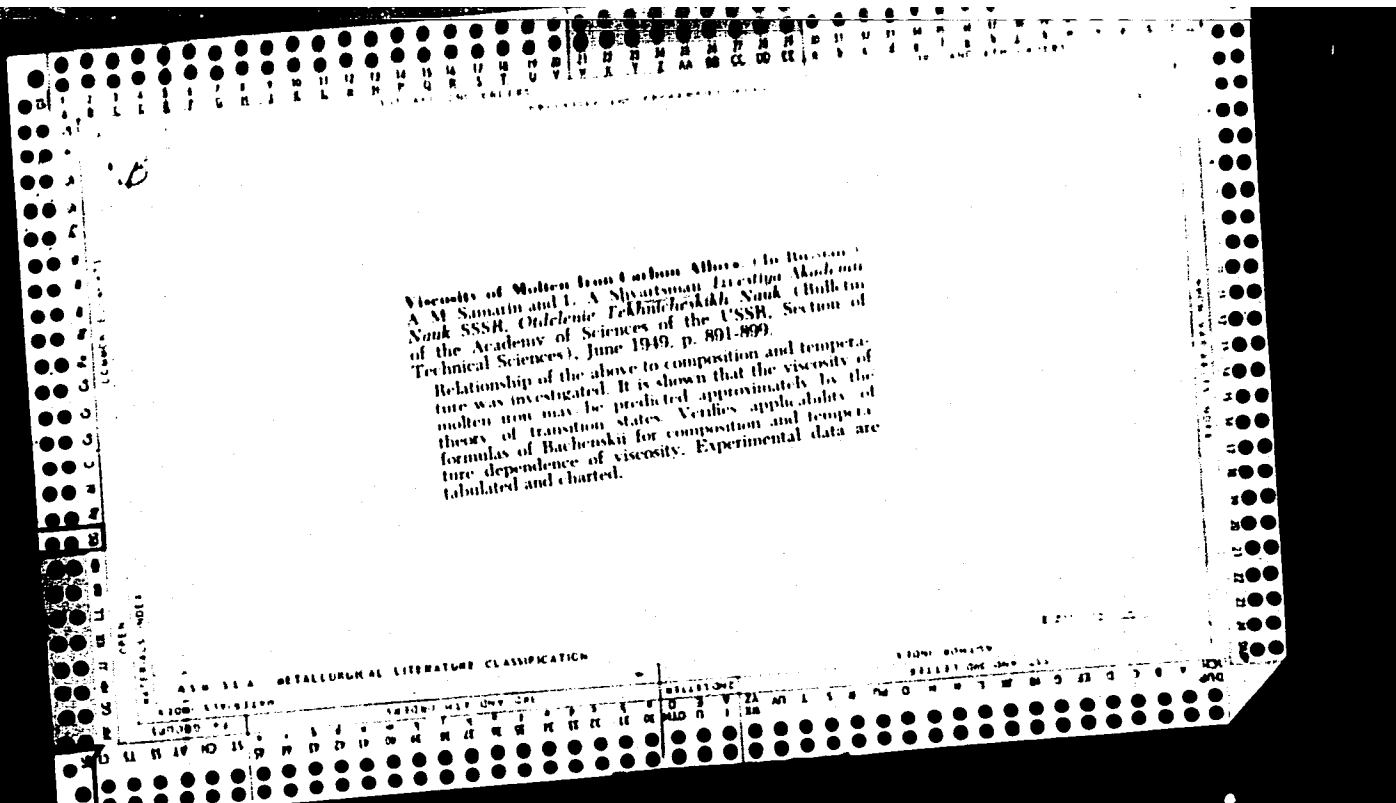
Distribution of sulfur and oxygen between molten iron and basic slags. A. M. Samarin and L. A. Shvartsman (Inst. Metallurgii im. A.A. Baikova, Akad. Nauk S.S.S.R.). *Instit. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1968, 1457-62. — The expression for the distribution coeff. of S between liquid Fe and the slag, $K_s = N_s \cdot N_o / x_s \cdot x_o$ (where $x_s = \% \text{ of S dissolved in the metal}$, and N the respective mole fractions of the ions Fe^{++} and S^{--} in the slag), and the analogous expression for K_o , the distribution coeff. of O, are valid for an ideal ionic soln. and actually hold for slags contg. not over 10 wt. % SiO_2 . At higher SiO_2 contents, the activities can no more be identified with the N , but, provided the activity coeffs. of S^{--} and O^{--} are equal, the distribution of S, for slags with not over 20-25% SiO_2 , assumed to be all present in the form of SiO_4^{--} , is $K_s = K_o \cdot N_o \cdot x_o / N_s \cdot x_s$, where K_o is the const. distribution coeff. valid for a slag of pure FeO . The general problem of the distribution of S between metallic Fe and a slag of any given compn. is solved on the assumption that the activity coeff. γ_o of Fe^{++} is = 1, and the deviation from ideality is due entirely to the ions O^{--} and S^{--} ; this gives $K_s = N_s \cdot \gamma_s \cdot N_o / x_s$ and $K_o = N_o \cdot \gamma_o \cdot N_o / x_o$. The activity coeffs. γ_o of O^{--} can be calculated from the soly. data of Winkler and Chipman (C.I. 40, 3083), for slags with less than 1 mole SiO_2 per 2 moles of bivalent metal oxide, these data yield the empirical linear relation $\log \gamma_o = 1.53 \cdot N_{\text{SiO}_2} - 0.17$. As an example of a numerical calcn., one finds, for the arbitrarily chosen slag No. 23 of W. and Ch. (CaO 15.86, SiO_2 15.70, FeO 50.25, Fe_2O_3 5.93, MgO 9.11, S 0.038, P₂O₅ 1.05, MnO 2.08%), at 1635°, $N_s = 0.50$, $N_o = 0.71$, and $N_{\text{SiO}_2} = 0.20$ (with all P assumed to be present

in the form of PO_4^{--} , and the latter included in SiO_2); hence, by the above empirical relation, $\gamma_o = 1.70$, and with the soly. of O in Fe at 1635° taken = 0.28%, $x_o = 0.193\%$, as against the exptl. 0.183. For S, the agreement is not so good, the calcd. x_s (with $K_o = 0.08$) being = 0.0145%, as against the exptl. 0.023. The discrepancy is ascribed mainly to analytical errors linked with the small amts. of S. The formula holds between SiO_2 = 0.10 and ~0.09, in mole fractions (10-30 wt. %), and loses its validity from $\text{SiO}_2 = 1$ upwards, i.e. for SiO_2 contents higher than those corresponding to the simple orthosilicate. This means that even before the orthosilicate ratio is reached, SiO_4^{--} ions undergo decomposition with formation of polysilicate ions. Inclusion of the PO_4^{--} ion in the amt. of SiO_4^{--} ions is justified by the fact that points so detd. fit well into the straight line representing $\log \gamma_o$ as a function of N_{SiO_2} . That, contrary to Khetman (C.I. 41, 2074a), the deviation of high-SiO₂ from ideality is in no way due to a specific influence of Ca^{++} , follows from the near identity of γ_o in slags high in CaO and slags from CaO but high in MnO . Presence of Al_2O_3 has approx. the same effect on x_s as SiO_2 and PO_4^{--} , which means that it is present mainly in the form of the anion AlO_2^- . N. Thon

2

CA

Auxiliary table for chemical-thermodynamic calcula-
tions. M. I. Tomkin and L. A. Shvartsman. *Uspehi*
Khim. 17, 239-62(1948). N. Thon



CA

9

Activities of carbon and of oxygen dissolved in liquid iron
 A. M. Samarin and L. A. Shvartsman (Acad. Sci. U.S.S.R.,
 Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk*
 1969, 1231-4. -- The deviations from ideality established by
 Marshall and Chipman (C.A. 36, 6118⁹) for the equil. be-
 tween C and O dissolved in liquid Fe and gaseous CO can
 be accounted for without assuming significant soly. of CO
 in Fe. The activity coeffs. γ of C in soln. in liquid Fe are
 calculated with the use of Temkin and Shvartsman's (C.I. 43,
 7314b) formula for the soln. in solid Fe, $\gamma = 1 + (5/N)$
 (where $N = \text{at. fraction of C in soln.}$), based on the inter-
 stitial nature of austenite. This calcul. gives, for 0.0, 0.2,
 0.5, 0.75, 1.0, 1.5, 2.0 wt. % C, $\gamma(C) = 1.00, 1.04, 1.11,$
 $1.17, 1.23, 1.40, 1.65$; these values are not in good numerical
 agreement with the data of M. and C., but the trend of
 the variation is correct. The deviation of the actual O
 content from the ideal equil. is explained by the expansion
 of the free vol. v as a result of the interstitial soln. of C.
 This is taken to be $v = V - \omega$, where $V = \text{sp. vol.}$, and ω is
 a const. close to the sp. vol. of the solid phase at the in-
 temp. The activity coeff. of dissolved O is $\gamma = b/r =$
 $b/(v - \omega)$. With the data $\omega = 0.1301 \text{ cc./g.}$, $V(\text{at } 1650^\circ) =$
 0.1107 , $b = 0.0030$. This gives, at C = 0.0, 0.2, 0.4, 0.4,
 0.5, 1.0, 1.5, 2.0 wt. %, $\gamma(O) = 1.00, 0.53, 0.48, 0.45,$
 $0.43, 0.36, 0.34, 0.29$, not all too different from the exptl.
 values of M. and C., and varying in the right direction.
 The effect of C on the O content in liquid Fe is twofold.
 Increase of the C content decreases the O content as a result
 of the chem. reaction; on the other hand, the substitutional
 soly. is increased somewhat as a result of the increase of the
 free vol. This accounts for the fact that $\gamma(O)$ is less than 1.
 The increase of the free vol. as a result of the high C content
 may account for the high gas soln. of cast iron. -- N. Thon

SHVARTS, L. A.

52/49716

USSR/Chemistry - Carbon
Chemistry - Austenite

Jun 49

"Activity of Carbon in Austenite," M. J. Temkin,
Moscow Inst of Steel imeni I. V. Stalin, L. A.
Shvarteman, Chair of Phys Chem, Moscow, 4½ pp

"Zhur Fiz Khim" Vol XXIII, No 6

Obtains equations for activity of carbon and iron
in austenite, and for relation of temperature to
equilibrium and cementation. Also expands for-
mulas for equilibrium in the austenite phase of
an iron-nitrogen system. Submitted 4 Apr 48.

52/49716

SHVARTSMAN, L. A.

PA 173T86

USSR/Metals - Ferrous Alloys

Nov 50

"Influence of Silicon on the Thermodynamic Behavior of Carbon Dissolved in Solid and Liquid Iron," A. M. Samarin, Corr Mem, Acad Sci USSR, L. A. Shvartsman, Metallurgical Inst imeni A. A. Baykov

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 11, pp 1696-1700

Using existing exptl data, attempts to clarify physical nature of influence of Si on the activity of C in austenite and on C-solv in liquid Fe.

173T86

PA 190785

USSR/Metals - Iron, Structure

Mar 51

"Influence of Carbon on the Activity of Sulfur Dissolved in Liquid Iron," A. M. Samarin, Corr Mem, Acad Sci USSR, L. A. Shvartsman, Inst of Metallurgy imeni A. A. Baykov, Acad Sci USSR

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 3, pp 407-410

At carbon content of about 1%, activity coeff of sulfur exceeds unity and increases with further increase of carbon. Shows effect of carbon on sulfur activity may be evaluated on the basis of following assumption: Number of places for carbon
190785

USSR/Metals - Iron, Structure (Contd) Mar 51

and sulfur in soln approximates 1/4 of the number of iron atoms, whereas an elementary "cell" cannot simultaneously contain both sulfur and carbon atoms.

SHVARTSMAN, L. A.

190785

PA 244T72

USSR/Engineering - Refractories, Test-
ing, Radioactive Indicators Oct 52

"Application of the Method of Radioactive Indi-
cators for Investigation of Diffusion in Refrac-
tories," I. A. Shwartsman, O. A. Pechenev, P. L.
Gruzin, Inst of Metallography and Phys of Metals,
MOSCOW

"Ogneupory" No 10, pp 465-469

Studies character of motion in refractories of one
of slag components, iron oxides, at temps when this
substance is already solidified. Method of radio-

244T72

active indicators, used in experiments, established
that process of penetration of solid oxides in re-
fractories at high temps is described by equation
of diffusion. Coefficients of diffusion were
determined in magnesite, chrome-magnesite, and
dinas bricks at various temps. Used radioactive
isotope Fe⁵⁹. Measured radiation intensity with
counters for beta-particles and gamma-quanta.

SHWARTSMAN, I. A.

244T72

SHVARTSMAN, L.A.; PECHENEV, O.A.; GRUZIN, P.L.

Use of radioactive indicators in investigating diffusion in refractories.
Ogneupory 17, 465-9 '52. (MLRA 5:10)
(CA 47 no.21:11685 '53)

SAMARIN, A.M.; SHVARTSMAN, L.A.

Electrochemical studies of mixtures of molten oxides. Uspekhi Khim.
21, 337-50 '52. (MLRA 5:5)
(CA 48 no.1:59 '54)

SHVARTSMAN, L.A.

USSR.

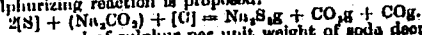
Distribution of sulfur and phosphorus between iron and an acid slag. I. A. Tomilin and L. A. Shvartsman. *Invest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1903.
—The partition coeff. of P and S between the molten Fe and a simple acid slag, and the temperature coeff. of the process were studied. The large reduction in the distribution in comparison with ferruginous slags is shown to be related to changes in the entropy component of the free energy. Heat is assumed to be liberated during the Fe- O soln. in the silicate melt.
W. M. Sternberg

SHVARTSMAN, L.A.

U S S R .

Investigation of the Desulphurization of Pig Iron by the Soda Ash Process. O. V. Travin and L. A. Shvartsman. (Izvestiya Akademii Nauk SSSR, Otdelnoye Tekhnicheskoye Nauch. 1953, (12), 1804-1811). [In Russian]. The kinetics of desulphurization of pig iron with sodium carbonate were investigated in the temperature range 1200-1600° C. Carbon-saturated iron practically free from manganese and silicon together with radioactive sulphur were used for the experiments. The additions of soda were made on the surface of metal in successive portions, so that before each portion was added, the previous portion had time to melt, spread evenly

on the surface of metal, and then evaporate. The degree of desulphurization is strongly dependent on the temperature and concentration of sulphur in the metal. The desulphurization reaction is of the second order in respect of sulphur concentration. Fumes evolved during the process were condensed and found to contain sulphur and sodium carbonate. At the temperatures prevailing, sodium sulphide is evaporated and therefore the desulphurizing reaction is irreversible. On the basis of data obtained in experiments with iron of high sulphur content, the following stoichiometric equation for the desulphurizing reaction is proposed:



The removal of sulphur per unit weight of soda decreases with the square of the concentration of sulphur in the metal. The observed decrease in the efficiency of soda with increasing temperature is attributed to increased evaporation of soda.

M 2/11

SAVAR-TSMAN L.A.

V 7683

CII KINETICS OF THE PASSAGE OF SULPHUR FROM PIG IRON INTO SLAG OF THE SYSTEM $CaO-Al_2O_3$. O. V. Travin and L. A. Shvartman. p.49-58 in Meetings of the Division of Technical Sciences, Session of the Academy of Sciences of the U.S.S.R. on the Peaceful Use of Atomic Energy, July 1-5, 1955. Moscow, Publishing House of the Academy of Sciences of the U.S.S.R., 1955. 339p. (in Russian)

The carbon and silicon contained in liquid pig iron tend to displace sulphur atoms, greatly increasing the thermodynamic activity of this element in the solution. This is one of the important reasons why pig iron can be purified of sulphur much more effectively than steel. It was thought advisable to use the radioactive isotope method for the determination of small concentrations of sulphur. For this purpose, radioactive sulphur S^{32} was introduced preliminarily

into the pig together with ordinary sulphur. The experiments were carried out in a graphite cylindrical block heated by induction currents from a high-frequency generator and enveloped in an atmosphere of purified nitrogen. Four vertical holes 28-mm in diameter bored in the block served as the crucibles in which the pig iron and the slag added to it were melted. Each of these holes communicated in its lower part with a thin vertical canal 6-mm in diameter. The speed of desulphuration was determined by measuring the radioactivity of samples of pig iron taken through the thin canal by suction into a quartz tube. The experiments showed that the interaction between the pig iron and liquid slags of the system $CaO-Al_2O_3$ may result in a very high degree of purification of the metal from sulphur: its content went down to as low as the order of 10^{-4} per cent. (auth)

df

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SHVARTSMAN L.A.

✓ Investigation of mixing properties in open-hearth furnace
baths with the aid of radioactive isotopes. A. I. Osipov,
L. A. Shvartsman, V. E. Iudin, and M. L. Sazonov.
Dokl. Akad. Nauk S.S.S.R. za Mirnuyu Ispol'zovanie
Atomnoi Energii 1955, Zasedaniya Otdel. Tekh. Nauk, 20-30
(English summary, 47).—Radiocobalt was used in the time
study of its uniform distribution in the molten metal in
large open-hearth furnaces. The time necessary for the
uniform distribution of radiocobalt throughout the liquid
metal is established from the kinetic curves of changes of
concn.

W. M. Sterbinsky

Handwritten initials and a circled number 9.

SHVARTSMAN, L.A.
USSR/Engineering -- Metallurgy

FD-2621

Card 1/1 : Pub. 41-7/21

Author : Shvartsman, L. A. and Sarmarin, A. M., Moscow

Title : Investigation of the physical-chemical properties of slag melts

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 4, 73-97, Apr 1955

Abstract : Examines some results of experimental investigation which characterize slags as ionic systems. Discusses electrochemical investigation, surface tension, viscosity, and density of melts and cryoscopic measurements. Indicates that the theoretical data on the structure of silicates is still far from complete. This is so because of the complex relationship between the constituent atoms in the heat, which relationship is not limited by purely electrostatic forces but also includes covalence bonds related to the interpolarization of the ions. Formulae, tables. Forty-one references, 18 USSR.

Institution :

Submitted : March 7, 1955

SOV/137-57-1-1191

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 155 (USSR)

AUTHORS: Rozenberg, V. M., Shvartsman, L. A.

TITLE: Thermodynamic Activity of Carbon in Austenite Containing Manganese and Silicon (Termodinamicheskaya aktivnost' ugleroda v austenite, soderzhashchem marganets i kremniy)

PERIODICAL: Probl. metalloved. i fiz. metallov, Nr 4, 1955, pp309-317

ABSTRACT: The authors determined the thermodynamic characteristics of C dissolved in γ Fe (I) with Si and Mn impurities. The calculations were based on the data of Smith (Smith R. P., J. Amer. Chem. Soc., 1946, Vol 68, p 1163; 1948, Vol 70, p 2724) who studied the equilibrium of gaseous mixtures of CO-CO₂ or CH₄-H₂ with I. The activity of C was determined as a function of the partial pressures of the gases P and a constant K of equilibrium of the reactions of C with the gases K.

$$a_c = P_{CO}^2 / P_{CO_2} \cdot K_1 \text{ and } a_c = P_{CH_4} / P_{H_2}^2 \cdot K_2 .$$

Card 1/2 The authors developed the following equations for the coefficient of

SOV/137-57-1-1191

Thermodynamic Activity of Carbon in Austenite Containing Manganese (cont.)

activity γ when I contained Mn and Si as well as C

$$\gamma = 1,040 / [1 - 5(N_C + N_{Si})] \cdot \exp(-4,242 N_{Mn}),$$

where N is the atomic portion of the element and the constants are determined experimentally. It is shown that the application of the thermodynamic relationships found to simple systems permits the development of analytical expressions for the calculation of the solubility of elements in a multicomponent solid solution. The equations adduced permit the calculation of the solubility of C in I containing Mn and Si at 1000°C with different concentrations of the constituent elements.

V. R.

Card 2/2

SHVARTSMAN, L.A., doktor khim.nauk; TOMILIN, I.A.; TRAVIN, O.V.; POPOV, I.A.
kand.tekhn.nauk

Effect of alkaline earths on the distribution of sulfur between iron
and iron slag. Probl. metalloved. i fiz. met. no.4:577-594 '55.
(Alkaline earths) (Iron--Metallurgy) (MIRA 11:4)
(Sulfur)

TOMILIN, I.A.; SHVARTSMAN, L.A., doktor khim.nauk

Distribution of sulfur and phosphorus between iron and acid slag.

Probl. metalloved. i fiz. met. no.4:595-603 '55. (MIRA 11:4)

(Iron--Metallurgy)

SHVARTSMAN, L.A.

TRAVIN, O.V.; SHVARTSMAN, L.A., doktor khim, nauk

Investigating the desulfuration of cast iron with use of soda.
Probl. metalloved. i fiz. met. no.4:604-615 '55. (MIRA 11:4)
(Desulfuration) (Cast iron--Metallurgy)

SHVARTSMAN, L.A.

SUROV, V.F.; TRAVIN, O.V.; SHVARTSMAN, L.A., doktor khim. nauk.

New method of studying equilibrium of the metal-slag system.

Probl. metalloved. i fiz. met. no.4:616-620 '55.

(MIRA 11:4)

(Metallurgical analysis)

SHVARTSMAN, L. A.

met

Mixing of Metal and Slag in Open-Hearth Furnaces. A. I. Osipov, L. A. Shvartans, M. T. Buskin and A. G. Alimov. (Steel, 1955, (9), 709-713). [In Russian]. In the investigation described the mixing of metal and slag under the conditions prevailing in 350-ton O.H. furnaces was studied with the aid of radioactive phosphorus. Very small additions became uniformly distributed throughout the slag and metal in 60-70 min. The curves of distribution against time indicate the diffusional nature of the process, and an estimate has been made of the coefficient of turbulent diffusion of phosphorus in liquid steel. The tracer technique worked satisfactorily and further experiments with radioactive elements which do not pass between the liquid phases (e.g. cobalt and calcium) are envisaged.—s. k.

4

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SHVARTSMAN, L.A.; MALKIN, V.I.

On O.A.Esin and P.V.Gel'd's book: "Physical chemistry of pyro-metallurgical processes." Part 2. Reviewed by L.A.Shvartsman, V.I.Malkin. Zhur.fiz.khim.29 no.5:946-949 My'55. (MLRA 8:12)
(Chemistry, Metallurgic) (Esin, O.A) (Gel'd, P.V.)

SHVARTSMAN, L. A.

USSR/ Chemistry - Metallurgy

Card 1/1 Pub. 147 - 10/22

Authors : Travin, O. V., and Shvartsman, L. A.

Title : Kinetics of the transfer of sulfur from the cast iron into the slag of a CaO-Al₂O₃ system

Periodical : Zhur. fiz. khim. 29/11, 2031-2041, Nov 1955

Abstract : The rate of cast iron desulfurization with the slag of a CaO-Al₂O₃ system was investigated at different temperatures in relation to the sulfur, silicon and manganese concentration in the metal. Results showed that the rate of desulfurization is proportional to the sulfur concentration in the cast iron in a degree depending upon temperature. The degree indicator at relatively low temperatures was found to be close to one and the reaction follows a monomolecular law. The order of the reaction becomes fractional at higher temperatures and tends toward a value of two. Seventeen references: 10 USA and 7 USSR (1936-1954). Tables; graphs; illustration.

Institution : Inst. of Metallography and Phys. of Metals, Moscow

Submitted : February 9, 1955

SHVARTSMAN, L. A.

USSR/Chemistry - Physical chemistry

Card 1/2 Pub. 22 - 29/54

Authors : Malkin, V. I., and Shvartsman, L. A.

Title : Measurement of the Ca^{++} transference number in a $\text{CaO-P}_2\text{O}_5$ fusion

Periodical : Dok. AN SSSR 102/5, 961-963, Jun 11, 1955

Abstract : The difficulties involved in measuring the transference number of a Ca ion in a $\text{CaO - P}_2\text{O}_5$ fusion are analyzed. It was found that the loss in weight of the fusion, which occurs during the passing of the current, is lower than the value required by the Faraday law. It was also established that the entire amount of Ca forming on the cathode does not abandon the fusion and that at least a part of it reacts with the fusion and remains in it. The calculated transference number values indicate the existence of a mono-cation conductivity in $\text{CaO - P}_2\text{O}_5$ fusion.

Institution : Centr.Sc.Res.Inst. of Ferrous Metallurgy, Inst. of Metallography and Phys. of Metals ^{studies}

Presented by : Academician G. V. Kurdyumov, January 31, 1955

Card 2/2 Pub. 22 - 29/54

Periodical : Dok. AN SSSR 102/5, 961-963, Jun 11, 1955

Abstract : Six references: 4 USSR, 1 German and 1 USA (1904-1952). Table.

KORNEV, Yuriy Vasil'yevich; SHVARTSMAN, L.A., nauchnyy redaktor;
BREZANOVSKAYA, L.Ya., redaktor; YUSFINA, N.L., tekhnicheskii
redaktor

[Radioactive atoms in science and technology] Radioaktivnye atomy
v nauke i tekhnike. Moskva, Gos. izd-vo kul'turno-prosvetitel'noi
lit-ry, 1956. 68 p. (MLBA 9:9)
(Radioisotopes)

SOV/124-57-7-7855

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 7, p 56 (USSR)

AUTHOR: Dadashev, B. B., Shvartsman, L. A., Erlikh, G. M.

TITLE: Perfecting the Design and the Methods of Calculation of Industrial Pipe Lines and Fractionating Columns (Sovershenstvovaniye konstruktsiy i metodov rascheta neftepromyslovykh trub i kolonn)

PERIODICAL: Tr. Azerb. n.-i. in-ta, neft. mashinostr., 1956, Nr 1. pp 172
193

ABSTRACT: Bibliographic entry

Card 1/1

SHVARTSMAN, L. A.

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27
 Sulfur distribution between iron and iron slag. L. A. Tomillo and L. A. Shvartsman. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1956, No. 10, 122-5; cf. *J.A.C.S.* 49, 6708c. — The thermodynamics of Fe desulfurization was studied by adding some slag in small portions to fused Fe at some definite const. temp. The slag contained a definite proportion of S^{2-} . The slag fuses upon the metal surface and becomes completely adsorbed by the porous crucible walls, with some of the S^{2-} entering the metal. After a definite amt. of slag was added the S concn. in the metal reaches an equil. concn., different for slags of different compns. The results obtained by this method were less scattered than those found in earlier detns., and can be expressed by $\log K_s = (2620/T) - 0.827$, from ΔH , the heat effect of S transfer from dil. soln. in Fe into the slag was calcd. as close to 12,000 cal./g. atm. The free energy value for the soln. of FeS in the slag was $F = -17,290 + 5.67 T$.
 W. M. Sternberg

for RB copy

RAYSKIY, S.M., nauchnyy sotrudnik; SMIRNOV, V.F., nauchnyy sotrudnik;
SHVARTSMAN, L.A., nauchnyy sotrudnik; MALKIN, V.I., nauchnyy
sotrudnik.

"Radioisotopes in machine-building." P.E. D'iachenko, Reviewed
by S.M. Raiskii and others. Zav.lab. 22 no.6:758-759 '56.
(MIRA 9:8)

1. Fizicheskiy institut Akademii nauk SSSR (for Rayskiy, Smirnov);
2. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metal-
lurgii.
(Radioisotopes--Industrial applications) (D'iachenko, P.E.)

MAPETVARIDZE, Z.G.; SHVARTSMAN, L.A.

Improving the quality of welded butt joints of drill pipes for
geological test boring. Azerb.neft.khoz. 35 no.7:36-37 J1 '56.
(Boring machinery) (Welding)

SHVARTSMAN L.A.

Measurement of the transference numbers of the cations in the melt $\text{CaO} \cdot \text{Na}_2\text{O} \cdot 0.4\text{SiO}_2$. V. I. Malkin, S. P. Khokhlov, and L. A. Shvartsman. *Doklady Akad. Nauk S.S.S.R.* 196, 401-3 (1968). Radioactive isotopes Na^{24} and Ca^{45} (half lives 15.1 hrs. and 162 days, resp.) were used as indicators for the transference phenomenon in a melt of the compn. $\text{CaO} \cdot \text{Na}_2\text{O} \cdot 0.4\text{SiO}_2$, at 1150° . The difference of the half lives of the tracer elements makes an accurate sepn. of the radiation effects in the Geiger counters possible. Thus, the quant. transfer of both cations in the melt could be detd. by the measurement of the activities of the melt solns. in the cathode and anode spaces. The result is a transference no. for Na^+ (0.70) that is double that for Ca^{++} (0.35), i.e. the double-charged cation of the same ionic radius, both of noble-gas type. The wts. of Na and Ca volatilized from the melts during the electrolysis and the transference measurements are approx. the same for both metals. No anion mobility was observed in the expts. at 1150° . W. Eitel

Chem

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Inst. Metallurgy & Physics of Metals, Central Sci. Res. Inst. Ferrous Metallurgy

SHVARTSMAN, L.A., TOMILIN, I.A.,

"Acid-Basic Properties of Slags,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

SHVARTSMAN, I.A., KOZHEVNIKOV, I.Yu.

"Thermodynamics of Dephosphorization of Iron by Slags of the System: CaO-FeO-SiO_2
 $-\text{P}_2\text{O}_5$,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

SHVARTSMAN, L.A., PETROVA, E.F., IAPSHINA, M.I.

"Influence of Alloying Elements on Activity of Carbon in Alpha-Iron,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute
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SHVARTSMAN, I.A., PEREVALOV, N.N.

"Distribution of the Chrome Subgroup Elements Between Iron and Ferrite Slag,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

SHVARZMAN, L.A.

"Thermodynamic Studies of Metallurgical Reactions," L.A. Shvarzman,
Moscow, USSR

Paper submitted for presentation at the International Conference on
Radioisotopes in Scientific Research, Paris, 9-20 Sep 1957

Cent. Res. Inst. of Ferrous Metallurgy, Moscow

SHVARTZMAN, L.A.

"Measurements of the Relative Mobility of Cations in Mixtures of Fused Oxides," V.I. Malkin, Shvarzman, L.A., Moscow, USSR

Paper submitted for presentation at the International Conference on Radioisotopes in Scientific Research, Paris, 9-20 Sep 1957.

Cent. Res. Inst. of Iron Metallurgy, Moscow, USSR

SHVARTSMAN, L. A.

137-58-1-2050

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 278 (USSR)

AUTHOR: Shvartsman, L. A.

TITLE: Some Problems of Methodology in the Use of Radioactive Isotopes in Metallurgy (Nekotoryye metodicheskiye voprosy primeneniya radioaktivnykh izotopov v metallurgii)

PERIODICAL: V sb.: Primeneniye radioaktivn. izotopov v chernoy metallurgii. Chelyabinsk, Knigoizdat, 1957, pp 5-18

ABSTRACT: A review of the application of radio isotopes in ferrous metallurgy in various types of steel making. A number of methods of studying processes occurring in open hearth furnaces, during the pouring of steel, analysis of its chemical composition, etc., by means of radio isotopes are presented. Recommendations are offered relative to the organization of the work and safety measures when using isotopes. Bibliography: 13 references.
Z. F.

1. Metallurgy-USSR 2. Radioactive isotopes--Applications

Card 1/1

137-1958-2-2338

SHVARTSMAN, L.A.

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 2, p 19 (USSR)

AUTHORS: Surov, V.F., Travin, O.V., Shvartsman, L.A.

TITLE: A New Method for the Study of the Equilibrium in a Metal-Slag System (Novyy metod izucheniya ravnovesiy v sisteme metall-shlak)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali Moscow, AN SSSR, 1957, pp 291-295. Diskus., pp 382-334 (Transl. Ed. N.: 332-334)

ABSTRACT: The method is based on the use of radioactive isotopes. A slag of known composition, with a known content of a radioactive element (the distribution of which is studied), is fed in small doses onto the surface of a molten metal, the latter being contained in a crucible hollowed out of magnesite brick. The crucible is surrounded by a dam made of magnesite powder. The interaction occurring between the metal and the slag causes the metal gradually to become saturated with the radioactive element, and the counting rate from the metal samples taken increases. When the counting rate has remained constant for a number of successive metal samples, this is taken as evidence that equilibrium has been attained. The temperature of the metal surface is continuously checked with a pyrometer. To keep the metal from oxidizing, a nitrogen shield is used. This

Card 1/2