L 45899-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AR6016756 SOURCE CODE: UR/0277/66/000/001/0034/0034

AUTHOR: Voronin, M. I.; Petrukhin, P. A.

29
B

TITLE: Static and dynamic strength of reinforced plastics

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod, Abs. 1.48.203

REF SOURCE: Sb. tr. Mosk. vyssh. tekhn. uch-shcha im N. E. Baumana, v. 4, 1964, 29-39

TOPIC TAGS: reinforced plastic, phenolic plastic, glass textolite, fiber

ABSTRACT: The authors determined the strength characteristics under compression and bending and during fatigue testing for textolite, fiberplastic and AG-4V fiberglass-reinforced plastic, and also the experimental coefficients A and α appearing the equation $\tau_{cr}=Ae^{-\alpha\sigma}$ which expresses strength as a function of the action time of a load σ at a constant temperature (τ_{cr} is the time to destruction under constant stress σ). This relationship, which was derived for pure polymers, is verified for reinforced polymers. Within certain intervals, the phenol polymer materials studied conform to the time relationship accepted for linear polymers. The experimental coefficients A

UDC: 678.5-419:677.521:539.4

Card 1/2

L 45899-66
ACC NR: AR6016756

and α are determined to a considerable degree by the technological conditions observed during preparation of the specimens, their geometric shape, the type of filler and the form of loading which is applied. An increase in strength results in an increase in coefficients *A* and α. [Translation of abstract]

SUB CODE: 11

Card 2/2 mlf

L 07185-67 EWT(m)/EWP(j) IJP(c) WW/RM

ACC NR: AR6014359 (A,N) SOURCE CODE: UR/0277/65/000/011/0028/0028

AUTHORS: Voronin, M. I.; Motavkin, A. V.

TITLE: Effect of the scaling factor on the strength of fiber glass AG-4V

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod, Abs. 11.48.242

REF SOURCE: Sb. tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana, v. 4, 1964, 3-16

TOPIC TAGS: fiber glass, material testing, tensile strength/AG-4V fiber glass

ABSTRACT: The relationship between the amount of stressed volume and the ultimate stress of fiber glass (C) AG-4V was established during tests under conditions of axial tension, compression, torsion, and bi-axial tension. It was established that the scaling factor has a significant effect on the strength of C. To describe quantitatively the effect of the scaling factor on the strength of (C)AG-4V during axial tension and compression it is possible to use the Weybull function for the distribution of defects. For torsion the above function can only be applied over limited ranges. During hydraulic testing of AG-4V cylinders, good agreement was noted between the calculated and experimental values of the ultimate stress under plane stress conditions. The equations and experimental coefficients presented in the work are recommended as a first approximation in engineering calculations of the strength

Card 1/2 UDC: 678.5:539.4

L 07185-67

ACC NR: AR6014359 O

of (C)AG-4V parts under various loading conditions: tension, compression, torsion, and bi-axial tension as a function of the size of the parts. [Translation of abstract]

SUB CODE: 13 11

Card 2/2 egh

VORONIN, M.I., kand. tekhn. nauk

New materials on the construction of the first Russian railroad. Transp. stroi. 13 no.1:57-58 Ja '63 (MIRA 18:2)

L 22504-65 EWT(d)/EWT(l)/EWT(m)/EWT(w)/EPF(c)/EPR(n)-2/EWA(c)/EWP(w)/EWP(t)/
EWA(h) Pc-4/Pr-4/Peb/Pu-4 IJP(c) WW/EM

ACCESSION NR: AR4046883 S/0124/64/000/009/V002/V002

SOURCE: Ref. zh. Mekhanika, Abs. 9V22

AUTHOR: Vorotin, M. I.; Melaykin, A. V.

TITLE: Some problems on transient temperature fields of cylindrical bodies

CITED SOURCE: Sb. tr. Mosk. vyssh. tekhn. uch-shch. im. N. E. Baumana, v. 3, 1963, 22-34

TOPIC TAGS: infinite cylindrical shell, shell temperature field, transient heat conductivity

TRANSLATION: A solution is obtained to an equation for transient heat conductivity in an infinite cylindrical shell when only a radial temperature field prevails. It is further stipulated that a convective heat exchange with the environment in which temperature varies exponentially occurs on the internal and external surfaces of the cylinder. Uniform distribution of temperature is assumed for

Card 1/2

L 22504-65
ACCESSION NR: AR4046883

the initial moment. Operational calculus procedures were used to obtain the solution. A numerical example is given. I. M. Danilova

SUB CODE: TD, AS ENCL: 00

Card 2/2

BARMASHENKO, I.B., kand. tekhn. nauk; VORONIN, M.M. [deceased]

Copper coating of mirror glass. Leh. prom. no.2:16-20 Ap-Je '63. (MIRA 16:7)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.
(Amalgams) (Mirrors)

S/128/63/000/001/006/008
A004/A127

AUTHORS: Kuzin, A.V., Voronin, M.P., Borovskiy, Yu.F.

TITLE: Investment casting with soluble inserts of pump and compressor impellers

PERIODICAL: Liteynoye proizvodstvo, no. 1, 1963, 32 - 33

TEXT: To obtain a high surface finish of the inner hollow of impellers, they are cast in metal boxes with soluble carbamide cores according to the investment process. An allowance of 0.2 mm is left for polishing and a 1.5% shrinkage allowance of the steel. A brief description of core and model making is given. The models are made of the КПЦ (KPTs) compound whose melting point is by 35 - 40°C higher than that of the carbamide cores. To prevent cracking of the mold, marshallit and quartz sand are replaced by fused quartz of a corresponding fraction. The castings shaken out are cleaned in a sandblast apparatus after anodic-mechanical cutting of the risers. This casting technology ensures cast impellers with minimum allowances on the inner surface and dimensional tolerances corresponding to the 2nd class of accuracy according to ГОСТ (GOST) 2009-55. Then

Card 1/2

S/128/63/000/001/006/008
A004/A127

Investment casting with soluble inserts of ....

the authors describe the casting of open compressor impellers which is carried out in a similar way. The models are melted out according to the following method: 3 hours at 150°C, 3 hours at 200°C and 3 hours at 250°C. The molds are roasted for 20 hours in a continuous electric furnace of the pusher type. After pouring the molten metal, the risers are covered with an exothermic mixture. There are 8 figures.

Card 2/2

VORONIN, Mikhail Stepanovich, akademik (1838-1903); SEMENKOVA, I.G.; DUNIN, M.S., prof., red.; SEMENOVSKIY, A.A., red.; MAKHOVA, I.N., tekhn. red.; PROKOF'YEVA, L.N., tekhn. red.

[Selected works] Izbrannye proizvedeniia. Sost. I.G.Semenkova. Pod red. i so vstup. stat'ei. M.S.Dunina. Moskva, Sel'khozizdat, 1961. 274 p. (MIRA 15:6)
(Mycology) (Voronin, Mikhail Stepanovich, 1838-1903)

VORONIN, M. U.

The Naro-Fominsk factory Zvenigorod Izd. Tip. Zvenigorodskogo Uispolkoma, 1928.
46 p. (50-45796)

HD9885.R84N38

ANDREYEV, K.P.; VORONIN, M.V.; MITROFANOV, A.M.

Benzene hexachloride smoke as a new agent in the control of Argas persicusticks. Veterinariia 33 no.5:62-65 My '56. (MLHA 9:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy ektoparazitologii, mikologii i sanitarii.
(Benzene hexachloride) (Ticks)

USSR / Zooparasitology. Parasitic Protozoa. Sporozoa. G

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24220.

Author : Voronin, M. V.
Inst : All-Union Institute of Experimental Veterinary Medicine.
Title : Study of Immunobiological Properties of Babesiella ovis (Babes, 1892) from Armenia and Azerbaydzhan.

Orig Pub: Tr. Vses. in-ta eksperim. veterinarii, 1957, 21, 254-269.

Abstract: For experiments, the hybrids of Romanovskaya and fine-wool sheep from a locality safe from hemosporidiases were utilized. For the study of the strains of Babesiella, ticks Rhipicephalus bursa infected with these parasites, were taken. The

Card 1/2

USSR / Zooparasitology. Parasitic Protozoa. Sporozoa. G

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24220.

Abstract: cross infection of sheep, immunized by means of single or twofold infection, shows that the causative agents of babesiellíasis of sheep in Azerbaydzhan and Armenia are somewhat different in their immunogenicity and virulence. B. ovis from Azerbaydzhan is more virulent. -- D. N. Zasukhin.

Card 2/2

VOROMIN, M.V., kand.veterin.nauk

Biological basis of the term of treatment of animals against the larvae of the warble fly. Veterinariia 36 no.6:68-70 Je '59. (MIRA 12:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii.

(Warble flies)

VORONIN, M.V., kand. veterin. nauk; IVANTSOV, L.I.

Ridding cattle of warble flies as an urgent task. Veterinariia 41 no.2:53-58 F '64. (MIRA 17:12)

1. Upravleniye veterinarii Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov RSFSR (for Voronin). 2. Glavnyy veterinarnyy vrach Upravleniya veterinarii Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov RSFSR (for Ivantsov).

VORONIN, M.V., kandidat veterinarnykh nauk; IVASHKOV, I.S., mladshiy nauchnyy sotrudnik.

Using chlorophos in warble fly control. Veterinariia 34 no.5:76-78 My '57. (MLRA 10:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii i ektoparazitologii.
(Warble flies) (Phosphorus organic compounds)

POLYAKOV, D.K.; IVASHKOV, I.S.; ANDREYEV, K.P.; VOROBIN, M.V.; POTAPOV, D.I.

Effectiveness of chlorophos and other preparations in hypodermosis in cattle. Veterinariia 37 no.4: 71-74 Ap'60. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii.
(CHLOROPHOS) (WABBLE FLIES)

VOLUNTY, /VI. -:

"The Use of Chlorophos for the Control of the Gadfly" by Candidate of Veterinary Sciences M. V. Voronin and Junior Scientific Associate I. S. Ivashkov, All-Union Scientific-Research Institute of Veterinary Sanitation and Ectoparasitology, Veterinariya, Vol 34, No 5, May 57, pp 76-78

Describes experiments conducted on the initiative and under the guidance of Doctor of Veterinary Sciences K. P. Andreyev, Head of the Laboratory of Entomology and Disinfestation, to determine means of controlling the cutaneous larvae of the gadfly. Chlorophos, an organophosphorus compound and a powerful local and systemic insecticide was used in the experiments. Chlorophos is a solid substance, white in color; has a melting point of 68 to 70 degrees centigrade; and is soluble in water at room temperature. The experiments established: (1) chlorophos in doses of 10 to 20 milligrams per kilogram body weight is a strong larvicide and is harmless to the animals; (2) the subcutaneous injection of a 10 percent aqueous solution of chlorophos in doses of 5 to 20 milligrams per kilogram body weight kills 98 percent of the larvae in the scirrhus; the recommended dose is 10 to 15 milligrams per kilogram body weight; (3) local application of chlorophos in 5 to 10 percent concentrations kills 100 percent of the larvae; (4) the milk of cows treated with chlorophos is harmless. (U)

SUM.1391

VORONIN, M. V., POTAPOV, D. I., ~~KK~~ POLYAKOV, D. K., IVANIKOV, I. S. and [illegible]

"Efficiency of chlorophos and other preparations in the case of hypodermatosis in cattle."

Veterinariya, Vol. 37, No. 4, 1960, p. 71

VNIIVS

USSR / Diseases of Farm Animals. Arachno-Entomoses. R

Abs Jour : Ref Zhur - Biol., No 22, 1958, No 101378

Author : Voronin, M. V.
Inst : Not given
Title : Experimental Control of Hypoderma Bovis in Moscow Oblast.

Orig Pub : Veterinariya, 1958, No 3, 69-72

Abstract : No abstract given

Card 1/1

VORONIN, M.V., kand.vetnauk

Cutaneous application of chlorophos in controlling warble fly larvae. Trudy VNIIVSE 13:86-92 '58. (MIRA 11:12)
(Phosphonic acid) (Warble flies)

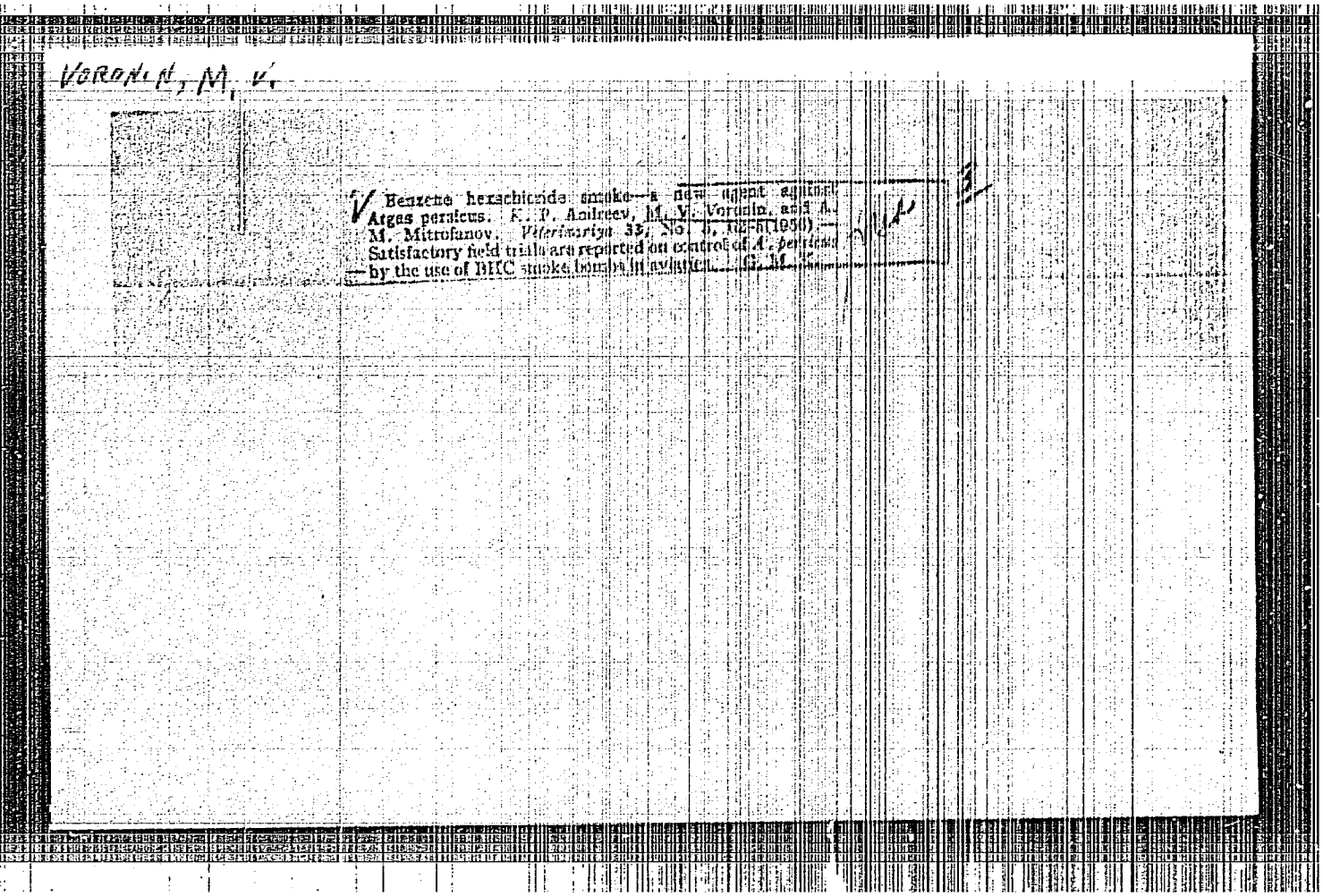
VORONIN, M.V., kand.vetnauk; MOLEV, Ye.V., kand.biol.nauk

Effect of insecticides on the larval and pupal phases of punkies of the genus Culicoides under laboratory and field conditions. Trudy VNIIVSE 13:141-152 '58. (MIRA 11:12)
(Biting midges) (Insecticides)

VORONIN, M.V., kand. vet. nauk.

Warble fly control in Moscow Province. Veterinariia 35 no.3:69-72 Mr '58. (MIRA 11:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii i ektoparazitologii.
(Moscow Province--Warble flies)



VORONIN, M. V.

Benzene hexachloride smoke—a new agent against Ateas perniceus. K. P. Andreev, M. V. Voronin, and A. M. Mitrofanov. *Veterinariya* 35, No. 5, 70-71(1958)
Satisfactory field trials are reported on control of *A. perniceus* by the use of BHC smoke bombs in aviaries. G. M.

VORONIN, N.

Encounter in Galich. Pozh.delo 8 no.6:22 Je '62. (MIRA 15:6)
(Galich (Stanislav Province)—Firemen)

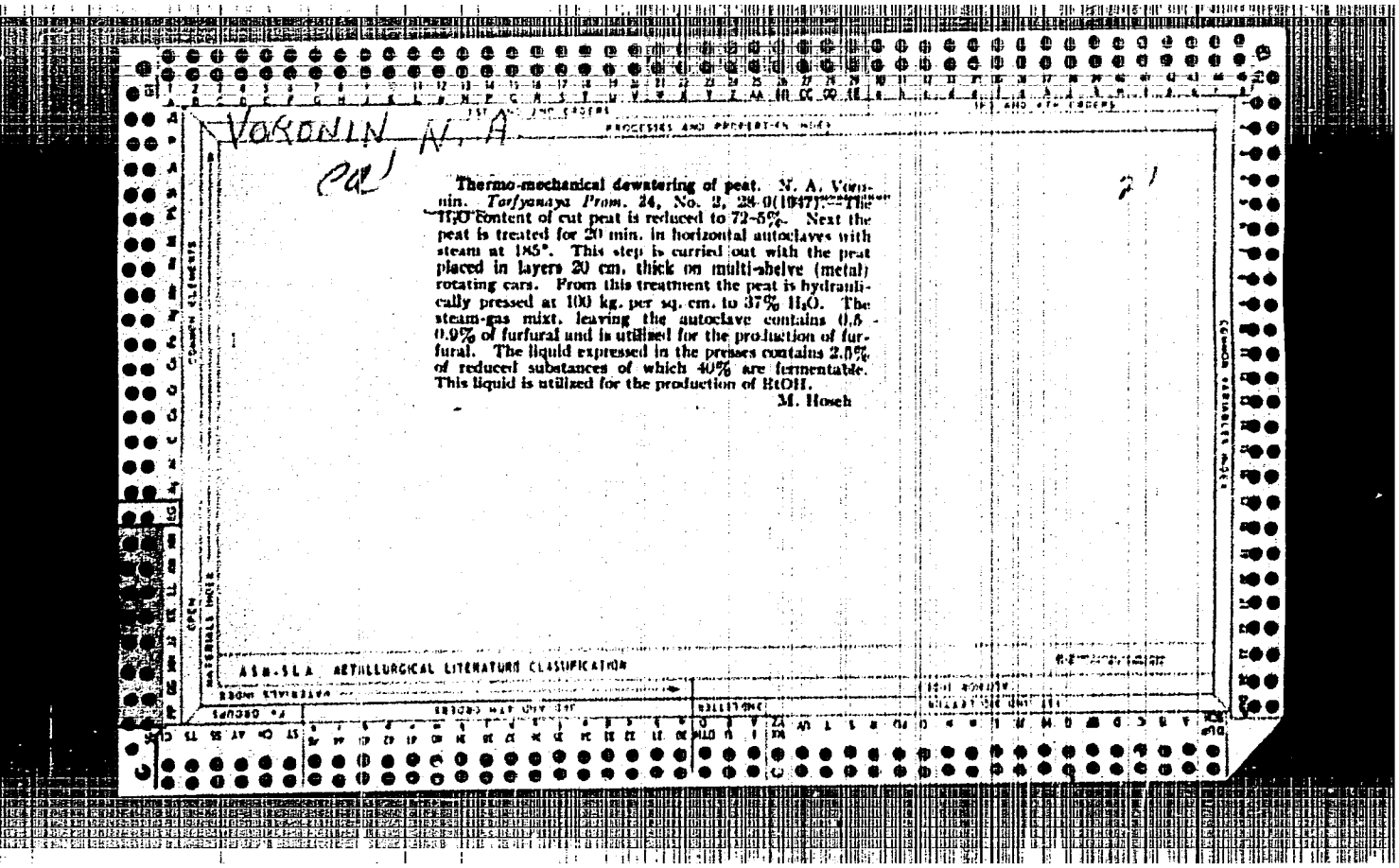
VORONIN, N.

20682. Voronin, N. Kolodtsy v stepi. [Trubchatyy Kolodets sistemy I. S. Bogarintseva]. Ill. S. Pivovarov. Tekhnika -- molodezhi, 1949, No. 5, s. 10

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

VORONIN, N. (Kostroma)

First tests. Pozh.delo 8 no.3:14 Mr '62. (MIRA 15:4)
(Kostroma Province—Fire extinction—Societies, etc.)



VORONIN, N. A.

Cat

Thermo-mechanical dewatering of peat. N. A. Voronin. *Torfyanaya Prom.* 24, No. 2, 28-9(1947).—The H_2O content of cut peat is reduced to 72–5%. Next the peat is treated for 20 min. in horizontal autoclaves with steam at 185°. This step is carried out with the peat placed in layers 20 cm. thick on multi-shelve (metal) rotating cars. From this treatment the peat is hydraulically pressed at 100 kg. per sq. cm. to 37% H_2O. The steam-gas mixt. leaving the autoclave contains 0.5–0.9% of furfural and is utilized for the production of furfural. The liquid expressed in the presses contains 2.0% of reduced substances of which 40% are fermentable. This liquid is utilized for the production of EtOH.

M. Hoseh

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VORONIN, N.A.

VORONIN, N.A.

Artificial dehydration of peat in the Boksitogorsk Plant. Torf. prom. 34 no.4:17-19 '57. (MLRA 10:6)

1. Direktor Boksitogorskogo zavoda.
(Peat--Drying)

44586

S/131/63/000/001/003/004
B117/B101

15,2600

AUTHORS: Voronin, N. I., Gorodetskiy, V. S., Khavkina, Ye. I.

TITLE: Effect of admixtures in the initial material on the properties of refractory products made of zirconium dioxide

PERIODICAL: Ogneupory, no. 1, 1963, 30 - 35

TEXT: The effect of 1 - 5% Fe_2O_3, TiO_2, Al_2O_3, SiO_2 and P_2O_5 on the properties of refractory products made of ZrO_2 stabilized with CaO was investigated. Degree of sintering, compression strength, resistance to heat and deformation of specimens produced under identical conditions (500 kg/cm^2; firing temperature 1600°C) were determined. Results: Fe_2O_3 favors stabilization of the cubical ZrO_2 by CaO, but leads at the same time to the formation of a porous core. TiO_2 has practically no effect on stabilization and reacts neither with ZrO_2 nor with the stabilizer, but it reduces the compression strength of the products and changes the apparent

Card 1/3

porosity as well as the resistance to heat. The inhibiting effect on stabilization of 5% Al_2O_3 and the lowering of the deformation temperature of products with Al_2O_3 are due to new formations, probably calcium hexaaluminate. Al_2O_3 generally affects sintering which, however, is favored by small amounts (1%) of aluminum oxide. Compression strength and heat resistance of the products are improved by 1% Al_2O_3. SiO_2 strongly reacts with the stabilizer and thus prevents stabilization of ZrO_2. The silicates forming improve resistance to heat and sintering of the products, but they reduce their compression strength and lower the deformation temperature. P_2O_5 also reacts with CaO, thus preventing stabilization. Sintering and compression strength of the products are improved. Resistance to heat decreaseswith increasing P_2O_5 content. Shrinkage is more than 6% at a 5% P_2O_5 content and 1800°C. As regards quality reduction of products made of ZrO_2 the effect of admixtures decreases in the following sequence: P_2O_5, Fe_2O_3, SiO_2, TiO_2 and Al_2O_3. For the production of high-quality

Effect of admixtures in the...

refractory products, ZrO_2 must not contain more than minimum amounts of impurities, especially P_2O_5, Fe_2O_3 and SiO_2. There are 7 figures and 6 tables.

ASSOCIATION: Vsesoyuznyy institut ogneuporov (All-Union Institute of Refractory Materials)

Card 3/3

S/131/63/000/002/002/002
B101/B186

AUTHORS: Bresker, R. I., Voronin, N. I., Khrycheva, D. D.

TITLE: Effect of impurities in carborundum on the properties of heaters

PERIODICAL: Ogneupory, no. 2, 1963, 92 - 96

TEXT: Heaters, 320 mm long, 16 mm in diameters were produced from carborundum with different impurity contents. The electrical and physico-mechanical properties of these heaters were tested. Results: Siliconizing changed the chemical composition the more strongly the higher the amount of impurities in the initial carborundum. The smaller the SiC content in the initial carborundum the higher was the free Si content after the siliconizing. High Fe_2O_3 and Al_2O_3 contents caused the decomposition of SiC to SiO_2 by partial oxidation and separation of free Si. In carborundum with 1.95 % Fe the SiC content decreased from 92.74 to 87.43 and the content of free Si increased from 0.95 to 6.06, the SiO_2 content increased from 1.55 to 4.80. Such heaters exhibited a ferroalloy microstructure.

Card 1/3

An admixture of 2 % of Fe_2O_3 or Al_2O_3 did not increase the Fe_2O_3 and the Al_2O_3 content in the siliconized carborundum. Hence the behavior of admixtures is different from that of impurities. Porosity increased and the bending strength decreased as the impurity content increased, e. g. carborundum heaters with 96.42 % SiC, 0.37 % Fe (type I) had a bending strength of 202 kg/cm^2, carborundum heaters with 92.74 % SiC, 1.95 % Fe (type II) had a bending strength of 111 kg/cm^2. The oxidizability increased with the impurity content. The increase in weight after a 50-hr heating at 1400°C was $888 \cdot 10^{-5}$ g/cm^2 in I, $3097 \cdot 10^{-5}$ g/cm^2 in II. The oxidizability increased also with increasing temperature and longer heating period. Heaters with an SiC content below 95 % had a negative temperature coefficient of resistivity. The higher the impurity content the lower the temperature at which a transition takes place to the negative temperature coefficient. A high Fe_2O_3 content decreases, a high Al_2O_3 content increases the resistivity. The lifetime of heaters with

ACCESSION NR: AP4038904 S/0131/64/000/005/0232/0237

AUTHORS: Krasotkina, N. I.; Voronin, N. I.; Levchuk, V. V.

TITLE: Siliconized graphite products for the protection of immersion thermocouples in measuring the temperature of liquid steel

SOURCE: Ogneupory*, no. 5, 1964, 232-237

TOPIC TAGS: refractory material, silicon carbide, thermocouple

ABSTRACT: The initial step in the production of protective thermocouple points consisted of processing hollow graphite cylinders 120 mm long with a 15-mm outside diameter and 6-mm inside diameter. Graphite rods 400 mm long and 50 mm in diameter were also turned. The cylinders and rods were fired in silicon vapors at 1600C. This caused the graphite pores to be filled with silicon carbide, the formation of which was facilitated by a 5% admixture of ammonium chloride. The siliconized points and rods were tested in 20-ton carbon-arc furnaces of the "Electrostal'" plant by being immersed in the molten steel at 1600-1700C and then being cooled in the air. During the immersion, the lower part of the block was in the metal, the middle portion--in the slag, and the upper part--above it. The siliconized points withstood 6-8 immersions of 20 to 30 seconds each, with a loss of 0.01-0.06 mm/sec. To prevent the separation of free silicon out from the pores, the points were fired

Card 1/2

ACCESSION NR: AP4038904

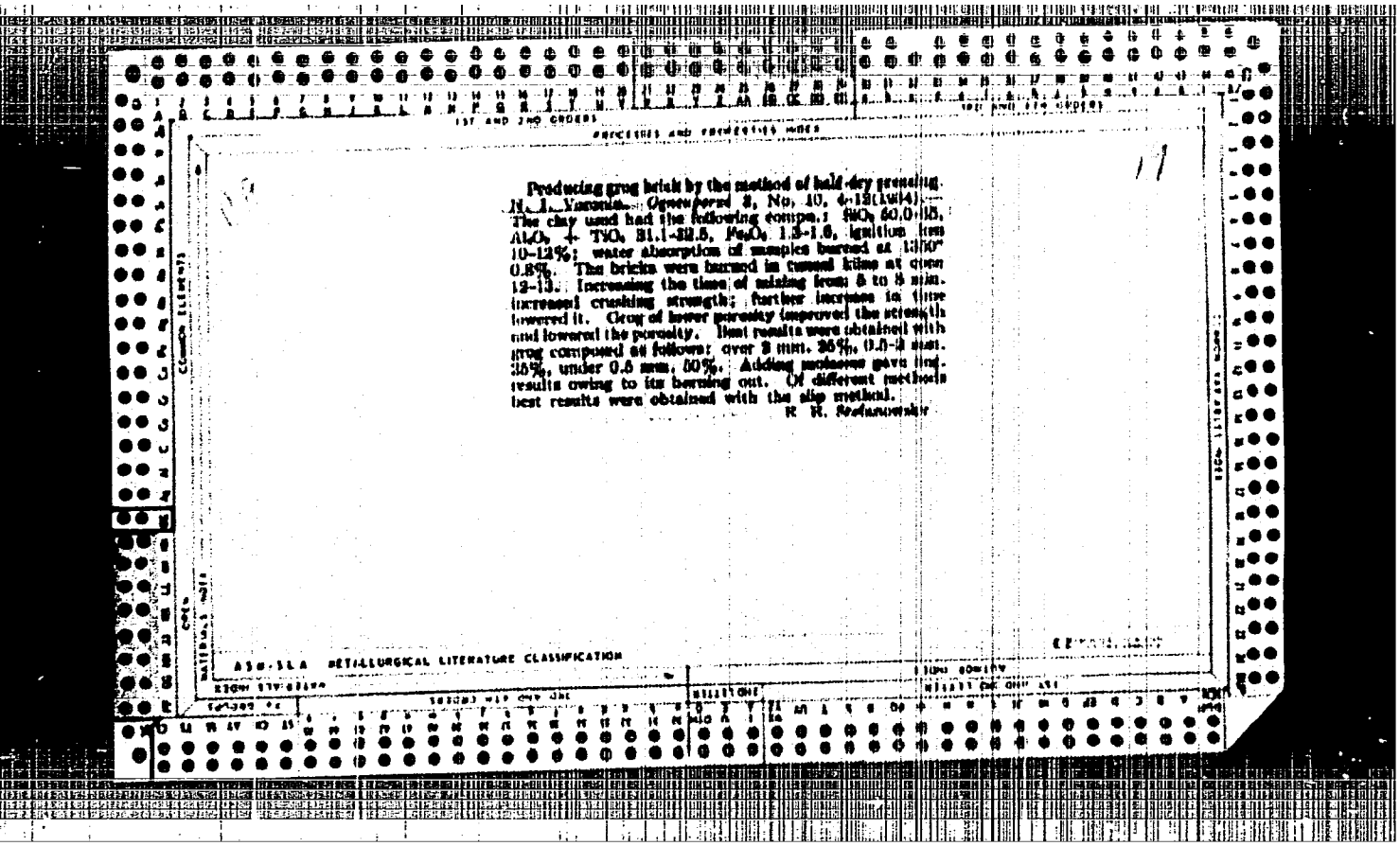
in vacuum at 1800C. Such points were tested in the oxidizing and the reducing stages of smelting. The temperature readings obtained with these were checked against those given by a thermocouple with quartz points. It was found that more time was needed to record the temperature during the reducing than during the oxidizing stage. Preheating the thermocouple to 1200-1300C prior to immersion corrected this defect and permitted a longer service period for the points. V. M. Vinogradov, Yu. Ye. Yefroymovich, V. I. Konyashin, I. A. Nazarkin, B. A. Oleznyuk, S. F. Polunin, and O. G. Filin participated in the work. Orig. art. has: 5 charts and 6 tables.

ASSOCIATION: Vsesoyuzny*y institut ogneuporov (All-Union Institute of Refractory Materials)

SUBMITTED: 00 DATE ACQ: 05Jun64 ENCL: 00

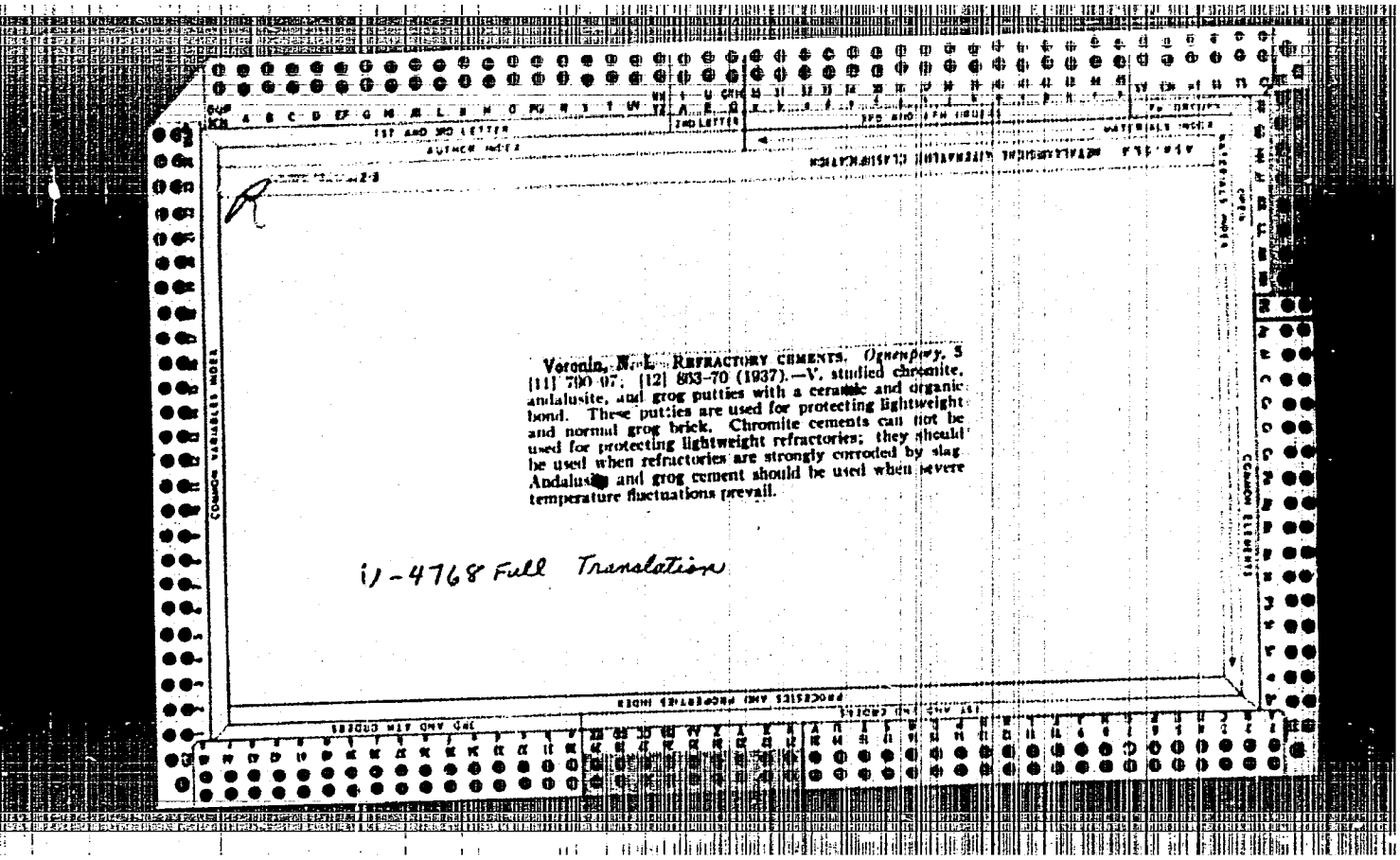
SUB CODE: MT NO REF SOV: 011 OTHER: 000

Card 2/2



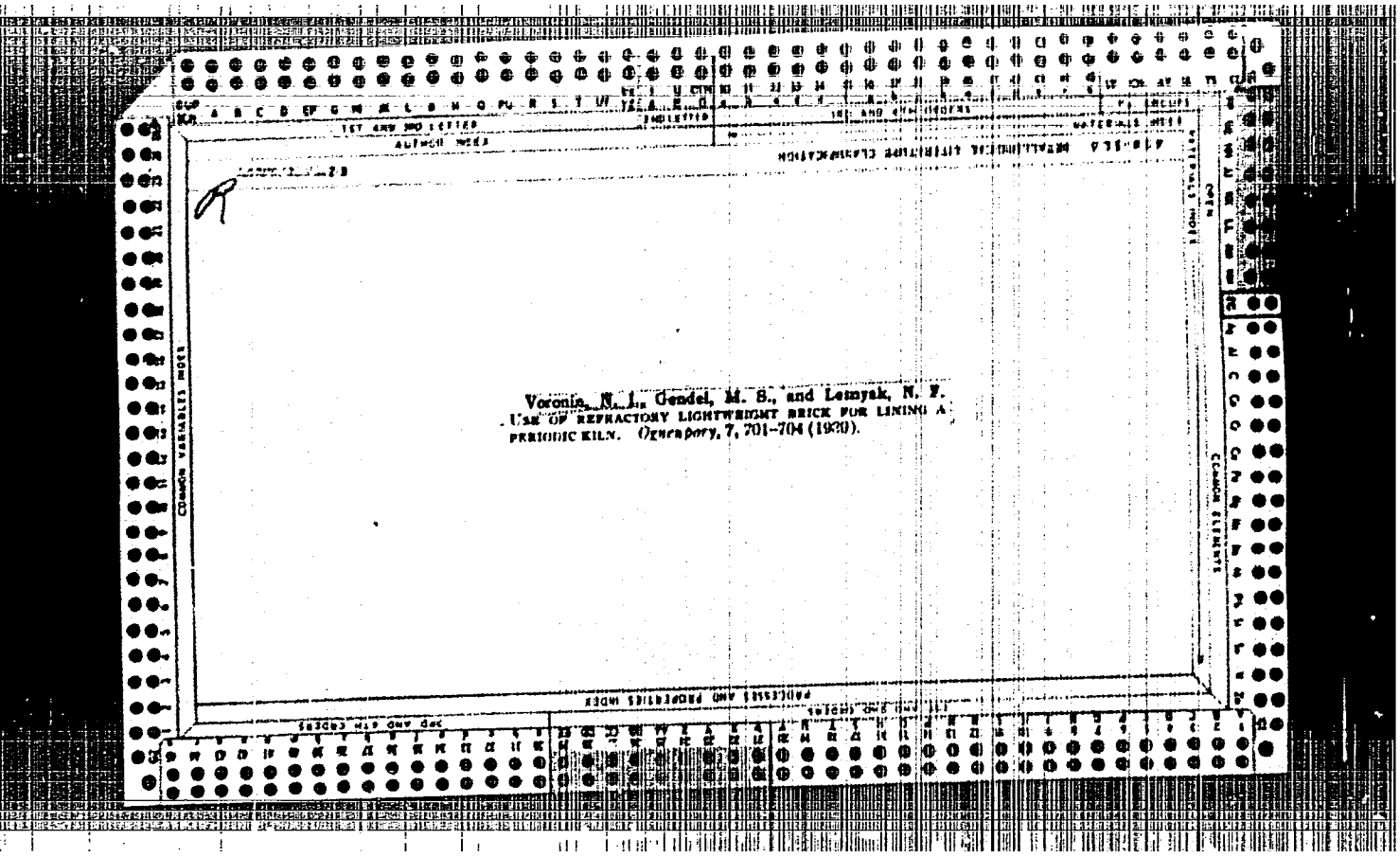
Producing grog brick by the method of half-dry pressing.
N. I. Yarosha. Ogneupory 8, No. 10, 4-12(1943).—
The clay used had the following compn.: SiO_2 60.0-65, Al_2O_3 + TiO_2 31.1-32.5, Fe_2O_3 1.3-1.6, ignition loss 10-12%; water absorption of samples burned at 1350° 0.8%. The bricks were burned in tunnel kilns at 1300-12-13. Increasing the time of mixing from 5 to 8 min. increased crushing strength; further increase in time lowered it. Grog of lower porosity improved the strength and lowered the porosity. Best results were obtained with grog compsd as follows: over 3 mm. 35%, 0.5-3 mm. 35%, under 0.5 mm. 30%. Adding molasses gave inf. results owing to its burning out. Of different methods best results were obtained with the slip method.
R. H. Sedlaczek

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

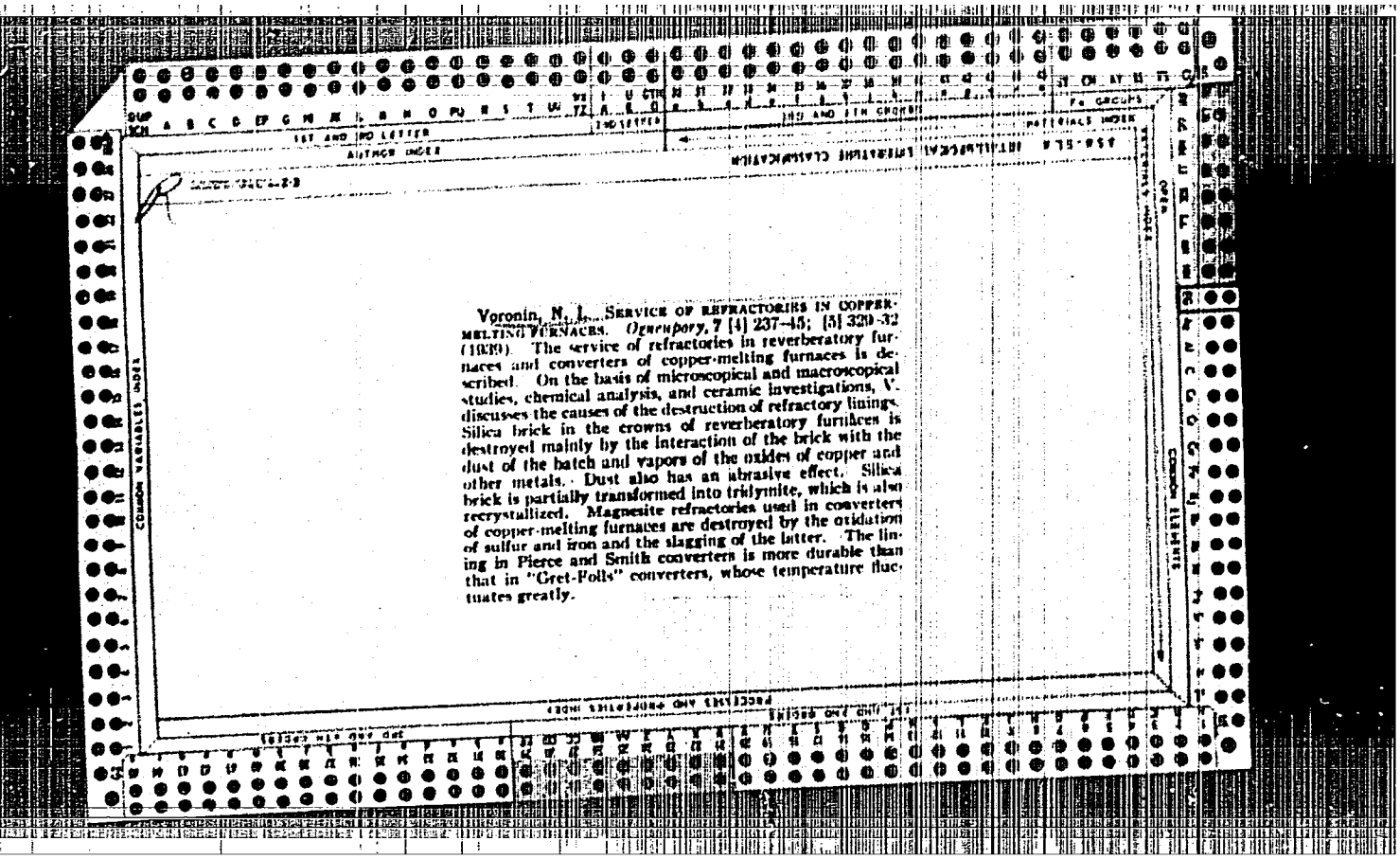


Voronin, N. L. REFRACTORY CEMENTS. *Ogneupory*. 5 [11] 700-07; [12] 803-70 (1937).—V. studied chromite, andalusite, and grog putties with a ceramic and organic bond. These putties are used for protecting lightweight and normal grog brick. Chromite cements can not be used for protecting lightweight refractories; they should be used when refractories are strongly corroded by slag. Andalusite and grog cement should be used when severe temperature fluctuations prevail.

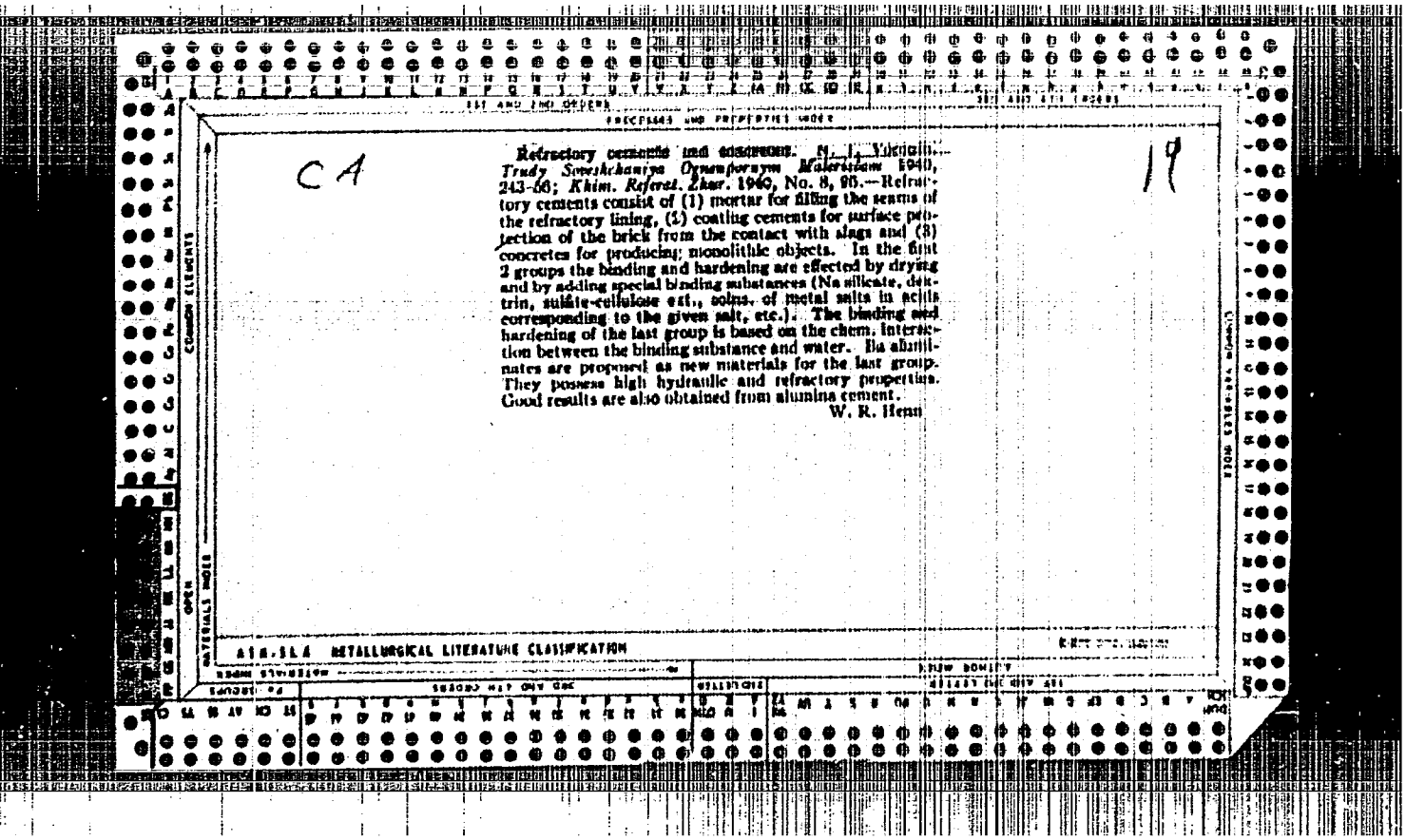
11-4768 Full Translation



Voronin, N. I., Gendel, M. S., and Lemyak, N. F.
USE OF REFRACTORY LIGHTWEIGHT BRICK FOR LINING A PERIODIC KILN. *Ogneupory*, 7, 701–704 (1939).



Voronin, N. I. SERVICE OF REFRACTORIES IN COPPER-MELTING FURNACES. *Ogneupory*, 7 [4] 237–45; [5] 320–32 (1939). The service of refractories in reverberatory furnaces and converters of copper-melting furnaces is described. On the basis of microscopical and macroscopical studies, chemical analysis, and ceramic investigations, V. discusses the causes of the destruction of refractory linings. Silica brick in the crowns of reverberatory furnaces is destroyed mainly by the interaction of the brick with the dust of the batch and vapors of the oxides of copper and other metals. Dust also has an abrasive effect. Silica brick is partially transformed into tridymite, which is also recrystallized. Magnesite refractories used in converters of copper-melting furnaces are destroyed by the oxidation of sulfur and iron and the slagging of the latter. The lining in Pierce and Smith converters is more durable than that in "Gret-Polls" converters, whose temperature fluctuates greatly.

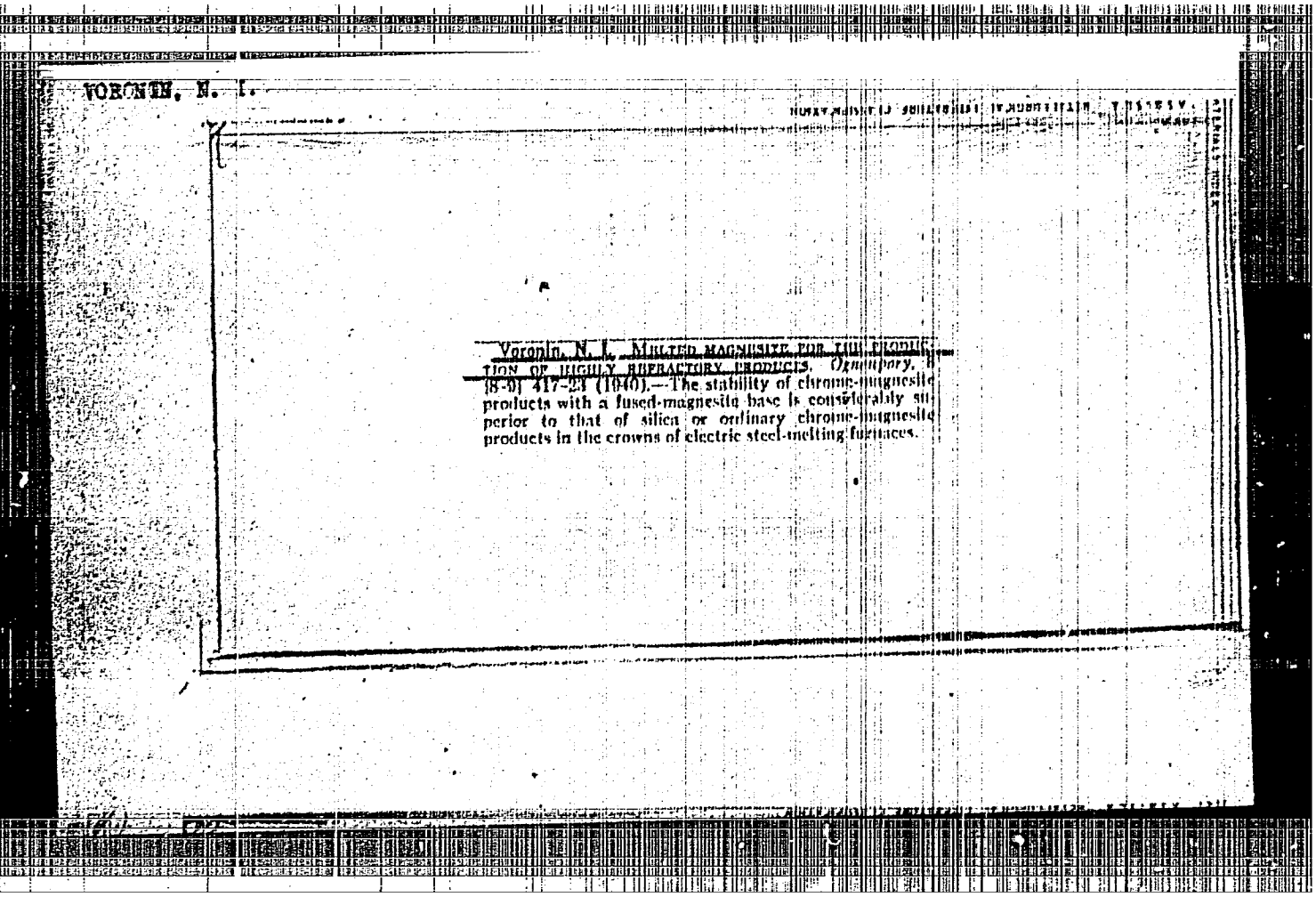


CA

19

Refractory cements and concretes. N. I. Yakimin. *Trudy Soveshchaniya Ogneuporam Materialam* 1940, 243-66; *Khim. Referat. Zhur.* 1940, No. 8, 95.—Refractory cements consist of (1) mortar for filling the seams of the refractory lining, (2) coating cements for surface protection of the brick from the contact with slags and (3) concretes for producing monolithic objects. In the first 2 groups the binding and hardening are effected by drying and by adding special binding substances (Na silicate, dextrin, sulfite-cellulose ext., solns. of metal salts in acids corresponding to the given salt, etc.). The binding and hardening of the last group is based on the chem. interaction between the binding substance and water. Ba aluminates are proposed as new materials for the last group. They possess high hydraulic and refractory properties. Good results are also obtained from alumina cement.

W. R. Henn



VORONIN, N. I.

Voronin, N. I. MELTED MAGNESITE FOR THE PRODUCTION OF HIGHLY REFRACTORY PRODUCTS. *Ogneupory*, 8 [8-9] 417-21 (1940).—The stability of chrome-magnesite products with a fused-magnesite base is considerably superior to that of silica or ordinary chrome-magnesite products in the crowns of electric steel-melting furnaces.

172. LABORATORY INVESTIGATION OF MAGNESIA FROM NATURAL BRINES.—M. I. Voroshin (Ogneupory, 11, No. 6, 37, 1946). A sample of sea-water magnesite was studied in the laboratory and investigated as a raw material for magnesite bricks. Thermal analysis, shrinkage, and loss-in-weight curves are given. Bricks made from this material require a higher firing temperature than normal magnesite bricks, but this may be reduced by suitable additions, e.g. iron oxide, without detriment to the quality of the bricks. The sea-water magnesite bricks have a higher temperature of deformation under load than those of natural origin, but little difference can be detected in other properties.

1. VORONIN, N.I.

2. USSR (600)

4. Geology, Structural - Penza Province

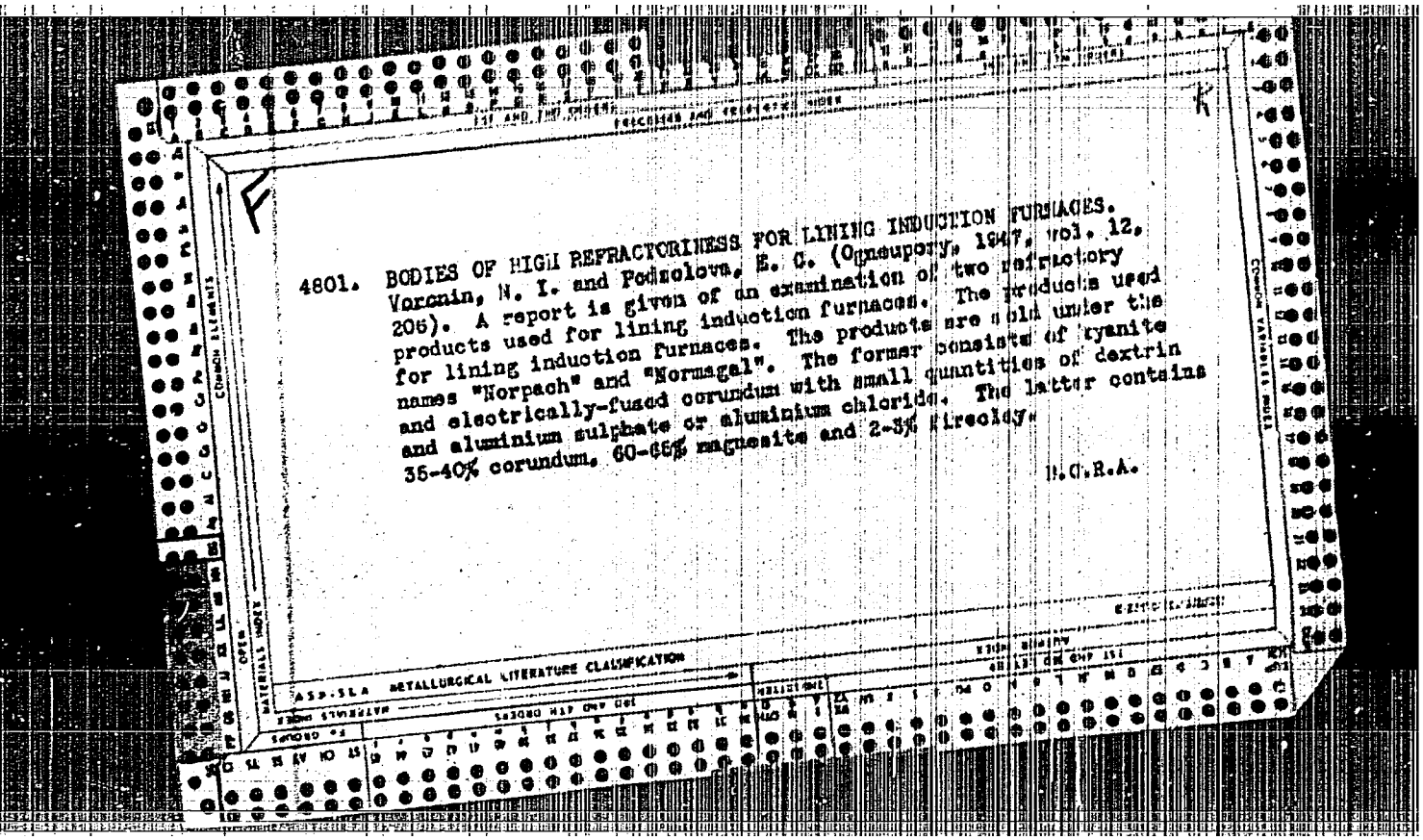
7. Report on the work of the second Kuznetsk geological party of the Moscow geological prospecting trust of the Main Administration for Petroleum Exploration of the People's Commissariat of Petroleum in 1942. (abstract) Izv. Glav. upr. geol. fon no.2, 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified

VORONIN, N.I.; NOVIKOV, A.N.

Ultrabasic rock of the Sevan coastal region as raw stock for the production of forsteritic refractory materials. Izv.AN Arm.SSR. Est.nauki no.8:91-98 '47. (MLRA 9:8)

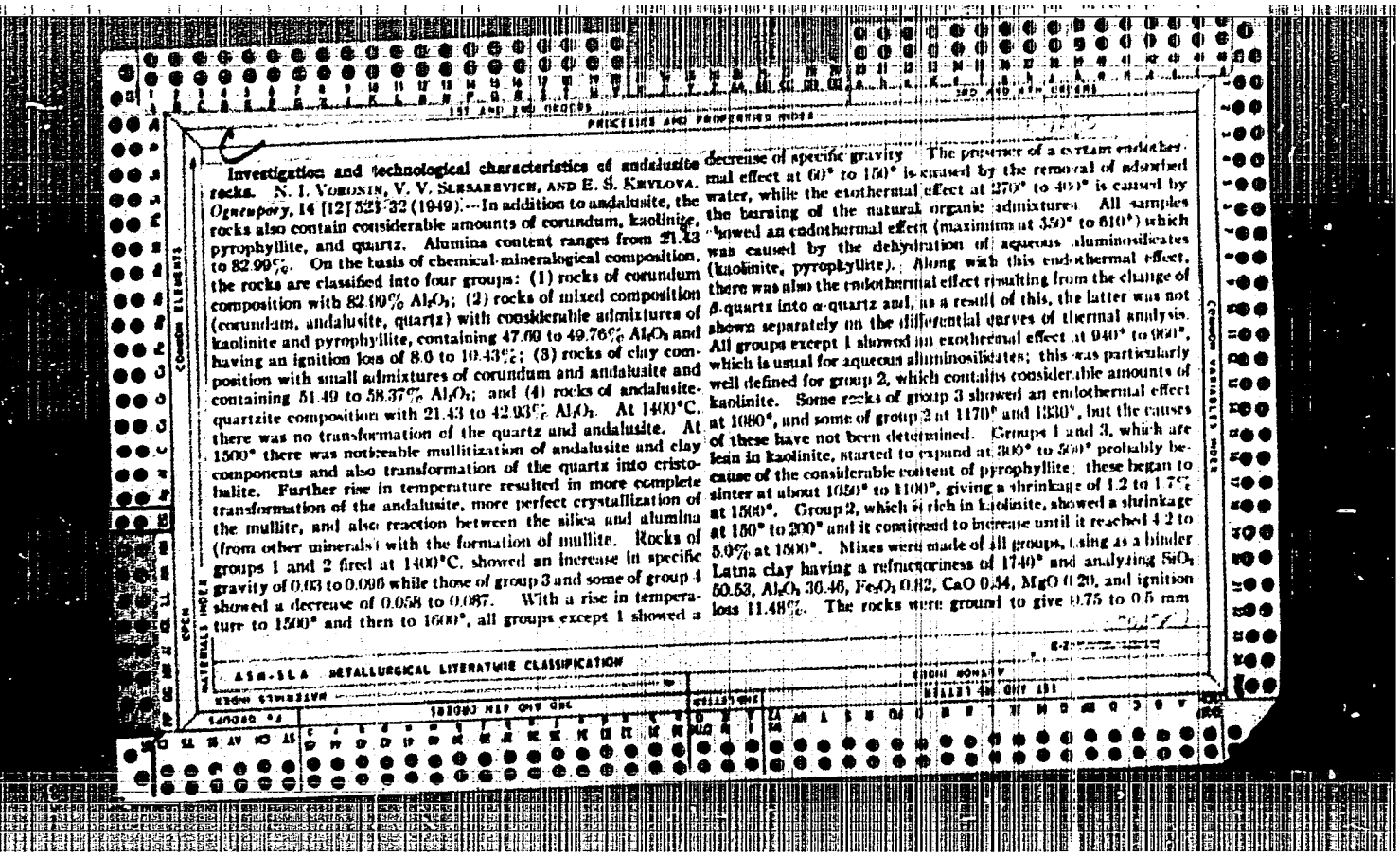
1. Institut ogneuporov, Leningrad.
(Sevan region--Forsterite) (Refractory materials)



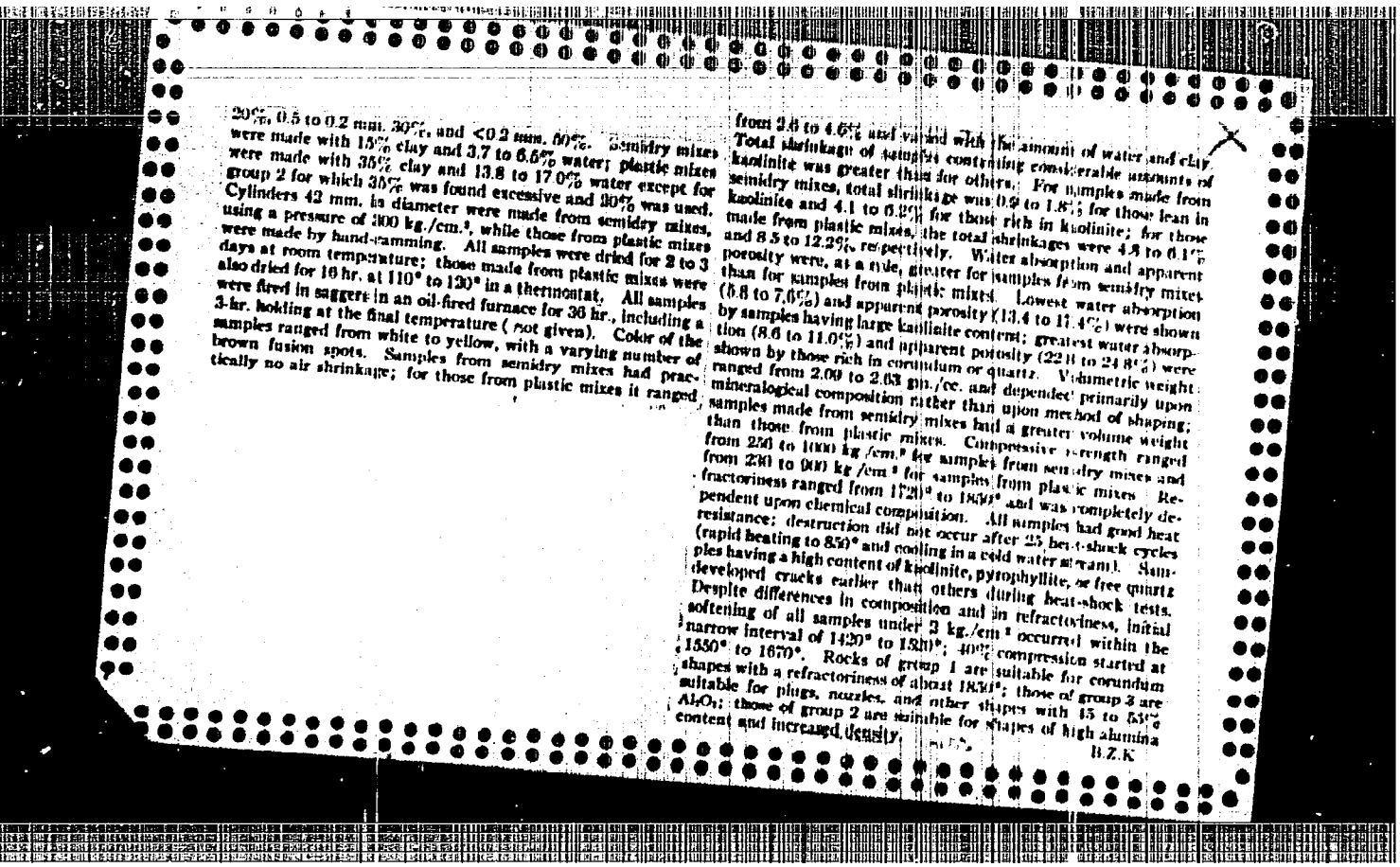
4801. BODIES OF HIGH REFRACTORINESS FOR LINING INDUCTION FURNACES.
Voronin, N. I. and Podnolova, E. C. (Ogneupory, 1947, vol. 12, 206). A report is given of an examination of two refractory products used for lining induction furnaces. The products used for lining induction furnaces. The products are sold under the names "Norpach" and "Normagal". The former consists of kyanite and electrically-fused corundum with small quantities of dextrin and aluminium sulphate or aluminium chloride. The latter contains 35-40% corundum, 60-65% magnesite and 2-3% firecly.

U.C.R.A.

2086. Serpentine rocks from Sevanuk as raw material for the production of forsterite refractories.—N. I. Vorobiev and A. N. Novikov (*Ogneupory*, 13, 397, 1948). The rocks examined were of two types, a serpentinous dunite and a serpentine-magnesite. The former was a greenish-brown somewhat porous rock in which there were occasional veins of magnesite; the latter was also comparatively porous but contained inclusions of dense serpentine. The percentage compositions were as follows: serpentinous dunite: SiO_2, 37·85; $Al_2O_3+TiO_2$, 0·37; Fe_2O_3, 7·80; FeO, 0·21; CaO, 2·49; K_2O, 38·50; Cr_2O_3, 0·58; loss on ignition, 14·72; serpentine-magnesite: SiO_2, 33·52; $Al_2O_3+TiO_2$, 0·16; Fe_2O_3, 5·89; FeO, nil; CaO, 0·40; MgO, 40·21; Cr_2O_3, 0·55; loss on ignition, 19·11. The refractoriness values were 1,690° C. and 1,710° C. respectively. Test-pieces were made from mixtures of serpentine rock and magnesite in the ratios 75 : 25, 85 : 15 and 100 : 0; they were fired at 1,300° C. and 1,600° C. Used alone, the serpentine rocks had a very high firing shrinkage (20%); with 25% of magnesite added, the firing shrinkage of the serpentinous dunite was reduced to 4·5% at 1,300° C. and 8·6% at 1,600° C.; that of the serpentine-magnesite to 10·3% at 1,300° C. and 11·2% at 1,600° C. The apparent porosities of the fired mixtures of serpentine rock and magnesite were 28–32%; the porosity of the rock alone, fired at 1,300° C., was about 7%. The spalling resistance varied from 4 to 7 cycles. Crushing strength, bulk density and slag-resistance tests were also carried out. In refractoriness-under-load tests, the serpentine rocks themselves began to soften at 1,270°–1,300° C., and failed at about 1,320° C.; the addition of 15 or 25% of magnesite increased these values to about 1,500° C. for the beginning of softening and to about 1,540°–1,700° C. for the fall point. Increasing the temperature of firing of the serpentine-magnesite mixtures from 1,300° to 1,600° C. had variable results on the refractoriness-under-load values. (5 tables.)



Investigation and technological characteristics of andalusite rocks. N. I. Vorobin, V. V. Slesarevich, and E. S. Krylova. *Ogneupory*, 14 [12] 523-32 (1949).—In addition to andalusite, the rocks also contain considerable amounts of corundum, kaolinite, pyrophyllite, and quartz. Alumina content ranges from 21.43 to 82.99%. On the basis of chemical-mineralogical composition, the rocks are classified into four groups: (1) rocks of corundum composition with 82.90% Al_2O_3; (2) rocks of mixed composition (corundum, andalusite, quartz) with considerable admixtures of kaolinite and pyrophyllite, containing 47.60 to 49.76% Al_2O_3 and having an ignition loss of 8.0 to 10.43%; (3) rocks of clay composition with small admixtures of corundum and andalusite and containing 51.49 to 58.37% Al_2O_3; and (4) rocks of andalusite-quartzite composition with 21.43 to 42.93% Al_2O_3. At 1400°C. there was no transformation of the quartz and andalusite. At 1500° there was noticeable mullitization of andalusite and clay components and also transformation of the quartz into cristobalite. Further rise in temperature resulted in more complete transformation of the andalusite, more perfect crystallization of the mullite, and also reaction between the silica and alumina (from other minerals) with the formation of mullite. Rocks of groups 1 and 2 fired at 1400°C. showed an increase in specific gravity of 0.03 to 0.096 while those of group 3 and some of group 4 showed a decrease of 0.058 to 0.087. With a rise in temperature to 1500° and then to 1600°, all groups except 1 showed a decrease of specific gravity. The presence of a certain endothermal effect at 60° to 150° is caused by the removal of adsorbed water, while the exothermal effect at 370° to 405° is caused by the burning of the natural organic admixtures. All samples showed an endothermal effect (maximum at 550° to 610°) which was caused by the dehydration of aqueous aluminosilicates (kaolinite, pyrophyllite). Along with this endothermal effect, there was also the endothermal effect resulting from the change of β-quartz into α-quartz and, as a result of this, the latter was not shown separately on the differential curves of thermal analysis. All groups except 1 showed an exothermal effect at 940° to 960°, which is usual for aqueous aluminosilicates; this was particularly well defined for group 2, which contains considerable amounts of kaolinite. Some rocks of group 3 showed an endothermal effect at 1080°, and some of group 2 at 1170° and 1330°, but the causes of these have not been determined. Groups 1 and 3, which are less in kaolinite, started to expand at 300° to 500° probably because of the considerable content of pyrophyllite; these began to sinter at about 1050° to 1100°, giving a shrinkage of 1.2 to 1.7%; at 1500°. Group 2, which is rich in kaolinite, showed a shrinkage at 150° to 200° and it continued to increase until it reached 4.2 to 5.0% at 1500°. Mixes were made of all groups, using as a binder Latna clay having a refractoriness of 1740° and analyzing SiO_2 50.53, Al_2O_3 30.46, Fe_2O_3 0.82, CaO 0.54, MgO 0.20, and ignition loss 11.48%. The rocks were ground to give 0.75 to 0.5 mm



20%, 0.5 to 0.2 mm. 30%, and <0.2 mm. 50%. Semidry mixes were made with 15% clay and 3.7 to 6.6% water; plastic mixes were made with 35% clay and 13.8 to 17.0% water except for group 2 for which 35% was found excessive and 30% was used. Cylinders 42 mm. in diameter were made from semidry mixes, using a pressure of 300 kg./cm.², while those from plastic mixes were made by hand-ramming. All samples were dried for 2 to 3 days at room temperature; those made from plastic mixes were also dried for 16 hr. at 110° to 130° in a thermostat. All samples were fired in saggers in an oil-fired furnace for 36 hr., including a 3-hr. holding at the final temperature (not given). Color of the samples ranged from white to yellow, with a varying number of brown fusion spots. Samples from semidry mixes had practically no air shrinkage; for those from plastic mixes it ranged from 3.6 to 4.6% and varied with the amount of water and clay. Total shrinkage of samples containing considerable amounts of kaolinite was greater than for others. For samples made from semidry mixes, total shrinkage was 0.9 to 1.8%; for those lean in kaolinite and 4.1 to 6.2% for those rich in kaolinite; for those made from plastic mixes, the total shrinkages were 4.8 to 6.1% and 8.5 to 12.2%, respectively. Water absorption and apparent porosity were, as a rule, greater for samples from semidry mixes than for samples from plastic mixes. Lowest water absorption (5.8 to 7.6%) and apparent porosity (13.4 to 17.4%) were shown by samples having large kaolinite content; greatest water absorption (8.6 to 11.0%) and apparent porosity (22.0 to 24.8%) were shown by those rich in corundum or quartz. Volumetric weight ranged from 2.09 to 2.63 gm./cc. and depended primarily upon mineralogical composition rather than upon method of shaping; samples made from semidry mixes had a greater volume weight than those from plastic mixes. Compressive strength ranged from 250 to 1000 kg./cm.² for samples from semidry mixes and from 230 to 900 kg./cm.² for samples from plastic mixes. Refractoriness ranged from 1720° to 1800° and was completely dependent upon chemical composition. All samples had good heat resistance; destruction did not occur after 25 heat-shock cycles (rapid heating to 850° and cooling in a cold water stream). Samples having a high content of kaolinite, pyrophyllite, or free quartz developed cracks earlier than others during heat-shock tests. Despite differences in composition and in refractoriness, initial softening of all samples under 2 kg./cm.² occurred within the narrow interval of 1420° to 1530°; 40% compression started at 1550° to 1670°. Rocks of group 1 are suitable for corundum shapes with a refractoriness of about 1800°; those of group 3 are suitable for plugs, nozzles, and other shapes with 15 to 53% Al_2O_3; those of group 2 are suitable for shapes of high alumina content and increased density.

B.Z.K

L 25161-65 EWP(e)/EWT(m)/T WH S/0131/64/000 012/0565/0569

ACCESSION NR: AP5001302

AUTHOR: Voronin, N. I.; Kumpetsova, V. L.; Brenker, R. I.

TITLE: Testing carborundum heating elements for stability in air

SOURCE: Ogneupory, no. 12, 1964, 565-569

TOPIC TAGS: carborundum stability, carborundum heating element, carborundum oxidation, carborundum heat resistance, carborundum conductivity, carborundum microstructure

ABSTRACT: The authors determined the stability of silicon carbide heating elements at 1400, 1500 and 1600C in air and tested their porosity, bending strength and electrical resistivity. A single-core electric furnace was used to test three types of carbide: coarse-grain and fine-grain α-SiC and β-SiC, the chemical composition and some physical properties of which are given in Table and the microstructure of which is shown in photomicrographs. At 1400C, the fine-grain α-SiC is considerably stronger than coarse-grain α-SiC. The first proved to have the longest service life at 1600C, but the second lasted longer at 1500C. The electrical resistance began to rise at 1500C, but then aging set in due to the formation of a surface film of SiO_2. By the end of the test at 1600C, the resistance fell

Card 1/2

L 25161-65
ACCESSION NR [illegible]

ASSOCIATION: Vsesoyuznyy institut ogneuporov (All-Union Refractories Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REV SOV: 002 OTHER: 004

Card 2/2

VORONIN, M.I., doktor tekhn. nauk; GORODETSKIY, V.S., kand. tekhn. nauk; LEVCHUK, V.V., inzh.

Evaluating the suitability of zircon raw materials from certain deposits in the Soviet Union for the production of refractories. Trudy Inst. ogneup. no.34:64-80 '63. (MIRA 17:10)

VORONIN, N.I.

Ushna Basin within the limits of the Oka-Tsna upland. Trudy VNIGNI no.2:5-18 '51. (MLRA 10:4)
(Ushna Valley--Geology, Stratigraphic)

VORONIN, N. I.

Refractory Materials

Problems concerning the rational production of highly refractory magnesite materials, Ogneupory 7, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

VORONIN, N.I.

Symposium on utilization of Satkinsk magnesite. Ogneupory 17, 310-11 '52. (CA 47 no.20:10819 '53) (MLRA 5:7)

1. Leningrad. Inst. Refractories.

VORONIN, N.I., doktor tekhn. nauk; [illegible], N.I., kand. [illegible] nauk; [illegible]VA, D.D., mladshiy nauchnyy sotrudnik

Investigating the chemical composition, electrical, and physicomechanical properties of heaters, depending on the quality of the initial carborundum. Trudy Inst. ogneup. no.34:164-192 '63. (MIRA 17:10)

L 06292-67 EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) AT/WH/JD/WW/JW/JG/GD

ACC NR: AT6027147 (A) SOURCE CODE: UR/0000/65/000/000/0203/0208

AUTHOR: Voronin, N. I.; Makarova, N. L.; Yudin, B. F. 51

ORG: All-Union Institute of Refractories (Vsesoyuznyy institut ogneuporov) B+1

TITLE: Heat of formation of silicon carbide and roducts of its vaporization 16 27 27

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Issledovaniya v oblasti khimii silikatov i okislov (Studies in the field of chemistry of silicates and oxides). Moscow, Izd-vo Nauka, 1965, 203-208

TOPIC TAGS: heat of formation, silicon carbide

ABSTRACT: The study was undertaken in order to determine the heats of formation of SiC and products of its vaporization from vapor pressure data. Langmuir's method was used to determine the total vapor pressure over SiC and partial pressures of Si, Si_2C and SiC_2 at temperatures of 2113, 2193 and 2273°K. This method involves the use of the following formula for the equilibrium pressure of the substance during its vaporization from an open surface:

$$P = \frac{m}{St}\sqrt{\frac{2\pi RT}{M}}$$

The results of the calculations are shown in Table 1. The data are compared with those reported in the literature. Orig. art. has: 4 tables and 4 formulas

Card 1/2

L 06292-67

ACC NR: AT6027147

Table 1. Heats of Formation of Silicon Carbide and Products of Its Vaporization

Temperature of experiment (°K)	$\Delta H°_{298.15}$ (kcal/mole)			
	SiC_{solid}	SiC_{gas}*	$SiC_{2\,gas}$	Si_2C_{gas}
2113	—23.75	—	143.76	118.90
2193	—26.98	—	149.14	122.02
2273	—28.22	—	151.90	123.17
Adopted value	—27.6	163.2	150.5	122.6

SUB CODE: 07/ SUBM DATE: 11Feb64/ ORIG REF: 001/ OTH REF: 007

Card 2/2 gd

L 23878-66 EWT(m)/T/ETC(m)-6 WW/DJ

ACC NR: AP6009928 SOURCE CODE: UR/0413/66/000/004/0121/0122

AUTHOR: Losik, V. I.; Rizhamadze, G. V.; Nevelich, V. V.; Vanil'tsov, E. A.; Voronin, N. I. 39 B

ORG: none

TITLE: A combination ball-hydrostatic thrust bearing. [15] Class 47, No. 179135 [announced by Leningrad Branch, All-Union Scientific Research and Design Institute of Chemical Machine Building (Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta khimicheskogo mashinostroyeniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 121-122

TOPIC TAGS: antifriction bearing, ball bearing

ABSTRACT: This Author's Certificate introduces: 1. A combination ball-hydrostatic thrust bearing with upper and lower rings. The lower ring has a chamber for the working fluid and is supported by a roller bearing. In order to improve working conditions and relieve the bearing during operation, the lower ring has internal grooves which form additional chambers connected by channels with the chamber for the working fluid. Inside these grooves are elastic elements fastened to the ring. 2. A modification of this bearing in which the elastic element is made in the form of a spring-return piston. Sliding freely in this piston is a rod which is rigidly fastened in

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L 23878-66
ACC NR: AP6009928

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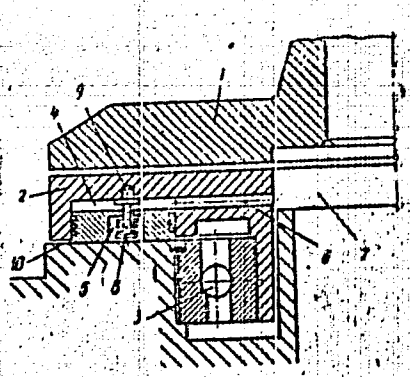
the upper section of a groove in the lower ring.



1--upper ring; 2--lower ring; 3--roller bearing; 4--chamber for the working fluid; 5--internal grooves; 6--channel; 7--chamber; 8--spring-return piston; 9--rod; 10--stationary surface.

SUB CODE: 13/ SUBM DATE: 29Dec63/ ORIG REF: 000/ OTH REF: 000

Card 2/2 dda

ACC NR: AP7000364 SOURCE CODE: UR/0413/66/000/022/0136/0136

INVENTOR: Vasil'tsov, E. A.; Voronin, N. I.; Losik, V. I.; Nevelich, V. V.

ORG: None

TITLE: A hermetically sealed electric drive. Class 47, No. 188799 [announced by the Leningrad affiliate of the All-Union Scientific Research and Design Institute of Chemical Machine Building (Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo i konstruktorskogo instituta khimicheskogo mashinostroyeniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1966, 136

TOPIC TAGS: centrifugal pump, electric equipment, drive train, HERMETIC SEAL

ABSTRACT: This Author's Certificate introduces a hermetically sealed electric drive containing a housing with bearings, a stator with shielded casing, a rotor and a pump on the rotor shaft for self-contained lubrication of the journal bearings. To reduce hydraulic losses, improve the resistance of the electric drive to vibrations and eliminate the harmful effect of axial forces, the impeller of the centrifugal pump is mounted without play inside the rotor between its blocks. The end surfaces of the rotor are equipped on both sides with thrust collars supported by the bearings.

Card 1/2

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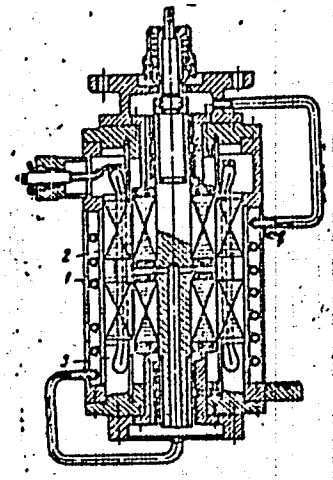
ACC NR: AP7000364



1—impeller; 2—rotor blocks; 3—thrust collars

SUB CODE: 13/ SUBM DATE: 23Jan64

Card 2/2

ACC NR: AP7005312 (A) SOURCE CODE: UR/0131/67/000/001/0047/0049

AUTHOR: Voronin, N. I.; Churakova, R. S.

ORG: All-Union Institute of Refractories (Vsesoyuznyy institut ogneuporov)

TITLE: Quartz products fabricated by the slip casting method

SOURCE: Ogneupory, no. 1, 1967, 47-49

TOPIC TAGS: slip casting, refractory product, quartz, dielectric material, sintering

ABSTRACT: Utilizing the recently developed simple and labor-saving technique of slip casting of opaque quartz glass (Walton, J. D. Ceramic Age, 1960, no. 2, pp 23-25, and others), the authors employed opaque fused quartz that had been pulverized in ball mills for 192 hr until it contained approximately 40% of fractions smaller than 1 μ, and flushed in diluted HCl to remove iron. Thus contamination of the material by iron was precluded while at the same time the silicagel formed during wet grinding was retained, this being highly important to the further processing of the material since it endows with plasticity the pulverized product. SiO_2 content of the powder: 99.3%. 10% sulfite-alcohol mash was added as the peptizing agent. Immediately after its pulverization the fused-quartz slip is poured into

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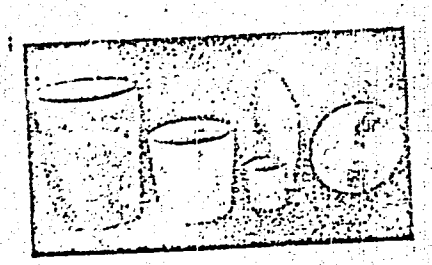
plaster molds. Increasing the fineness of grinding of the fused quartz enhances the sinterability and strength of the fired products and reduces their porosity. The optimal firing temperature at which products with a high thermal resistance can be obtained is the relatively low temperature of 1200°C, and the optimal firing time, 2 hr. Specimens fired under these conditions contain only traces of cristobalite. The slip casting method was used to fabricate various shapes of quartz containers with walls 1 to 20 mm thick and with capacity of up to 10 liters (see figure). To improve their physicomechanical properties these products, following their firing at 1200°C, were impregnated with organosilicone resin by immersion for 24 hr



Quartz products fabricated by the slip-casting method

in the resin diluted 50% with toluene. The impregnated products were dried at 110°C and refired at 1100°C, at which temperature the resin decomposes and releases active SiO_2 which

Card 2/3

ACC NR: AP7005312

fills the pores of the product. Such an impregnation nearly doubles the strength of the products. Quartz crucibles fabricated by this method were satisfactorily used in the founding of lead glass at 1440°C for 1 hr (with prior heating of the crucibles to 1300°C for 3-4 hr). Fused-quartz products fabricated by the slip-casting method display a low thermal conductivity and high dielectric characteristics. Orig. art. has: 2 figures, 4 tables.

SUB CODE: 11, 20, 13/ SUBM DATE: none/ OTH REF: 007

Card 3/3

VOHONIN, N.I.; KUZNETSOVA, V.I.; BRESKER, R.I.

Service of electric heaters made of silicon carbide used in various media. Ogneupory 30 no.7:22-26 '65. (MIRA 18:8)

1. Vsesoyuznyy institut ogneuporov.

KRASOTKINA, N.I.; VORONIN, N.I.; BARSKAYA, I.S.

Use of ceramic regenerators in soaking pits. Ogneupory 29 no.10: 451-455 '64. (MIRA 18:7)

1. Vsesoyuznyy institut ogneuporov.

KRASOTKINA, N.I.; VORONIN, N.I.

Effect of firing conditions and additions of scale on the homogeneity of carborundum products with a silica bonding. Ogneupory 29 no.7:322-325 '64. (MIRA 18:1)

1. Vsesoyuznyy institut ogneuporov.

VORONIN, N.I.; KUZNETSOVA, V.L.; BRESKER, R.I.

Testing silicon carbide heaters for stability in air. Ogneupory 29 no.12:565-569 '64. (MIA 18:1)

1. Vsesoyuznyy institut ogneuporov.

L 39929-65 EWP(e)/EWP(m)/EWA(w)/EPF(n)-2/EWG(m)/EWA(c)/EEC(t)/EWP(t)/
EWP(k)/EWP(z)/EWP(b)/EWA(c) Pf-4/Pm-4/Pu-4 I,2(c JD/JG/AT/WE
ACCESSION NR: AP5000708 S/0081/64/000/017/K00(?)00(?) 4 13

SOURCE: Ref. zh. khimiya, Abs. 17K33

AUTHOR: Voronin, N. I.; Bresker, R. I.; Smrabman, D. L.

TITLE: Phase transformations during siliconizing annealing and their effect on the properties of carborundum heaters

CITED SOURCE: Sb. Silikaty i oksidy v khimii vysokikh temperatur. M., 1963, 269-280

TOPIC TAGS: carborundum, silicon carbide, heater manufacture, silicon carbide phase composition, siliconizing annealing, heater conductivity, heater mechanical property, carbon black, coking

TRANSLATION: The authors note that during the manufacture of heaters from silicon carbide, the siliconizing annealing has a significant effect on the phase composition and physicomechanical and electrical properties. Siliconizing annealing is carried out in electric resistance ovens by two methods: 1) upon a graphite pipe, and 2) by passing a stream directly across the heater. Annealing of heaters around a pipe was tested on compositions containing 70% finely dispersed S.C. 12-

Card 1/2

L 39929-65
ACCESSION NR: AR5000708

30% carbon black and 0-18% silicon. The changes in phase and chemical composition and in the microstructure after coking and siliconizing annealing of various weights are reported. After siliconizing annealing, all the samples had approximately the same chemical composition (in %): SiC 97.7-99, Si 0.4-1, SiO$_2$ 0.5. The properties of the heaters were as follows: porosity 21.2-43.5%, strength 150-650 g/cm^2, electrical resistance 1.6-2.7 ohm. Siliconizing annealing by direct passage of a stream was studied on heaters prepared from coarse-grained SiC and a small amount of carbon black. Liquid glass was used as a binder. Siliconizing annealing was carried out under various annealing conditions and with varying compositions of siliconizing charge and initial SiC. An increase in the duration of siliconizing annealing had no significant effect. The quality of the original SiC had a notable effect on the properties of the heaters. The authors note that this study has contributed to the perfection of the heater manufacturing process and the improvement of their useful properties. B. Dresker

SUB CODE: MT ENCL: 00

Card 2/2

VORONIN, N.I.; KRASOTKINA, M.I.; KULIK, A.I.; KARMANOVA, T.S.; LEVIN, G.Ye.; SIZIN, P.R.

Refractory materials and ramming mixtures for high-pressure steam-boiler furnaces. Ogneupory 28 no.5:212-218 '63. (MIRA 16:6)

1. Vsesoyuznyy institut ogneuporov (for Voronin, Krasotkina, Karmanova). 2. Chasov-Yarskiy kombinat ogneupornykh izdeliy (for Kulik). 3. Mironovskaya gosudarstvennaya rayonnaya elektrostantsiya (for Levin, Sizin).
(Refractory materials)
(Boilers—Design and construction)

VORONIN, N.I., doktor tekhn.nauk; KRASOTKINA, N.I., kand.khimicheskikh nauk; YUDIN, V.F., kand.tekhn.nauk

Fireproof electric insulation coating for steel pipe in heating devices. Stek.i ker. 20 no.2:32-34 F '63. (MIRA 16:2)

1. Vsesoyuznyy institut ogneuporov (for Voronin, Krasotkina).
2. TSentral'nyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy kotloturbinnyy institut imeni Polzunova (for Yudin).
(Ceramics) (Protective coating)
(Electric heating)

VORONIN, N.I., inzh.; KRASOTKINA, N.I., inzh.; MARSHAK, Yu.L., inzh.; SOLOV'YEV, A.M.; PSHENKO, V.A., inzh.; KULIK, A.I., inzh.

Use of carborundum packing compounds for lining furnaces with liquid slag removal systems. Elek.sta. 33 no.12:2-5 D '62. (MIRA 16:2)

(Boilers) (Furnaces)

VORONIN, N.I.; GORODETSKIY, V.S.; KHAVKINA, Ye.I.

Effect of admixtures in the initial material on the properties of zirconium dioxide refractories. Ogneupory 28 no.1:30-35 '63. (MIRA 16:1)

1. Vsesoyuznyy institut ogneuporov.
(Refractory materials)

BRESKER, R.I.; VORONIN, N.I.; KHRYCHEVA, D.D.

Effect of impurities in carborundum on heater properties. Ogneupory 28 no.2:92-96 '63. (MIRA 16:2)

1. Vsesoyuznyy institut ogneuporov.
(Carborundum—Analysis) (Electric heating elements)

NOVIKOV, Vasiliy Vasil'yevich; ZUBOVSKIY, Leonid Isaakovich; PRAMNEK, German Fritsevich; KOGAN, Valentina Solomonovna; KLYKOV, Semen Ivanovich; NAUMOV, Pavel Alekseyevich; YEMEL'YANOV, Gennadiy Alekseyevich; VORONIN, Nikolay Isidorovich; SERGEYCHUK, K.Ya., red.; GRIGOR'YEV, B.S., red.; FORTUSHENKO, A.D., red.; NOVIKOV, V.V., otv. red.; SMOLYAN, G.L., red.; MARKOCH, K.G., tekhn. red.

[Manual on electric communications; telegraphy] Inzhenerno-tekhnicheskii spravochnik po elektrosviazi; telegrafiia. [By] V.V.Novikov i dr. Moskva, Sviaz'izdat, 1963. 654 p. (MIRA 16:5)

(Telecommunication--Handbooks, manuals, etc.)
(Telegraph--Handbooks, manuals, etc.)

VORONIN, N.I.; KRASOTKINA, N.I.

Phase composition of carborundum refractories with a bonding of silicon nitride. Ogneupory 27 no.10:463-468 '62. (MIRA 15:9)

1. Vsesoyuznyy institut ogneuporov.
(Refractory materials—Optical properties)
(Electron microscopy)

VORONIN, N.I.

Conference on the coordination of research on nonmetallic electric heating elements. Ogneupory 27 no.10:480-481 '62.
(MIRA 15:9)

1. Vsesoyuznyy institut ogneuporov.
(Nonmetallic materials--Thermal properties)

VORONIN, N.I.; KRASOTKINA, N.I.

Present state of production and ways to improve the quality of carborundum refractory materials. Ogneupory 26 no.10:461-465 '61. (MIRA 14:11)

1. Vsesoyuznyy institut ogneuporov.
(Silicon carbide) (Refractories industry)

VORONIN, N.I., doktor tekhn.nauk; BEYNISH, A.M., inzh.

Radiation sources made from highly refractory oxides for working temperatures of 1900° and higher. Trudy Inst. ogneup. no.29: 33-51 '60. (MIRA 14:12)

(Radiation)
(Refractory materials)

VORONIN, N.I.; KRASOTKINA, N.I.; STAVORKO, A.P.; MIL'SHENKO, R.S.

Test batch of carborundum refractory materials bonded with silicon nitride. Ogneupory 26 no. 4:157-163 '61. (MIRA 14:5)

1. Vsesoyuznyy institut ogneuporov (for Voronin, Krasotkina).
2. Semilukskiy ogneupornyy zavod (for Stavorko, Mil'shenko).
(Refractory materials) (Silicon carbide)

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AUTHORS: Voronin, N. I., Krasotkina, N. I., Stavorko, A. P., Mil'shenko, R. S.

TITLE: Experimental industrial batches of carborundum refractories with silicon nitride binders

PERIODICAL: Ogneupory, no. 4, 1961, 157-163

TEXT: The authors study carborundum refractories with silicon nitride binders. The production method has been developed at the Vsesoyuznyy institut ogneuporov (VIO) (All-Union Institute of Refractory Materials) and tested under industrial conditions at the Semilukskiy zavod (Semiluki Works) in cooperation with the VIO. A test batch of these products was produced with the masses being burnt at 1500°C. This batch was designed for firing with anthracite coal of a particle size of from 2 to 8 mm. The following parameters have to be taken into account when producing the industrial batches: effect of the amount of sulfite alcohol slops and the humidity of the mass on the quality of the blanks; effect of various modes of introducing the blanks into the furnace on

Card 1/9

Experimental industrial batches ...

the properties of the products; effect of the duration of burning on the properties of the products. The mass consisted of black carborundum nos. 24, 30, 120, 150, crystalline silicon KP-1 (KR-1) with grains of a size up to 0.06 mm. At a pressure of 5-6 atm products with dimensions of 240 × 50 × 50 mm were rammed from the masses containing 80-70% SiC and 20-30% Si. The composition of the masses and the properties of the blanks after ramming are given in Table 1. The good blanks were dried on air during five to seven days. Subsequently, they were burnt in the tunnel furnace in ceramic and carborundum casings and in the muffle furnace. Porosity of the products after burning was 11-14%. Compressive strength and properties of the burnt products are given in Tables 4 and 5, respectively. The free silicon content in the products impairs their strength as was observed in earlier investigations. Table 6 shows the indices of the test batch as well as of the carborundum products with silicon binders of the Semiluki Works. The chemical analysis was made by K. S. Kolobova, A. N. Alekseyeva studied the ground sections and the immersion. The chemical analysis and the study of the microstructure showed that with low burning rate only 2.7% of silicon remains in free state, its major part, however, is transformed into

Experimental industrial batches ...

silicon nitride and silicon carbide. Conclusions: The production technique of carborundum refractories with silicon nitride binders which has been developed by the VIO and in the Semiluki Works warrants higher qualities than that with the ordinary silicon binders. Final conclusions concerning the quality of carborundum refractories with silicon nitride binders can be drawn only after checking their working stability. The editors add that the homogeneity of the products from different muffles and the change of the properties of the products with free silicon at high temperatures must be studied in the oxidation medium. A method of eliminating free silicon must be developed. There are 3 figures, 7 tables, and 1 Soviet-bloc reference.

ASSOCIATION: Vsesoyuznyy institut ogneuporov (All-Union Institute of Refractory Materials) Voronin, N. I., Krasotkina, N. I.; Semilukskiy ogneupornyy zavod (Semiluki Works of Refractory Materials) Stavorko, A. P., Mil'shenko, R. S.

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B105/B202

Experimental industrial batches ...

Legend to Table 1: A) composition; 1) carborundum, %; 2) silicon 0.06 mm, %; 3) sulfite alcohol slops; 4) humidity of the rammed mass; B) characteristic values of the blank; 5) volume weight, g/cm^3; 6) amount of waste, %; 7) cause of waste; a) transverse cracks; b) longitudinal cracks; c) various

Таблица 1

А Состав масс и свойства сырца

№ масс	А) Состав масс: 1 карборунд, % № 24, 30	1 карборунд, % № 120, 150	2 кремний 0,06 мм	3 с. с. б. плотность г/см³	3 с. с. б. сухой остаток %	4 влажность массы при трамбовании, %	Б) Характеристика сырца: 5 объемный вес г/см³	6 количество брака %	7 причина брака
1	56	24	20	1,29*	—	1,5	2,7	50	Поперечные трещины (a)
2	56	24	20	1,28	6,2	3,3	2,7	40	Продольные трещины (b)
3	56	24	20	1,28	5,1	3,5	2,7	30	» »
4	56	24	20	1,28	5,1	2,0—1,5	2,7	10	» »
5	56	24	20	1,27	4,0	2,0—1,5	2,7	>1	Разные (c)
6	49	21	30	1,27	4,5	2,0—1,5	2,6—2,5	2—5	»

Card 4/9

89980
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B105/B202

Experimental industrial batches ...

Legend to Table 4: compressive strength $\sigma_{сж}$ in kg/cm^2 after burning in the tunnel furnace with 18 lorries per shift; 1) no. of the mass; 2) mean value;

Таблица 4

Пределы прочности изделий при сжатии кг/см², после обжига в туннельной печи с проталкиванием 18 вагонеток в смену с дополнительной выдержкой на 47-й позиции

① № массы; $\sigma_{сж}$, кг/см²			
1	2	3	средняя ②
1290	1404	785	1159
1184	1140	1231	1183
1212	1334	1451	1336
1280	1170	730	1060
1400	—	940	1170
892	890	1440	1074

Card 5/9

89980

S/131/61/000/004/001/003
B105/B202

Experimental industrial batches ...

Legend to Table 5: properties after burning in the tunnel furnace with 16 lorries per shift: 1) water absorption, %; 2) volume weight, g/cm^3; 3) porosity, %; 4) compressive strength of specimens taken from various points of the product; 5) mean value; 6) Si content in the mass;

Card 6/9

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S/131/61/000/004/001/003
B105/B202

Experimental industrial batches ...

Таблица 5

Свойства изделий после обжига в туннельной печи при проталкивании 16 вагонеток в смену на позициях 40—51

Водопоглощение %	Объемный вес г/см³	Пористость %	Предел прочности при сжатии образцов из разных мест изделия, кг/см²				
			№ 1	№ 2	№ 3	№ 4	средний
1	2	3	4				
Содержание Si в массе 20%							
—	—	—	880	—	1616	1812	1436
4,3	2,64	11,4	1530	1310	1096	—	1312
—	—	—	840	1640	—	1480	1320
4,3	2,70	11,5	1750	1823	1824	1623	1756
—	—	—	1250	1610	1883	2380	1780
—	—	—	1520	1314	1461	980	1319
Содержание Si в массе 30%							
—	—	—	804	1540	1670	1133	1287
—	—	—	—	1250	830	1530	1180

Card 7/9

Experimental industrial batches ...

Legend to Table 6: initial composition of the masses and indices of the products of the test batch: 1) composition of the masses, %; 2) method of intruction into the furnace; 3) number of lorries per shift; a) good products; 4) number of pieces; 5) total weight, kg; 6) volume weight, g/cm^3; 7) porosity, %; 8) compressive strength kg/cm^2; 9) temperature at the beginning of destruction; b) experimental results; c) flat; d) standing; e) industrial products;

Card 8/9

Experimental industrial batches ...

Таблица 6

Исходный состав масс и показатели изделий опытной партии

Состав масс %		2	3	4	5	а Годные изделия 6	7	8	9
SiC	Si	Садка	Чи до выгонки, при тепловых в печку	штук	общий вес кг	объемный вес, г/см³	порис-тость %	$\sigma_{сж}$ кг/см²	Температура начала разрушения, °С
б Опытные изделия									
80	20	На плашку г	16*	1589	2782	2,68—2,74	8—10	1300—1800	>1500
80	20	» »	18**	590	1032	2,68—2,70	10—13	1000—1300	>1500
80	20	» »	18	1160	1960	2,67—2,50	11—14	800—1000	—
80	20***	На торец д	18	450	756	—	—	800	—
70	30	На плашку в	16*	174	283	2,68—2,70	10—13	1000—1300	—
70	70	» »	18	423	710	2,68—2,70	10—13	500—600	—
е Промышленные изделия									
100	—	—	18	—	—	2,35—2,50	18—24	300—700	1530

Card 9/9

VORONIN, N.I.

Tectonic pattern of southern Ul'yanovsk Province and its oil and gas potentials. Trudy SGPK no.1:167-173 '60. (MIRA 13:10)
(Ul'yanovsk Province--Petroleum geology)
(Ul'yanovsk Province--Gas, Natural--Geology)

VORONIN, N.I.; KRASOTKINA, N.I.; SMIRNOVA, V.A.

Nitride-bonded silicon carbide refractories. Ogneupory 25 no.7: 329-334 '60. (MIRA 13:8)

1. Vsesoyuznyy institut ogneuporov.
(Refractory materials)

VORONIN, N.I.

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AUTHORS: Voronin, N. I., Krasotkina, N. I., Smirnova, V. A.

TITLE: Refractory Carborundum Products With Nitride Binding Materials

PERIODICAL: Ogneupory, 1960, No. 7, pp. 329 - 334

TEXT: The properties of the refractory carborundum products depend in many respects on the binding materials used. The authors conducted investigations in order to obtain refractory carborundum products with nitride binding materials. After drying, the pressed samples were fired at 1400-1600°C in the electric furnace with continuous nitrogen supply (Fig. 1) and in the oil heated furnace covered with coke, with or without addition of sand, respectively. The nitrogen content in the samples increases with the increase of the stay period at firing temperature, as can be seen from Fig. 2. The analysis was carried out by A. L. Razzhivina (Ref. 1). The properties of the samples after firing are mentioned in Table 1, their firing covered with coke being regarded as more suitable. The influence of silicon on the properties of the samples, after their firing covered with coke, at 1600°C is mentioned in Table 2 and Fig. 3.

Card 1/3

81928

Refractory Carborundum Products With Nitride Binding Materials

S/131/60/000/07/06/006
B021/B058

covered with coke respectively. These methods must still be tested under operating conditions. There are 4 figures, 4 tables, and 14 references: 5 Soviet, 3 German, 1 British, 3 American, 1 Japanese, and 1 Spanish.

ASSOCIATION: Vsesoyuznyy institut ogneuporov (All-Union Institute of Refractories)

Card 3/3

15(2)
S/131/60/000/03/007/013
B015/B005

AUTHORS: Voronin, N. I., Gorodetskiy, V. S., Ivashuk, V. V.

TITLE: Refractory Block Holders of Digging Thermocouples for Liquid-steel Temperature Measurements

PERIODICAL: Ogneupory, 1960, Nr 3, pp 127-130 (USSR)

ABSTRACT: In this paper, the authors describe the process of manufacturing block holders for endpieces of thermocouples for liquid-steel temperature measurements. Ye. I. Khavkina took part in the testing of masses of various compositions. Table 1 lists the investigation results concerning the best masses with respect to their resistivity to the action of etals. A figure shows the shape and dimensions of the holders. The experimental results of holders are given in tables 2 and 3. Finally, the authors state that a process of manufacturing holders was worked out, the peculiarity of which consists in the hydrostatic pressing method. Products destined for prolonged dipping into liquid steel and basic slag are provided with a magnesite-containing protective coating. It is necessary to

Card 1/2

Refractory Block Holders of Dipping Thermocouples for Liquid-steel Temperature Measurements

S/131/60/000/03/007/013
B015/B005

improve the shape of the holder and the construction of its fastening in order to secure device working reliably under industrial conditions. There are 1 figure and 3 tables.

ASSOCIATION: Vsesoyuznyy institut ogneuporov (All-Union Institute of Refractories)

Card 2/2

SOV/120-59-4-41/50

AUTHORS: Breskeг, R. I., Voronin, N. I., Latyshevа, Z. I.

TITLE: An Infrared Source Based on Silicon Carbide

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, p 149 (USSR)

ABSTRACT: The first Russian SiC ('globar') sources are described (Fig 1). The resistance is 5-8 ohms; the power drain needed to give 1400°C (the working temperature) is 250-350 W. Fig 2 shows the useful life (in hours) as a function of surface temperature. Fig 3 shows the spectral energy curves for temperatures of 1200 and 1400°C. The paper contains 3 figures.

ASSOCIATION: Institut ogneuporov (Refractories Institute)

SUBMITTED: May 24, 1958.

Card 1/1