Third All-Union Conference on Electrical and Ultrasonic Machining of Metals

holes also serve for feeding the abrasive liquid. 2) Preparing two velocity transducers with finishing and roughing tools. The roughing tool is 0.125 mm per side and the finishing tool 0.04 mm per side smaller than the size of the component to be machined. 3) Preliminary chiselling with the roughing tool using Nr 180-220 abrasive and a free feed. According to the size of the hole, a clearance is determined from which, by computation, the grain size of the abrasive necessary to obtain the given finished size of hole is found. A formula is given for this computation. 4) Finish chiselling with an abrasive of the grain size just determined. Forced feed is used and the rate of advance is below the rate of piercing. 5) The tool head is oscillated for five minutes after completing the finish chiselling in order

to achieve the desired conicity of the hole. This procedure ensures holes of 0.01 mm accuracy at a mean output of 300 mm^3/hr.

Card 9/9

POPILOV, L.Ya., inzh.

All-Union conference on electric and ultrasonic treatment of materials. Elektrichestvo no.12:86 D '58. (MIRA 11:12)
(Electric engineering--Congresses)

SOV/32-24-7-49/65

AUTHOR: Popilov, L. Ya.

TITLE: A Midget Apparatus for the Electropolishing and Electroblanching of Metallographical Micrographs (Malogabaritnaya ustanovka dlya elektropolirovaniya i elektrotravleniya metallograficheskikh shlifov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7, pp. 890 - 892 (USSR)

ABSTRACT: In collaboration with K.I.Dubinin, M.M.Kryuchkova and T.N. Pyandrina an apparatus was constructed which needs no preparation before its use - in contrast to the ones used hitherto. A picture of the apparatus as well as a schematic representation of the electrical scheme are given. The sample to be polished or blanched is suspended by a holder of acid-proof steel 1Х18Н 9Т, and then is immerged into the electrolyte in a vertical or horizontal position. An electric motor according to Warren (Uorren) with 60 revs/min. rotates the sample, and a thermocouple controls the temperature. The amperage is fixed prior to the beginning of the experiment by means of a lead sample of dimensions similar to those to be investigated. From the

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A Midget Apparatus for the Electropolishing and Electroblanching of Metallographical Micrographs

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scheme of the electric arrangement may be seen that an a.c. is used through a transformer of 300 Watt and a selenium rectifier. In order to create the conditions for the polishing or blanching, respectively, two rheostats are used which are connected with the corresponding signal lamps. The tank in which the experiments were carried out is made of glass or of porcelain, and can be heated from below. There are 2 figures and 1 reference, which is Soviet.

Card 2/2

POPILOV, L.Ya., inzh.

The third All-Union conference on electric and ultrasonic cutting of metals. Vest.mash. 38 no.12:77-79 D '58. (MIRA 11:12)

(Electric metal cutting)
(Ultrasonic waves--Industrial applications)

STEPANOVA, Valentina Karpovna; GHUCHKVA, Vera Vladimirovna; POPILOV, L.Ya., nauchnyy red.; MORACHEVSKIY, N.Ya., red.

[Lenin Prizes for 1959 in the natural sciences and technology; a bibliography] Leninskie premii 1959 goda v oblasti estestvoznaniia i tekhniki; rekomendatel'nyi ukazatel' literatury. Pod nauchnoi red. L.IA. Popilova. Leningrad, Gos.publichnaia biblioteka im. M.E.Saltykova-Shchedrina, 1959. 46 p.
(MIRA 13:6)

(Bibliography--Technology) (Lenin Prizes)

POPILOV, L.Ya., red.; BORSHCHEVSKAYA, S.I., red.; SMIRNOV, P.S., tekhn.red.

[New developments in electric and ultrasonic machining of metals] Novoe v elektricheskoi i ul'trazvukovoi obrabotke materialov. Leningrad, Lenizdat, 1959. 281 p. (MIRA 13:3)
(Ultrasonic waves--Industrial applications)
(Electric metal cutting)

GUTKIN, Ben'yamin Girshevich; GRIGORCHUK, Igor' Petrovich; POPILOV, L.Ya., red.; VARKOVETSKAYA, A.I., red.izd-va; SPERANSKAYA, O.V., tekhn.red.

[Electric spark machining of metals] Elektrokontaktnaia obrabotka metallov. Pod obshchei red. L.IA.Popilova. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 46 p. (Bibliotechka elektrotekhnologa i ul'trazvukovika, no.5). (MIRA 14:6)
(Electric metal cutting)

DEMCHUK, Ivan Semenovich; POPILOV, L.Ya., red.; VARKOVETSKAYA, A.I., red.izd-va; SPERANSKAYA, O.V., tekhn.red.

[Using ultrasonic waves in intensifying technological processes] Ul'trazvukovaia intensifikatsiia tekhnologicheskikh protsessov. Pod obshchei red. L.IA.Popilova. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 88 p.

(MIRA 14:6)

(Ultrasonic waves—Industrial applications)

GRANSKIY, Viktor Isidorovich; POPILOV, L.Ya., nauchnyy red.; ZIL'BERMINTS, L.V., red.; KRYUCHKOVSKIY, S.A., bibliograf.red.

[Technological development in the seven-year plan; a guide to recommended popular literature] Tekhnika v semiletnem plane; rekomendatel'nyi ukazatel' nauchno-populiarnoi literatury. Nauchn.red. L.IA. Popilov. Leningrad, Gos.publichnaia biblioteka im. M.Ye. Saltykova-Shchedrina, 1960. 118 p.
(Bibliography--Technology) (MIRA 13:9)

PHASE I BOOK EXPLOITATION SOV/5382

Popilov, Lev Yakovlevich

Elektricheskaya i ul'trazvukovaya obrabotka; spravochnoye posobiye (Electric and Ultrasonic Machining; Manual) Moscow, Mashgiz, 1960. 135 p. (Series: Bibliotechka elektrotekhnologa i ul'trazvukovika, vyp. 1) Errata slip inserted. 9,000 copies printed.

Ed. of Publishing House: T.L. Leykina; Tech. Ed.: O.V. Speranskaya; Managing Ed. for Literature on Machine-Building Technology (Leningrad Division, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This booklet is intended for process engineers, foremen, and skilled workers engaged in electrical and ultrasonic processing.

COVERAGE: The booklet contains up-to-date systematized information on the basic operations in electric and ultrasonic machining and describes the equipment and methods used for these processes. The booklet provides information to assist process engineers in choosing the most efficient method for machining various materials. No personalities are mentioned.

Card 1/4

POPILOV, L.Ya.

Some potentialities for economy of electric power consumption in shipbuilding. Sudostroenie no.7:55-58 Jl '60. (MIRA 13:7)
(Shipbuilding) (Electric power)

POPILOV, Lev Yakovlevich; KAMENETSKIY, M.P., kand. tekhn. nauk, retsenzent; VYACHESLAVOV, P.M., kand. khim. nauk, dots., red.; GRILIKHES, S.Ya., red. vypuska; YAMPOL'SKIY, A.M., inzh. red.; ONISHCHENKO, R.N., red. izd-va; BARDINA, A.A., tekhn. red.

[Electroplating] Gal'vanoplastika. Pod red. P.M.Viacheslavova. Moskva, Mashgiz, 1961. 62 p. (Bibliotechka gal'vanotekhnika, no.6) (MIRA 14:12)

(Electroplating)

VEROMAN, Viktor Yur'yevich; POPILOVA, L.Ya., red.; KLIMUSHINSKIY, N.V., red.; ROTACH, T.M., red. izd-va; BARDINA, A.A., tekhn. red.

[Ultrasonic straping of materials] Razmernaia ul'trazvukovaia obrabotka materialov. Pod obshchei red. L.IA.Popilova. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 65 p. (Bibliotechka elektrotekhnologa i ul'trazvukovika, no.6) (MIRA 14:7)

(Ultrasonic waves--Industrial applications) (Metalwork)

KOSMACHEV, Ivan Georgiyevich; POPILOV, L.Ya., red.; NIKOLAYEVA, I.D., tekhn. red.

[Anode and tool machining of metals] Obrabotka metallov anodno-mekhanicheskim sposobom. Pod obshchei red. L.IA.Popilova. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 82 p. (Bibliotechka elektrotekhnologa i ul'trazvukovika, no.3) (MIRA 14:8)

(Electric metal cutting)

LEVINSON, Yevgeniy Maksimovich; LEV, Vladimir Saulovich;
POPILOV, L.Ya., red.; KUREPINA, G.N., red. izd-va;
POL'SKAYA, R.G., tekhn. red.

[Electric spark machining of metals] Obrabotka metallov impul'sami elektricheskogo toka. Pod obshchei red. L.IA. Popilova. Moskva, Mashgiz, 1961. 92 p. (Bibliotechka elektrotekhnologa i ul'trazvukovika, no.2) (MIRA 15:5)
(Electric metal cutting)

IVANOV, Georgiy Petrovich, kand. tekhn. nauk; POPILOV, L.Ya., inzh., retsenzent; BALANDIN, A.F., red. izd-va; UVAROVA, A.F., tekhn. red.

[Technological processes for electric spark hardening of metal-cutting tools and machine parts] Tekhnologiia elektroiskrovogo uprochneniia instrumentov i detalei mashin. Izd.2., ispr. i dop. Moskva, Mashgiz, 1961. 302 p. (MIRA 14:12)
(Metals—Hardening)

21904

S/117/61/000/005/007/009
A004/A104

1.1800 also 1063, 1160, 1155

AUTHOR: Popilov, L. Ya.

TITLE: Ultrasonic intensification of galvanic processes

PERIODICAL: Mashinostroitel', no. 5, 1961, 45 - 46

TEXT: The author points out that processes of electrochemical metal deposition, surface cleaning, etching and others can be to a considerable degree accelerated by producing in the working medium h-f mechanical oscillations. The utilization of ultrasonics improves the electric conductivity of electrolytes and its throwing power, reduces the porosity and dendrite formation, increases the working current density, hardness of coating and anode dissloving rate, accelerates diffusion on the electrode surface etc. The principal feature in the intensification of these processes is the mechanical effect of alternating pressure at the electrode surface, the abrupt acceleration of diffusion processes and the gas separation. Standardized units are used in the equipment, such as a-c ultrasonic generators and converters of electric oscillations into mechanical ones of the same or of doubled frequencies (emitter). In some cases the baths are equipped with additional devices for the fixing of the emitters. Ultrasonic generators of

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Ultrasonic intensification of galvanic processes

the УЗГ (UZG) and УЗМ (UZM) series are widely utilized. Fig. 2 shows a magnetostriction converter, consisting of a package assembled of thin metal plates and a mechanical oscillation transformer (diaphragm) rigidly connected to the package and directly transmitting the oscillations to the electrolyte. The oscillation transformer being in contact with the electrolyte should be made of material of high chemical resistance, e.g., 1Х18Н9Т (1Kh18N9T) or 1Х18Н12М3Т (1Kh18N12M3T) steel. Lately installations are being extensively used which possess all the units necessary for the ultrasonic intensification of galvanic processes. The УЗАГ-1 (UZAG-1) ultrasonic assembly has the following technical specifications: oscillation frequency of converter, in kc - 19.5; rated power of one converter - 2.5 kw; cooling water consumption - 5-8 liter/min; water pressure in the mains - 2-2.5 atm; dimensions of the ultrasonic bath - 506 x 250 x 468 mm; maximum rectifier current - 200 amp; range of voltage variations on the electrodes - 0-12 v; distance between electrodes - 100 mm; overall dimensions of assembly - 1,230 x 1,070 x 730 mm; weight - 180 kg. To obtain uniform and high-quality coatings the uniformity of distribution of the ultrasonic field in the bath and the uniform sounding of the part being treated are of utmost importance. To increase the electric conductivity of the electrolyte the salts of the alkali metals NaCl and Na_2SO_4 and boric acid are added. Good results were obtained with electrolytes containing

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Ultrasonic intensification of galvanic processes

nickel sulfate (200 - 300 g/l), sodium chloride (30 - 40 g/l), boric acid (25-30 g/l) at a pH-value in the range of 4.5-5.6. For nickel-plating in large-volume baths it is necessary to add luster-forming agents. Pyrophosphate copper-plating in an ultrasonic field ensures a good adhesion of the copper deposit to the surface being plated of steel parts. The degree of intensification of galvanic processes with the aid of ultrasonics, expressed by the increase of the working current density depends on many factors and varies in the range of from 2-3 to 20-30 times. In most cases the optimum conditions of ultrasonic intensification are obtained in a frequency range of 20 - 40 kc at a specific density of the sonic power on the part being treated of 0.2 - 0.5 w/cm^2. There are 5 figures and 1 table.

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Ultrasonic intensification of galvanic processes

Figure 2:

Magnetostriction converter

1 - diaphragm; 2 - clamping device; 3 - bolt; 4 - winding; 5 - pad; 6 - magnetostrictor package; 7 - housing.

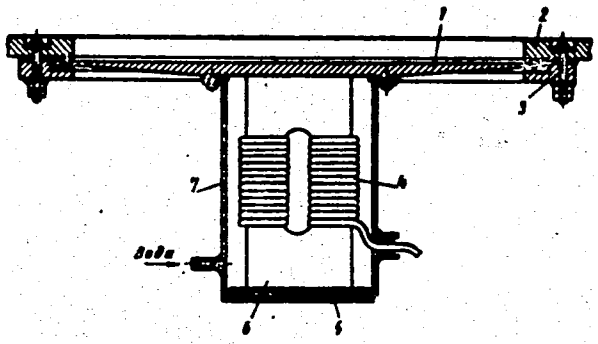

Рис. 2. Магнитострикционный преобразователь:
1 — мембрана; *2* — крепление; *3* — болт; *4* — обмотка; *5* — прокладка; *6* — пакет магнитострикторa; *7* — корпус.

Card 4/4

KRYUCHKOVSKIY, Semen Arkad'yevich; POPILOV, L.Ya., nauchnyy red.; GRANSKIY, V.I., red.

[Technology for everybody; index of recommended scientific popular literature] Tekhnika dlia vsekh; rekomendatel'nyy ukazatel' nauchno-populiarnoi literatury. Leningrad, Izd. Gos. Publichnoi biblioteki im. M.E.Saltykova-Shchedrina, 1962. 118 p. (MIRA 15:6)
(Bibliography--Technology)

GINBERG, Aleksandr Mironovich; GEVORKYAN, V.M., kand. tekhn. nauk, retsenzent; POPILOV, L.Ya., inzh., red.; TAIROVA, A.L., red. izd-va; VLADIMIROVA, L.A., tekhn. red.

[Ultrasonics in chemichal and electrochemical processes in the manufacture of machinery] Ul'trazvuk v khimicheskikh i elektrokhimicheskikh protsessakh mashinostroeniia. Moskva, Mashgiz, 1962. 135 p. (MIRA 15:7)
(Ultrasonic waves--Industrial applications)

MAKSIMOV, Vladimir Fedorovich; FOFILOV, L.Ya., inzh., red.; EYKHVAL'D, I.V., inzh. red.; GUSTAVSON, A.G., spets. red.; LEGKIKH, Yu.I., spets. red.; VANSOVSKAIA, L.Ie., mlad.red.

[Swedish-Russian technical dictionary] Shvedsko-russkii politekhnicheskii slovar'. Moskva, Izd-vo "Sovetskaia entsiklopediia," 1964. 1257 p. (MIRA 17:7)

POPILOV, L.Ya., inzh., red.

[New materials in machinery manufacture] Novye materialy v mashinostroenii. Moskva, Mashinostroenie, 1964. 303 p. (MIRA 17:7)

BRODSKIY, Aleksandr Davidovich; KUZ'MENKO, Vladimir Kuz'mich; SOLOV'YEV, Vladimir Ivanovich; NESTEROV, N.P., inzh., retsenzent; POPILOV, L.Ye., inzh., retsenzent; SOLOV'YEV, V.I., nauchn. red.; SMOIEV, B.V., red.

[Modern physical and technical methods in shipbuilding] Sovremennye fiziko-tekhnicheskie metody v sudostroenii. Leningrad, Izd-vo "Sudostroenie," 1964. 188 p. (MIRA 17:7)

MAKSIMOV, Vladimir Fedorovich; NAMESTNIKOV, Igor' Vasil'yevich; SOKOLOVA, Ol'ga Ivanovna; POPILOV, L.Ya., red.; KHOT'KOVA, Ye.S., red. izd-va; BACHURINA, A.M., tekhn. red.

[Methods of inspecting working conditions in the enterprises of the woodpulp, paper, and woodworking industries]Metody kontrolia uslovii truda na predpriiatiiakh tselliulozno-bumazhnoi i derevoobrabatyvaiushchei promyshlennosti. Moskva, Goslesbumizdat, 1962. 214 p. (MIRA 15:10)
(Woodworking industries--Hygienic aspects)

MAKSIMOV, Vladimir Fedorovich, dots., kand. tekhn. nauk; ZUBENKO, P.S., retsenzent; POPILOV, L.Ya., red.; SARMATSKAYA, G.I., red.izd-va; VDOVINA, V.M., tekhn. red.

[Fundamentals of safety and fire prevention engineering in the woodpulp and paper industry]Osnovy tekhniki bezopasnosti i protivopozharnoi tekhniki v tselliulozno-bumazhnoi promyshlennosti. Moskva, Goslesbumizdat, 1962. 504 p. (MIRA 16:3)
(Paper industry--Safety measures)
(Paper industry--Fires and fire prevention)

ZIMNEVA, Yelena Matveyevna [deceased]; SHIBALOVA, Lidiya Ivanovna; SHEMANOVA, Valentina Pavlovna; DIMENT, Esfir' Markovna; GAERTSETTEL', Andrey Ivanovich; KONDRAT'YEVA, Zinaida Sergeyevna; KLIMOVA, V.A., inzh., retsenzent; POPILOV, L.Ya., nauchnyy red.; VASIL'YEVA, N.N., red.; TSAL, R.K., tekhn. red.

[Seawater corrosion of copper alloys]Morskaia korroziia mednykh splavov. Leningrad, Sudpromgiz, 1963. 84 p. (MIRA 16:2)

(Copper alloys--Corrosion)

PAZIN, Grigoriy Markovich, kand. tekhn. nauk; SMIRNOV, Boris Ivanovich, inzh.; KITAYEV, V.V., inzh., retsenzent; SHAROV, M.F., inzh., retsenzent; POPILOV, L.Ya., nauchn. red.; VLASOVA, Z.V., red.

[Ship equipment from plastics] Sudovye del'nye veshchi iz plastmass. Leningrad, Sudostroenie, 1965. 239 p. (MIRA 18:3)

ACC NR: AM6030412 (N) Monograph UR/

Popilov, Lev YAkovlevich

Electrophysical and electrochemical methods of materials processing in shipbuilding (Elektrofizicheskiye i elektrokhimicheskiye metody obrabotki materialov v sudostroyenii) Leningrad, Izd-vo "Sudostroyeniye", 1965. 0358 p. illus., biblio. 1300 copies printed.

TOPIC TAGS: shipbuilding engineering, electrochemistry, metal surface, metal machining, metal joining, electric metal finishing

PURPOSE AND COVERAGE: This book is intended for engineers working at ship-building plants, design bureaus, and ship-building enterprises. It may also be used by specialists working in other branches of industry, and may serve as a handbook or textbook for persons studying problems of electrophysical and electrochemical processing of materials. The book summarizes information on electrophysical and electrochemical methods of processing materials and analyzes possibilities of applying these methods in industry. Besides methods now in use, such as electric spark, electric pulse current, anodic-mechanical methods, etc., the book reviews the most recently developed electromagnetic, plasma, light-beam, ultrasonic and electrohydraulic methods. The book also describes

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procedures of dimensional processing, forming and joining parts, finishing operations and changes in physical and mechanical properties of surfaces.

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ACC NR: AM6030412

SUB CODE: 13/ SUBM DATE: 30Sep65/ ORIG REF: 112/

Card 3/3

POPILOV, L.Ya., inzh.

Synthetic materials in foreign shipbuilding. Sudostroenie 30 no.8:50-55 Ag '64. (MIRA 18:7)

POPILOV, L.Ya.; ALEKSEYEV, A.V., kand.tekhn. nauk, retsenzent; ZAYTSEVA, L.P., kand.tekhn.nauk, retsenzent; POPOV, V.F., inzh., retsenzent; ARENKOV, A.B., inzh., red.; DENINA, I.A., red.izd-va; KAPLANSKIY, Ye.F., tekhn. red.

[Manual on electric and ultrasonic methods of processing materials] Spravochnik po elektricheskim i ul'trazvukovym metodam obrabotki materialov. Moskva, Mashgiz, 1963. 478 p. (MIRA 17:3)

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ACCESSION NR AM4046712 BOOK EXPLOITATION S/

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84

Popilov, L. Ya.

18

Handbook on electrical and ultrasonic methods of material treatment (Spravochnik po elektricheskim i ul'trazvukovym metodam obrabotki materialov), Leningrad, Mashgiz, 1963, 478 p. illus., biblio., tables.

TOPIC TAGS: ultrasonic, ultrasonic equipment, electroerosion, electromechanical processing, electrochemical processing, electric equipment, material processing

PURPOSE AND COVERAGE: This manual contains information on the principles of electrical and ultrasonic methods of material processing, the properties of materials used in building and using electrical and ultrasonic equipment, and the design of equipment for electrical and ultrasonic processing. Basic technological relations are presented, the processing regimes and methods of designing certain components are recommended, and the results of tests and research are included. The manual has many illustrations which clarify the processes of electrical and ultrasonic processing. The tables contain a variety of electrophysical and electrochemical processing methods and can be used in selecting the most advisable method. The manual is intended for engineers, technicians, and designers. It can also be used by students of higher technical

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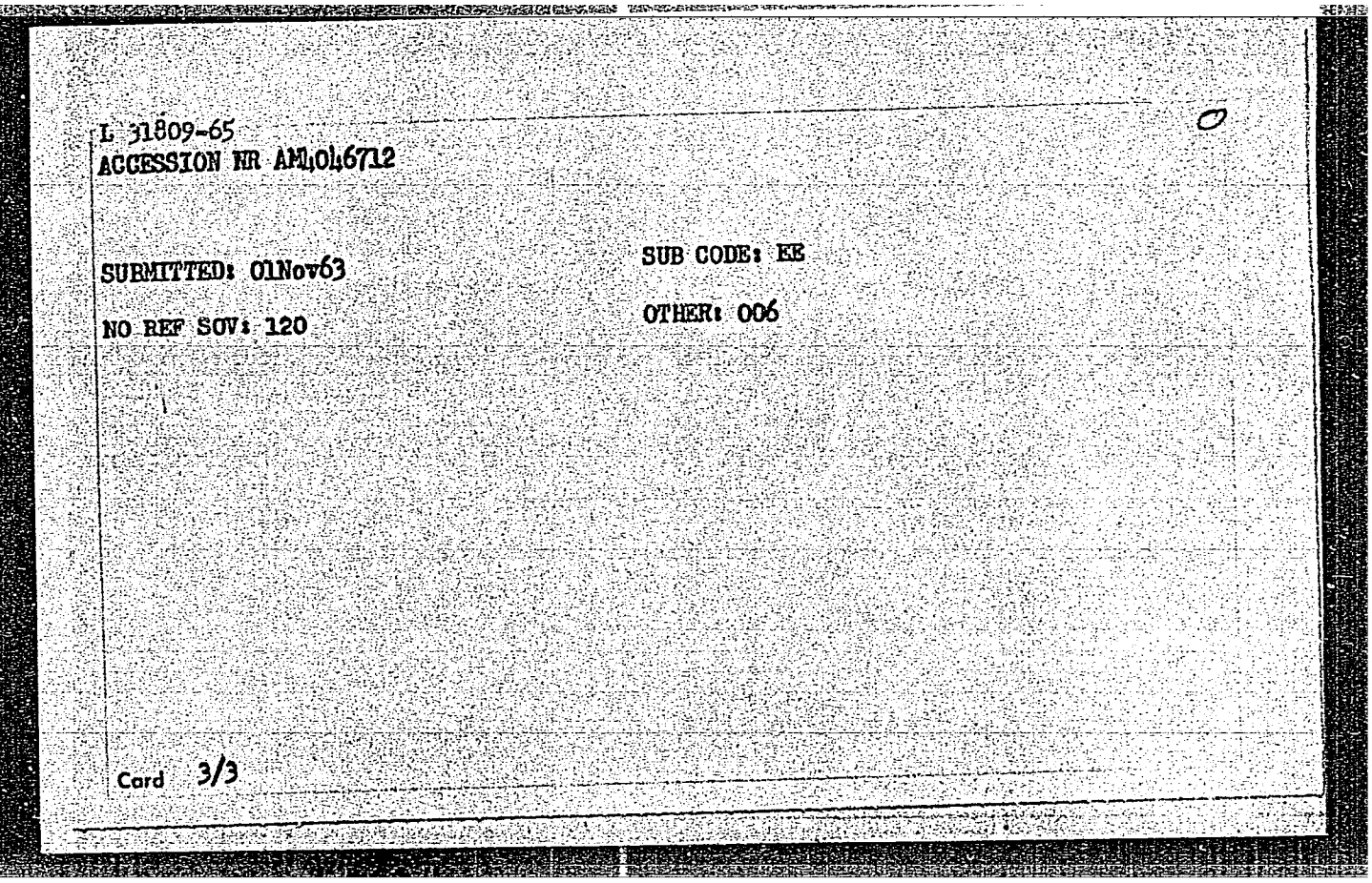
education institutions.

TABLE OF CONTENTS [abridged]:



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ALEKSEYEV, A.V.; POPILOV, L.Ya.; GUSEV, V.N., laureat Stalinskikh premiy, inzh., red.; SLONIMSKIY, V.I., kand. tekhn.nauk, red.; SOKOLOVA, L.V., tekhn. red.

[Electric hardening of tools] Elektrouprochnenie instrumenta. Moskva, Mashgiz, 1952. 67 p. (Bibliotechka elektrotekhnologa, no.9) (MIRA 16:6)

(Tool steel—Hardening)

BIRYUK, Vladimir Sergeyevich; GLUSHCHENKO, G.G., inzh., retsenzent; SMIRNOV, B.I., inzh., retsenzent; POPILOV, L.Ya., nauchn. red.; NIKITINA, R.D., red.; KOROVENKO, Yu.N., tekhn. red.

[Repair shops aboard ships] Sudovye masterskie. Leningrad, Sudpromgiz, 1963. 138 p. (MIRA 16:9)
(Ships—Maintenance and repair)

SLEZNIKOV, G.I., inzh.; ANIKEYKOVA, Ye.G., kand.tekhn.nauk; GRUDOV, P.P., kand.tekhn.nauk [deceased]; DEGTYARENKO, N.S., kand.tekhn.nauk; IMSHENNIK, K.P., kand.tekhn.nauk; KASENKOV, M.A., kand.tekhn. nauk; MEL'NIKOV, N.F., inzh.; MALOV, A.N., kand.tekhn.nauk; POKROVSKIY, B.V., inzh.; POLYAK, S.M., kand.tekhn.nauk; POLYANSKIY, A.N., kand.tekhn.nauk; POPILOV, L.Yu., inzh.; POPOV, V.A., kand. tekhn.nauk; RUBINSHTEYN, S.A., kand.tekhn.nauk; SOKOLOV, N.L., inzh.; SHAMIRGON, S.A., inzh.; SHESTOPAL, V.M., kand.tekhn.nauk; SHUKHOV, Yu.V., kand.tekhn.nauk; ACHERKAN, N.S., prof., doktor tekhn.nauk, glavnyy red.; VLADISLAVLEV, V.S., red. [deceased]; POZDNYAKOV, S.N., red.; ROSTOVYKH, A.Ya., red.; STOLBIN, G.B., red.; CHERNAVSKIY, S.A., red.; KRYLOV, V.I., inzh, red.; KARGANOV, V.G., inzh., red.graficheskikh rabot; SOKOLOVA, T.F., tekhn.red.

[Metalworking handbook in five volumes] Spravochnik metallista v piati tomakh. Chleny red.soveta: V.S.Vladislavlev i dr. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Vol.3. Book 2. [Ferrous and nonferrous metal products] Sortament chernykh i tsvetnykh metallov. 1958. 204 p. Vol.4. 1958. 778 p. (MIRA 12:1)
(Metalwork)

POPILOV, Lev Yakovlevich; VISHNITSKIY, A.L., red.

[Preparation of samples for test operations using electrophysical and electrochemical techniques; verbatim report of a lecture] Izgotovlenie obraztsov dlia ispytanii s pomoshch'iu elektrofizicheskikh i elektrokhimicheskikh metodov; stenogramma lektsii. Leningrad, 1963. 46 p. (MIRA 17:5)

POPILOV, Lev Yakovlevich; ZAYTSEVA, Lidiya Pavlovna; VINOGRAD, M.I., doktor tekhn. nauk, retsenzent; SMIRNOVA, A.V., kand. tekhn. nauk, retsenzent; FOMIN, N.V., red.; GORDON, L.M., red.izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Electrolytic polishing and pickling of metallographic sections] Elektropolirovanie i elektrotravlenie metallograficheskikh shlifov. 2., perer. izd. Moskva, Metallurgizdat, 1963. 410 p. (MIRA 16:5)

(Metallography--Equipment and supplies)
(Electrolytic polishing)
(Metals--Pickling)

POPIKOV, M.N., inzh.

Change in the construction of an air separator. TSement 31 no.1:21 Ja-F '65. (MIRA 18:4)

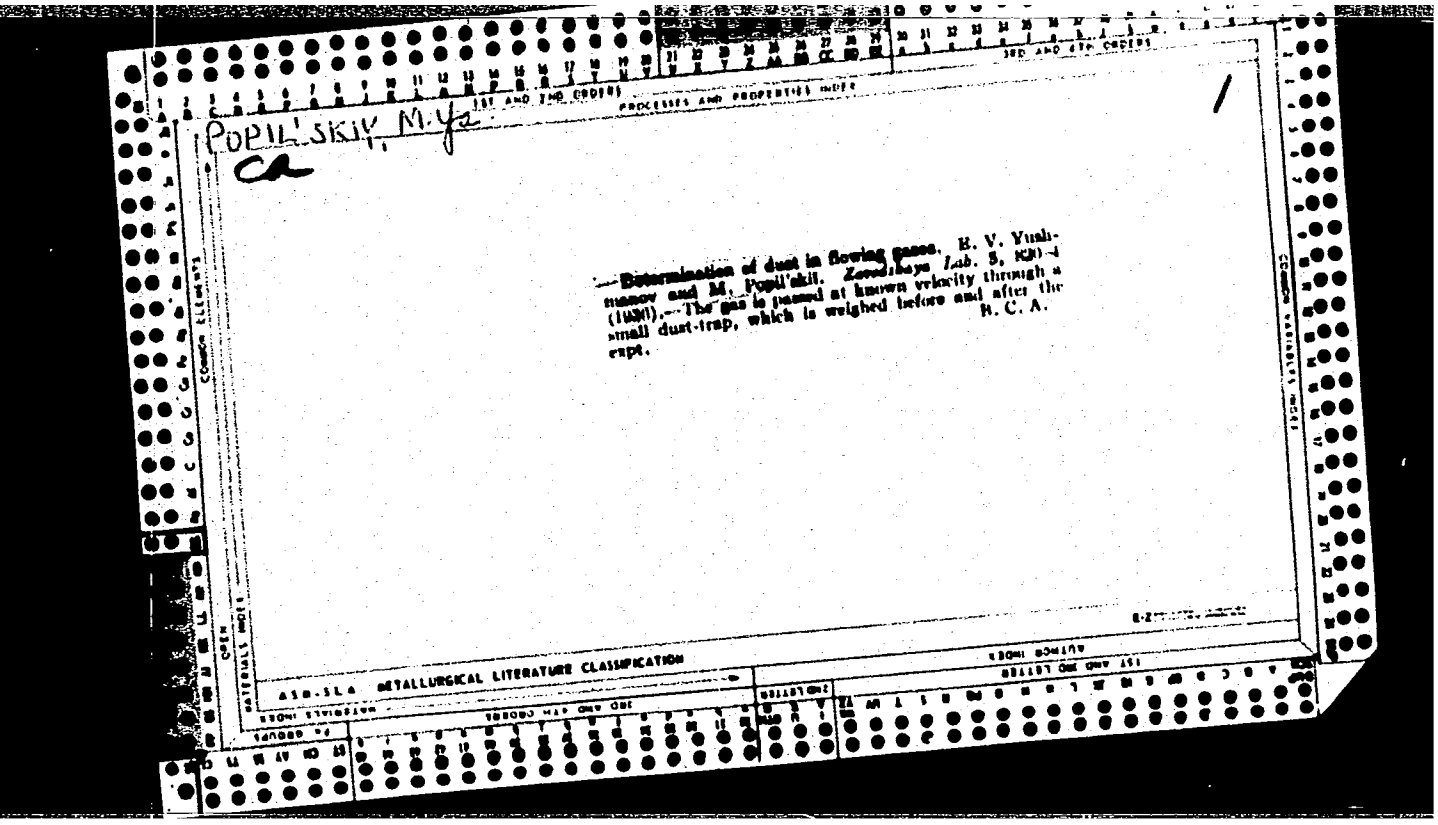
1. Bezmeinskiy tsementnyy zavod.

LEONT'YEV, Valerian Markovich; FROLOV, Nikolay Fedorovich; POPILOV, L.Ya., inzh., retsenzent; SOKOLOV, V.F., kand. tekhn. nauk, nauchn. red.; OSVENSKAYA, A.A., red.

[Shipbuilding materials] Sudostroitel'nye materialy. Leningrad, Sudostroenie, 1965. 186 p. (MIRA 18:8)

POPILOVA, L.L.

Method of studying information requests; a survey of foreign literature. NTI no.12:13-17 '65. (MIRA 19:1)



POPIL'SKIY, M. Ya.

27140. POPIL'SKIY, M. Ya.-- Integrator dlya krugovykh diagramm. Zavodskaya laboratoriya, 1949, No. 8, c. 1011-12.

SO: Letopis' Zhurnal'nykh Statey, Vol. 36, 1949

[illegible], A. Ia.

Dissertation: "Obtaining High-Quality Wolframic Acid Anhydride From Scheelites." Cand Tech Sci, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, 7 Jun 54. Vechernyaya Moskva, Moscow, 27 May 54.

SO: SUM 284, 26 Nov 1954

Popil'skiy, M.Ya.

137-58-5-9345

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 78 (USSR)

AUTHORS: Bogachov, G.N., Bannykh, N.S., Popil'skiy, M.Ya.

TITLE: How Various Factors Affect the Oxidation of Chromic Oxide During Sintering of a Chromite Charge in Industrial Furnaces (Vliyaniye razlichnykh faktorov na okisleniye okisi khroma pri spekanii khromitovoy shikhty v promyshlennykh pechakh)

PERIODICAL: Tr. Ural'skogo n.-i. khim. in-ta, 1957, Nr 4, pp 3-12

ABSTRACT: By investigating the operation of industrial tubular rotary furnaces employed for calcining of chromite with admixtures of soda and dolomite or lime it was established that, during calcining, the degree of oxidation of Cr_2O_3 to sodium chromate varies inversely with the content of Cr_2O_3 in the initial charge and the rate of loading of the latter into the furnace; this is apparently due to lumping of a part of the charge, a condition which prevents O_2 from reaching the Cr_2O_3. Increasing the rate of rotation of the furnace has practically no effect on the degree of oxidation of Cr_2O_3. The amount of soda added to the charge must correspond stoichiometrically to the fraction of Cr that is being oxidized to a chromate. To achieve maximum

How Various Factors Affect (cont.)

oxidation of Cr at any level of output of 40-mm long furnaces with an internal diameter of 1.6 m and an inclination of 6° and which employ powdered coal as fuel, it was found that the optimal Cr content in the charge amounts to approximately 16.5%.

Ye. Z.

1. Chronic oxide--Oxidation 2. Furnaces--Operation

Card 2/2

POPIL'SKIY, M. Ya.; KHOTENOVICH, Z. N.

Exchange of experience. Determination of molybdenum in ammonium molybdate production wastes. Zav. lab. 28 no.12: 1442 '62. (MIRA 16:1)

1. Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut i Pervoural'skiy khrompikovyy zavod.

(Molybdenum--Analysis)

S/032/62/028/012/002/023
B124/B101

AUTHORS: Popil'skiy, M. Ya., and Khotenovich, Z. N.

TITLE: Determination of molybdenum in wastes from ammonium molybdate production

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 12, 1962, 1442

TEXT: To determine the total molybdenum content in wastes resulting from the extraction of calcined molybdenite by a solution of ammonia and other reagents, the authors suggest fusion of the weighed portion with NaOH. The efficiency of this method was proved in experiments with "poor" refuse ore (0.95% Mo), "rich" refuse ore (10.8%), and mixtures of "poor" refuse ore with molybdenite concentrate. To separate silicon and aluminum oxides from the aqueous solution of the melt, ammonium chloride was used for precipitation. The resulting deposit contains a maximum of 0.04% molybdenum calculated with respect to the weight of the wastes to be analyzed. To determine the molybdenum content in the filtrate, the usual method of precipitating and weighing lead molybdate is suited, but the latter has to be precipitated over again to remove traces of sodium compounds. If lead

Card 1/2

Determination of molybdenum ...

molybdate is precipitated only once the average error of determination is +22% as compared to -1.3 to + 0.6% following reprecipitation.
[Abstracter's note: Complete translation.]

ASSOCIATION: Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut (Ural Scientific Research Chemical Institute); Pervouralskiy khrompikovyy zavod (First Ural Bichromate Plant)

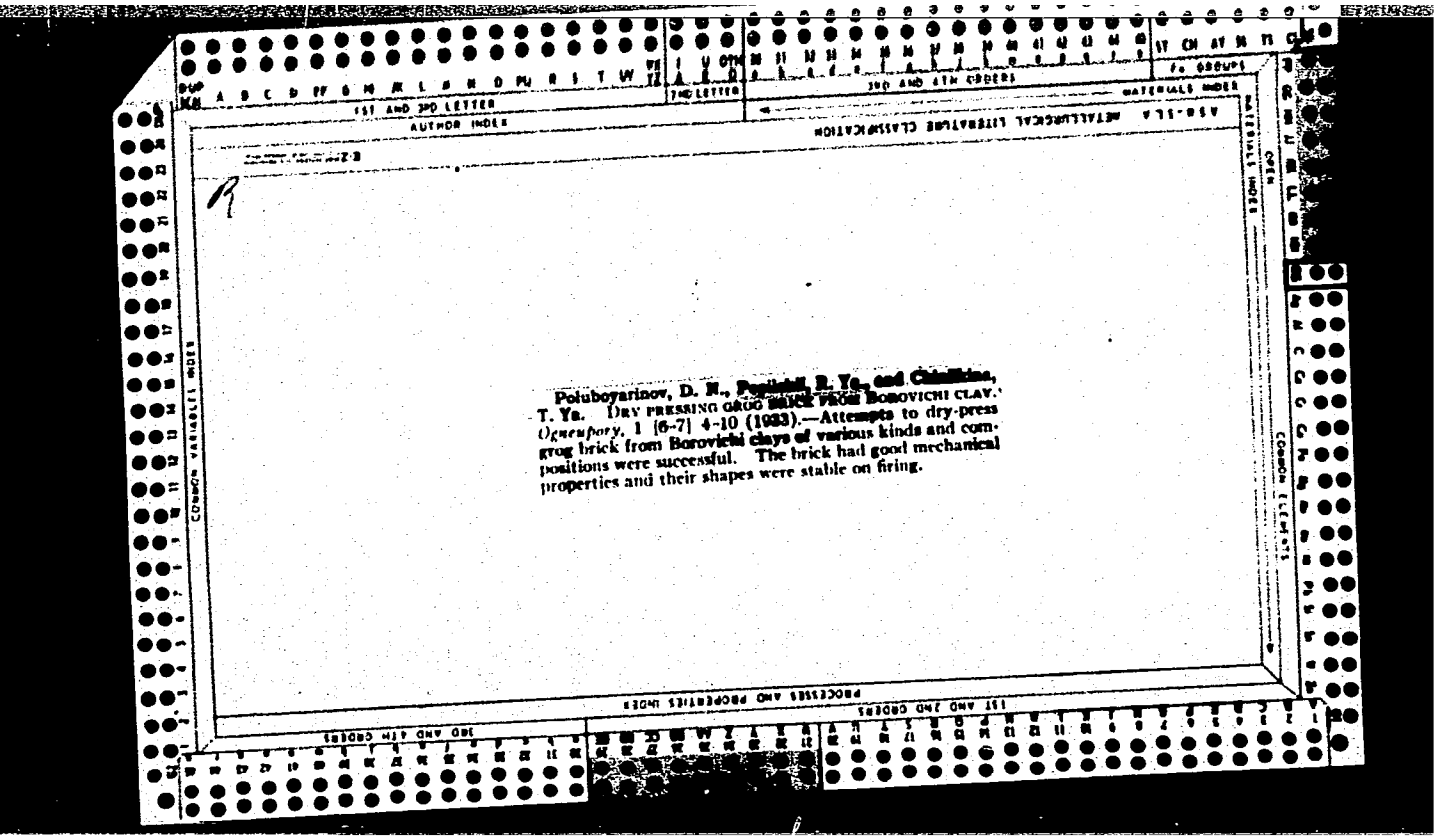
POPIL'SKIY, R. a.; PANKRATOV, Yu. F.; KOYFMAN, N. M.

Formation of a nonporous structure in polycrystalline corundum. Dokl. AN SSSR 155 no. 2:326-329 Mr '64. (MIRA 17:5)

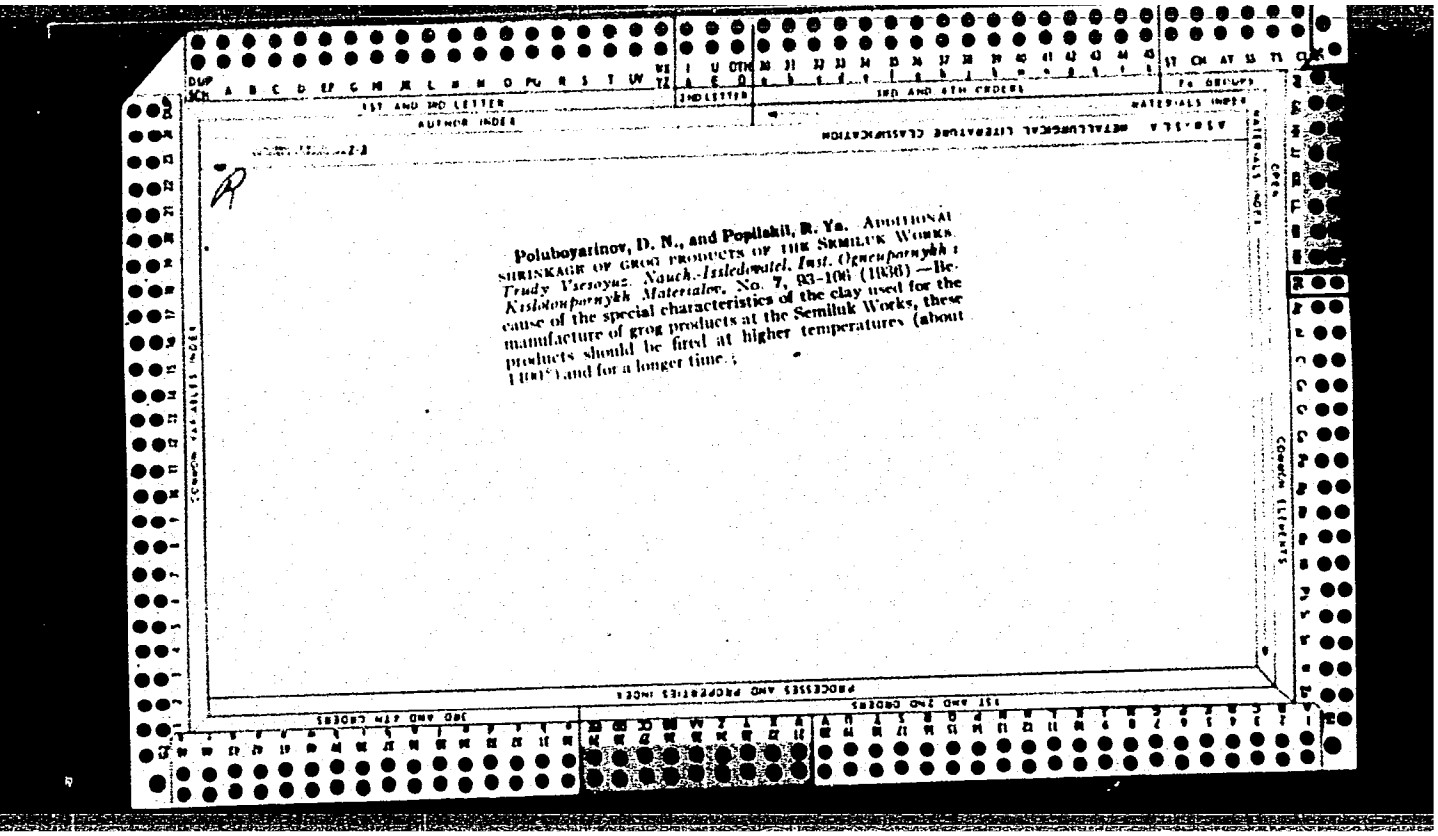
1. Nauchno-issledovatel'skiy institut elektrovakuumnogo stekla. Predstavleno akademikom S. A. Vekshinskim.

KONDRASHEV, F. V., inzh.; POPIL'SKIY, R. Ya., kand tekhn nauk

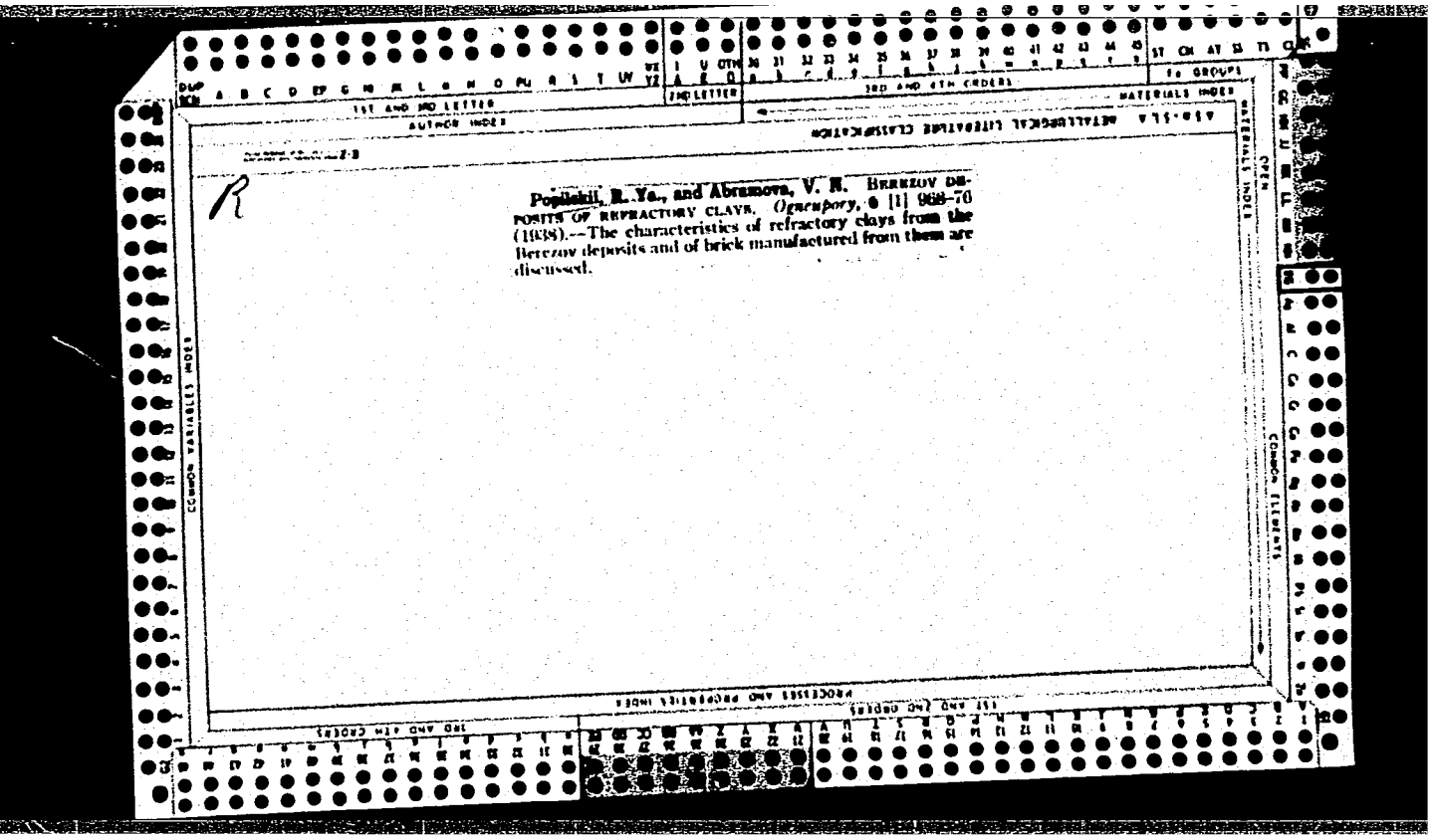
Pressing in air and elastic expansion during the compression of lean coarse-grained ceramic bodies. Trudy NIIStroikeramiki no. 19:54-65 '62. (MIRA 17:5)



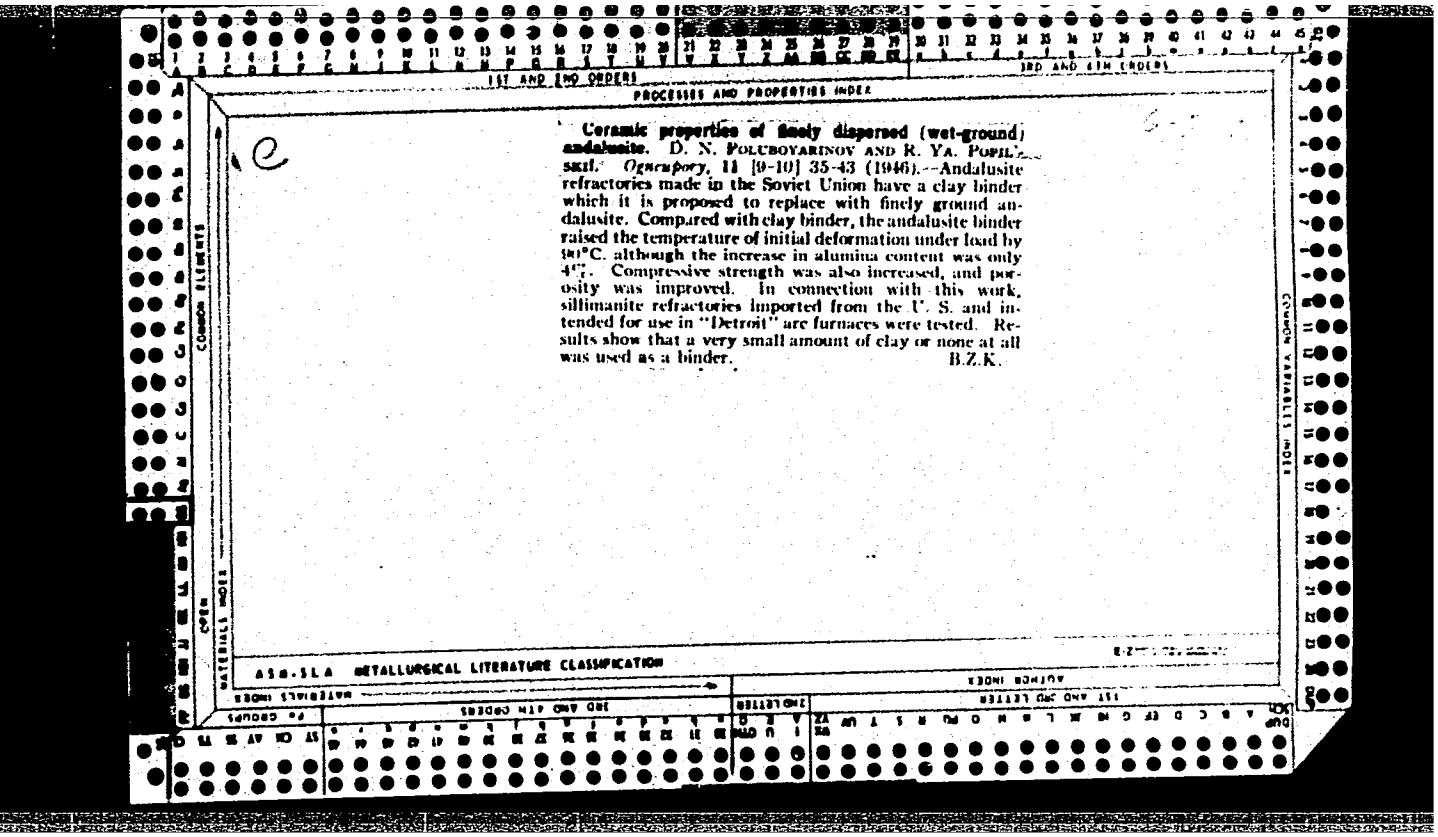
Poluboyarinov, D. N., Popilskii, R. Ya., and Chistikina, T. Ya. DRY PRESSING GROG BRICK FROM BOROVICHI CLAY. *Ogneupory*, 1 [6-7] 4-10 (1933).—Attempts to dry-press grog brick from Borovichi clays of various kinds and compositions were successful. The brick had good mechanical properties and their shapes were stable on firing.



Poluboyarinov, D. N., and Popilskii, R. Ya. ADDITIONAL SHRINKAGE OF GROG PRODUCTS OF THE SEMILUK WORKS. *Trudy Vsesoyuz. Nauch.-Issledovatel. Inst. Ogneupornykh i Kislotoupornykh Materialov*, No. 7, 93-106 (1936).—Because of the special characteristics of the clay used for the manufacture of grog products at the Semiluk Works, these products should be fired at higher temperatures (about 1100° C) and for a longer time.



Popilskii, R.Ya., and Abramova, V. N. BEREZOV DEPOSITS OF REFRACTORY CLAYS. *Ogneupory*, 6 [1] 968–70 (1968).--The characteristics of refractory clays from the Berezov deposits and of brick manufactured from them are discussed.



PROCESSES AND PROPERTIES INDEX

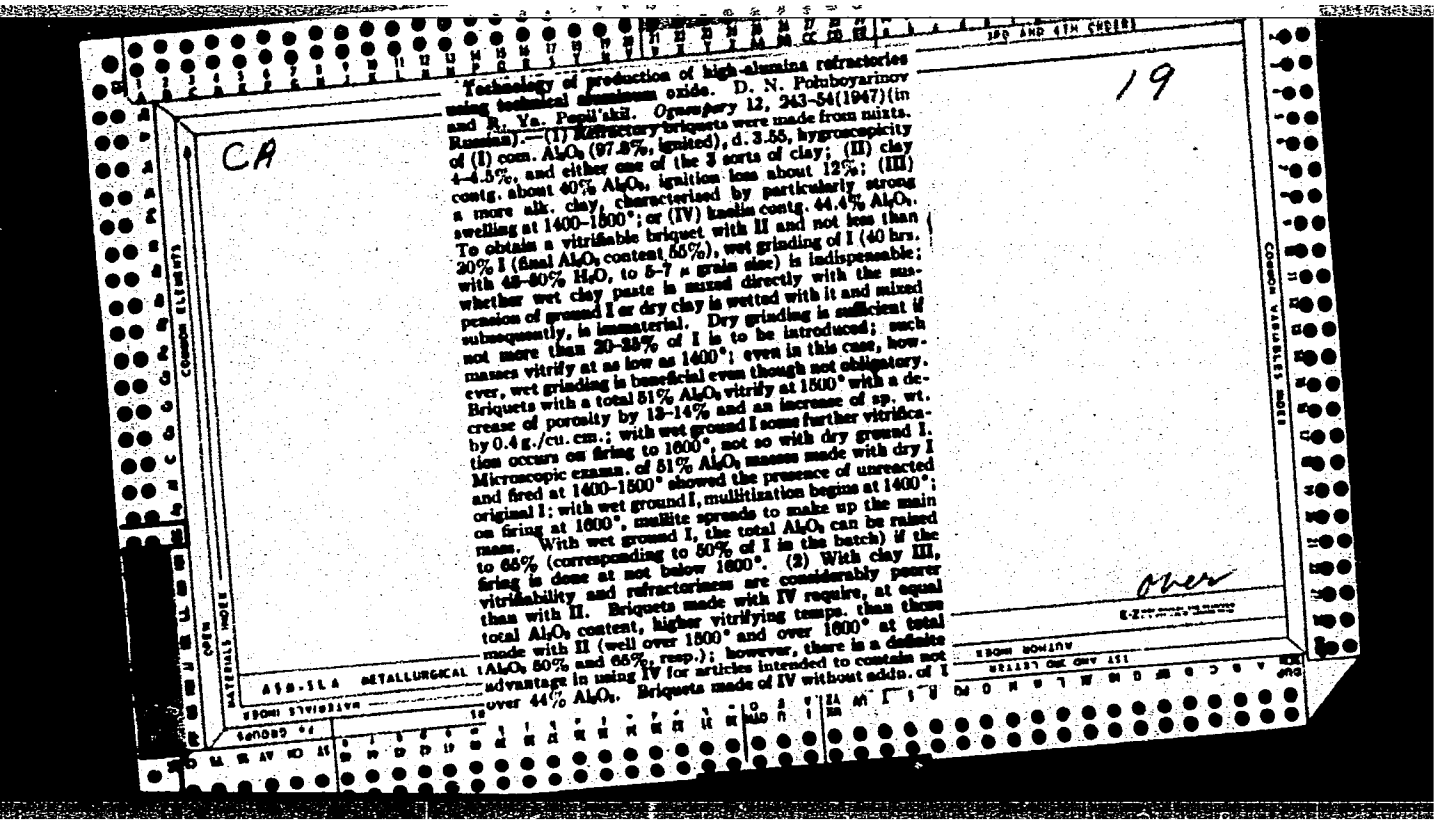
Ceramic properties of finely dispersed (wet-ground) andalusite. D. N. Poluboyarinov and R. Ya. Popil'skii. *Ogneupory*, 11 [9-10] 35-43 (1946).—Andalusite refractories made in the Soviet Union have a clay binder which it is proposed to replace with finely ground andalusite. Compared with clay binder, the andalusite binder raised the temperature of initial deformation under load by 80°C. although the increase in alumina content was only 4%. Compressive strength was also increased, and porosity was improved. In connection with this work, sillimanite refractories imported from the U. S. and intended for use in "Detroit" arc furnaces were tested. Results show that a very small amount of clay or none at all was used as a binder. B.Z.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

POPIL'SKIY, R. Ya. Cand. Tech. Sci.

Dissertation: "High-Alumina High-Chamotte Refractories with Application of the Commercial Grade of Aluminum Oxide." Moscow Order of Lenin Chemicotechnological Inst imeni D. I. Mendeleyev, 9 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

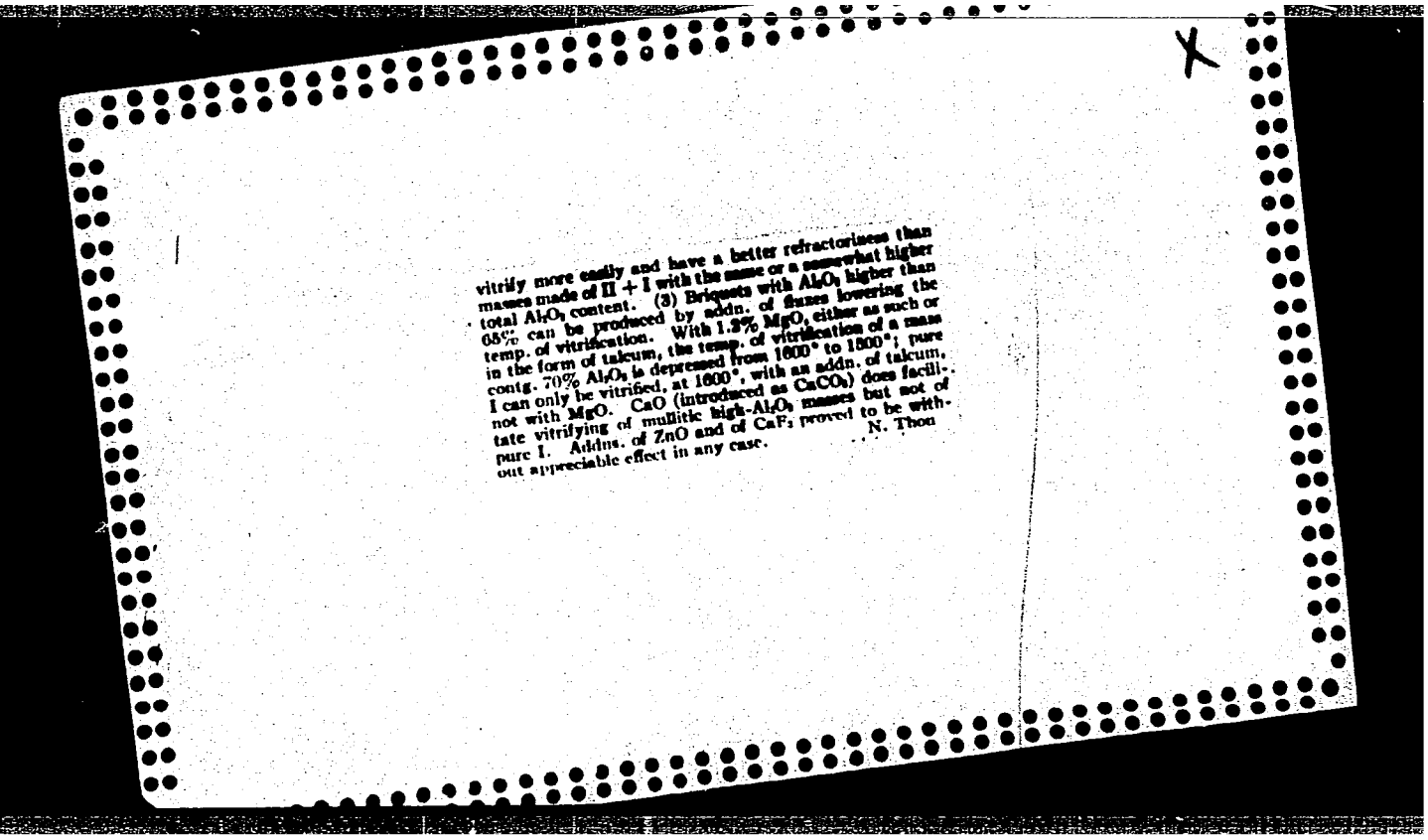


CA

19

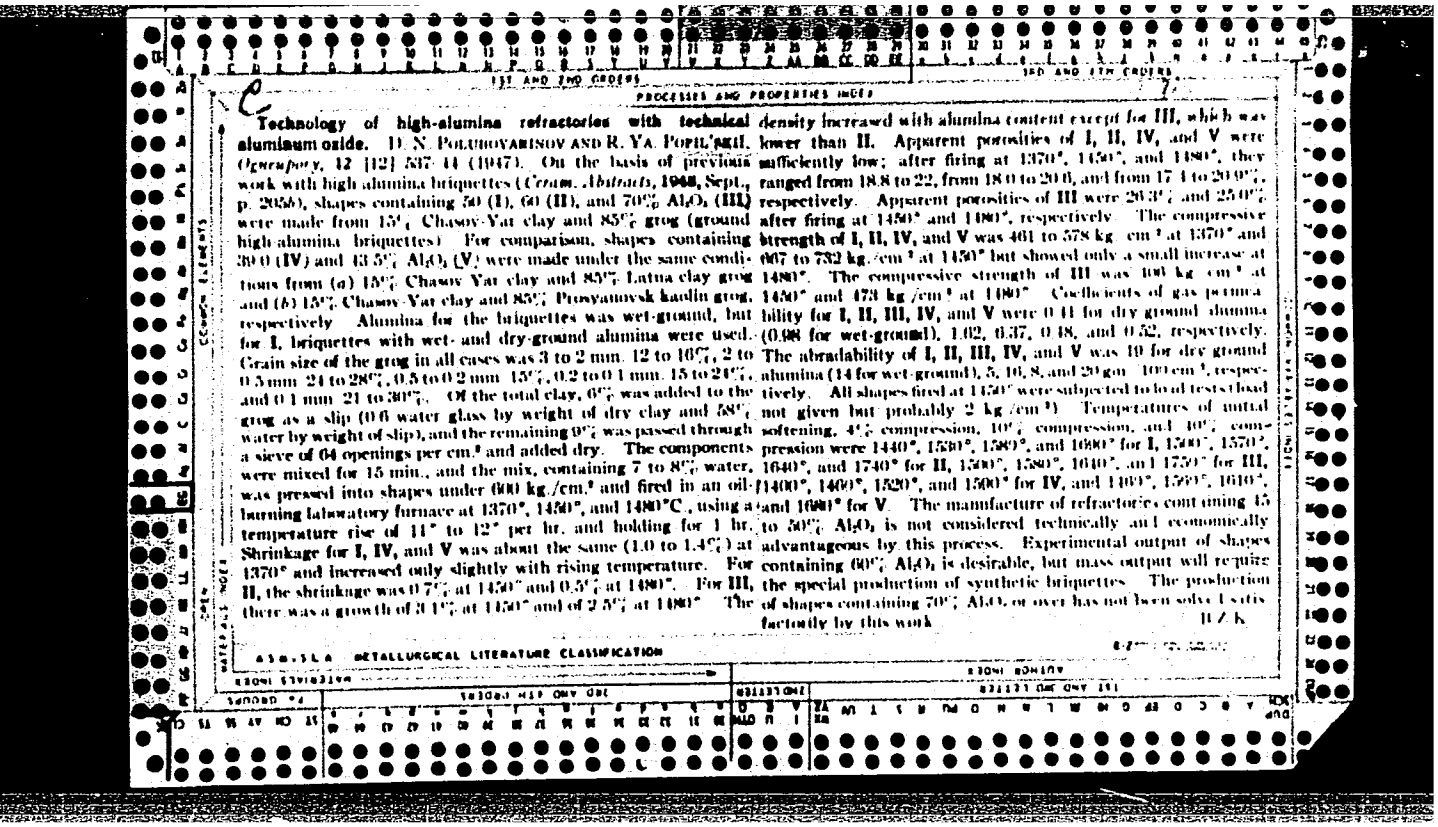
Technology of production of high-alumina refractories using technical aluminum oxide. D. N. Poluboyarinov and R. Ya. Popil'skii. *Ogneupory* 12, 243-54(1947)(in Russian).—(I) Refractory briquets were made from mixts. of (I) com. Al_2O_3 (97.8%, ignited), d. 3.55, hygroscopicity 4–4.5%, and either one of the 3 sorts of clay; (II) clay contg. about 40% Al_2O_3, ignition loss about 12%; (III) a more alk. clay, characterised by particularly strong swelling at 1400–1500°; or (IV) kaolin contg. 44.4% Al_2O_3. To obtain a vitrifiable briquet with II and not less than 20% I (final Al_2O_3 content 55%), wet grinding of I (40 hrs. with 48–50% H_2O, to 5–7 μ grain size) is indispensable; whether wet clay paste is mixed directly with the suspension of ground I or dry clay is wetted with it and mixed subsequently, is immaterial. Dry grinding is sufficient if not more than 20–25% of I is to be introduced; such masses vitrify at as low as 1400°; even in this case, however, wet grinding is beneficial even though not obligatory. Briquets with a total 51% Al_2O_3 vitrify at 1500° with a decrease of porosity by 13–14% and an increase of sp. wt. by 0.4 g./cu. cm.; with wet ground I some further vitrification occurs on firing to 1600°, not so with dry ground I. Microscopic exams. of 51% Al_2O_3 masses made with dry I and fired at 1400–1500° showed the presence of unreacted original I; with wet ground I, mullitization begins at 1400°; on firing at 1600°, mullite spreads to make up the main mass. With wet ground I, the total Al_2O_3 can be raised to 65% (corresponding to 50% of I in the batch) if the firing is done at not below 1600°. (2) With clay III, vitrifiability and refractoriness are considerably poorer than with II. Briquets made with IV require, at equal total Al_2O_3 content, higher vitrifying temps. than those made with II (well over 1500° and over 1600° at total Al_2O_3 50% and 65%, resp.); however, there is a definite advantage in using IV for articles intended to contain not over 44% Al_2O_3. Briquets made of IV without addn. of I

over

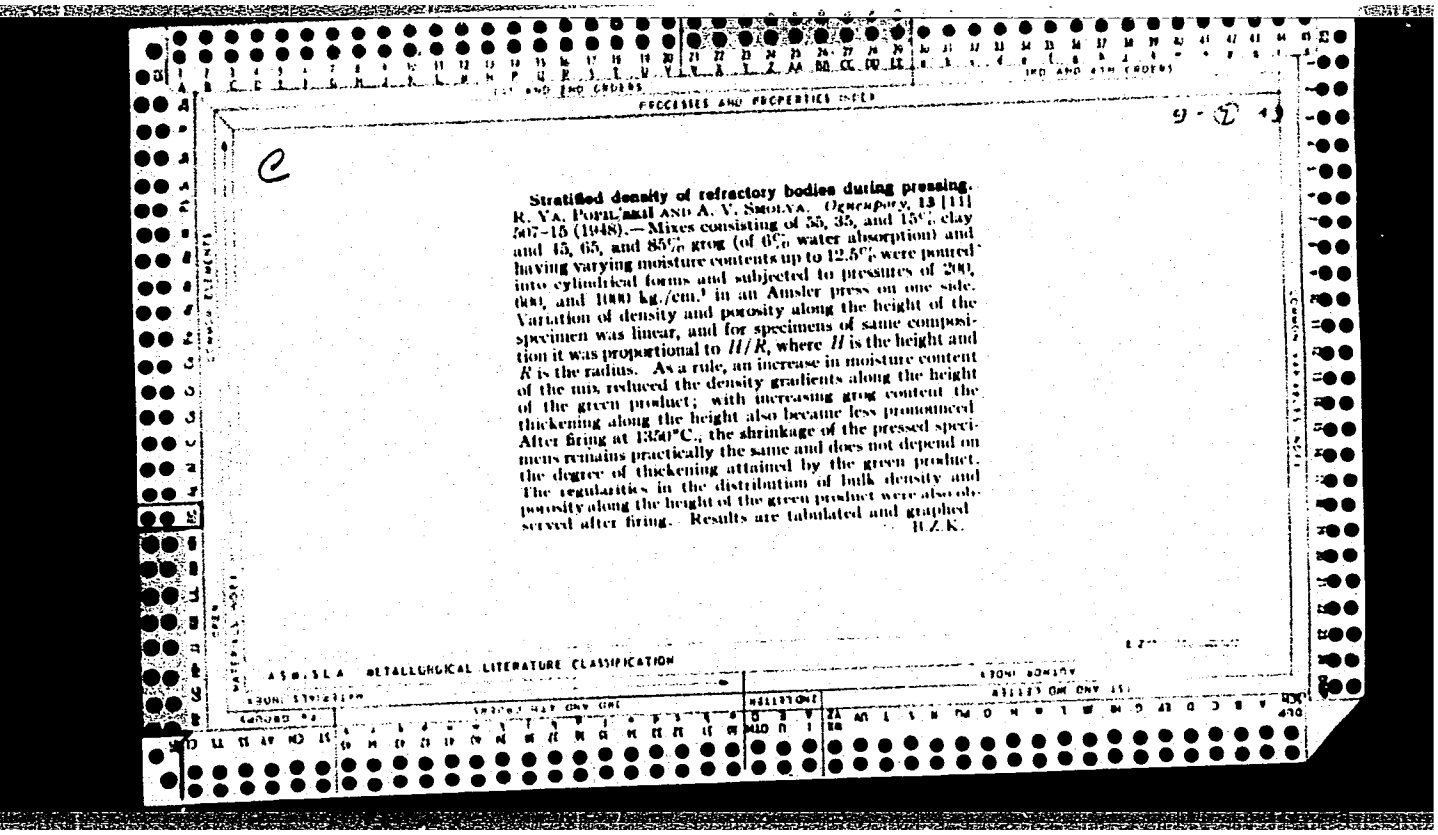


vitrify more easily and have a better refractoriness than masses made of II + I with the same or a somewhat higher total Al_2O_3 content. (3) Briquets with Al_2O_3 higher than 65% can be produced by addn. of fluxes lowering the temp. of vitrification. With 1.5% MgO, either as such or in the form of talcum, the temp. of vitrification of a mass contg. 70% Al_2O_3 is depressed from 1600° to 1500°; pure I can only be vitrified, at 1600°, with an addn. of talcum, not with MgO. CaO (introduced as $CaCO_3$) does facilitate vitrifying of mullitic high-Al_2O_3 masses but not of pure I. Addns. of ZnO and of CaF_2 proved to be without appreciable effect in any case.

N. Thon



Technology of high-alumina refractories with technical aluminum oxide. D. N. POLUBOYARINOV AND R. YA. POPIL'SKII. *Ogneupory*, 12 [12] 537–44 (1947). On the basis of previous work with high alumina briquettes (*Ceram. Abstracts*, 1948, Sept., p. 2056), shapes containing 50 (I), 60 (II), and 70% Al_2O_3 (III) were made from 15% Chasov-Yar clay and 85% grog (ground high alumina briquettes). For comparison, shapes containing 30.0 (IV) and 43.5% Al_2O_3 (V) were made under the same conditions from (*a*) 15% Chasov Yar clay and 85% Latna clay grog and (*b*) 15% Chasov-Yar clay and 85% Pivnyanovsk kaolin grog, respectively. Alumina for the briquettes was wet-ground, but for I, briquettes with wet- and dry-ground alumina were used. Grain size of the grog in all cases was 3 to 2 mm. 12 to 10%, 2 to 0.5 mm. 24 to 28%, 0.5 to 0.2 mm. 15%, 0.2 to 0.1 mm. 15 to 24%, and 0.1 mm. 21 to 30%. Of the total clay, 6% was added to the grog as a slip (0.6 water glass by weight of dry clay and 58% water by weight of slip), and the remaining 9% was passed through a sieve of 64 openings per cm.^{2} and added dry. The components were mixed for 15 min., and the mix, containing 7 to 8% water, was pressed into shapes under 600 kg./cm.^{2} and fired in an oil-burning laboratory furnace at 1370°, 1450°, and 1480°C., using a temperature rise of 11° to 12° per hr. and holding for 1 hr. Shrinkage for I, IV, and V was about the same (1.0 to 1.4%) at 1370° and increased only slightly with rising temperature. For II, the shrinkage was 0.7% at 1450° and 0.5% at 1480°. For III, there was a growth of 3.1% at 1450° and of 2.5% at 1480°. The density increased with alumina content except for III, which was lower than II. Apparent porosities of I, II, IV, and V were sufficiently low; after firing at 1370°, 1450°, and 1480°, they ranged from 18.8 to 22, from 18.0 to 20.0, and from 17.4 to 20.9%, respectively. Apparent porosities of III were 26.3% and 25.0% after firing at 1450° and 1480°, respectively. The compressive strength of I, II, IV, and V was 461 to 578 kg. cm.^{2} at 1370° and 607 to 732 kg./cm.^{2} at 1450° but showed only a small increase at 1480°. The compressive strength of III was 100 kg. cm.^{2} at 1450° and 473 kg./cm.^{2} at 1480°. Coefficients of gas permeability for I, II, III, IV, and V were 0.41 for dry ground alumina (0.98 for wet-ground), 1.02, 0.37, 0.48, and 0.52, respectively. The abradability of I, II, III, IV, and V was 19 for dry ground alumina (14 for wet-ground), 5, 10, 8, and 20 gm. 100 cm.^{2}, respectively. All shapes fired at 1450° were subjected to load tests (load not given but probably 2 kg./cm.^{2}). Temperatures of initial softening, 4% compression, 10% compression, and 40% compression were 1440°, 1530°, 1580°, and 1690° for I, 1580°, 1570°, 1640°, and 1740° for II, 1500°, 1580°, 1640°, and 1750° for III, 1400°, 1460°, 1520°, and 1590° for IV, and 1491°, 1560°, 1610°, and 1680° for V. The manufacture of refractories containing 45 to 50% Al_2O_3 is not considered technically and economically advantageous by this process. Experimental output of shapes containing 60% Al_2O_3 is desirable, but mass output will require the special production of synthetic briquettes. The production of shapes containing 70% Al_2O_3 or over has not been solved satisfactorily by this work. H. Z. K.



Stratified density of refractory bodies during pressing. R. YA. POPIL'SKAI AND A. V. SMOLYA. *Ogneupory*, 13 [11] 507–15 (1948).—Mixes consisting of 55, 35, and 15% clay and 45, 65, and 85% grog (of 6% water absorption) and having varying moisture contents up to 12.5% were poured into cylindrical forms and subjected to pressures of 200, 600, and 1000 kg./cm.^{2} in an Amsler press on one side. Variation of density and porosity along the height of the specimen was linear, and for specimens of same composition it was proportional to H/R, where H is the height and R is the radius. As a rule, an increase in moisture content of the mix reduced the density gradients along the height of the green product; with increasing grog content the thickening along the height also became less pronounced. After firing at 1350°C., the shrinkage of the pressed specimens remains practically the same and does not depend on the degree of thickening attained by the green product. The regularities in the distribution of bulk density and porosity along the height of the green product were also observed after firing. Results are tabulated and graphed. H.Z.K.

POPIL'SKIY, R.YA.

"The Process of Clinkering and Several Characteristics of Mullite, Synthesized from Refract
fractory Clay and Technical Aluminum Oxide," Dok. AM, 62, No. 6, 1948.

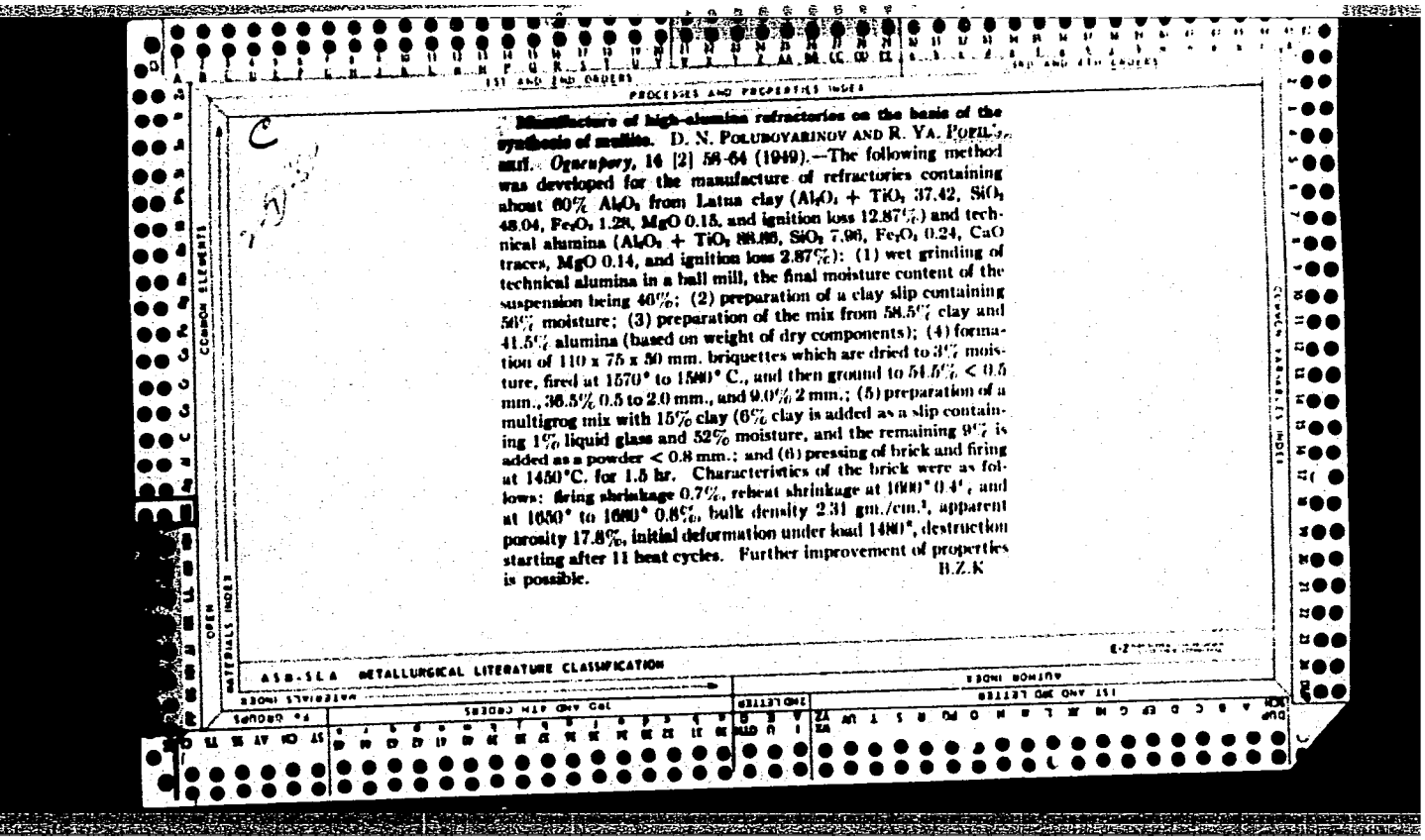
Mbr. Moscow Chem-Tech. Inst. im. D.I. Mendeleyev. -c1948-.

FOMIL'SKIY, R. YA.

Dr. Technical Sci.

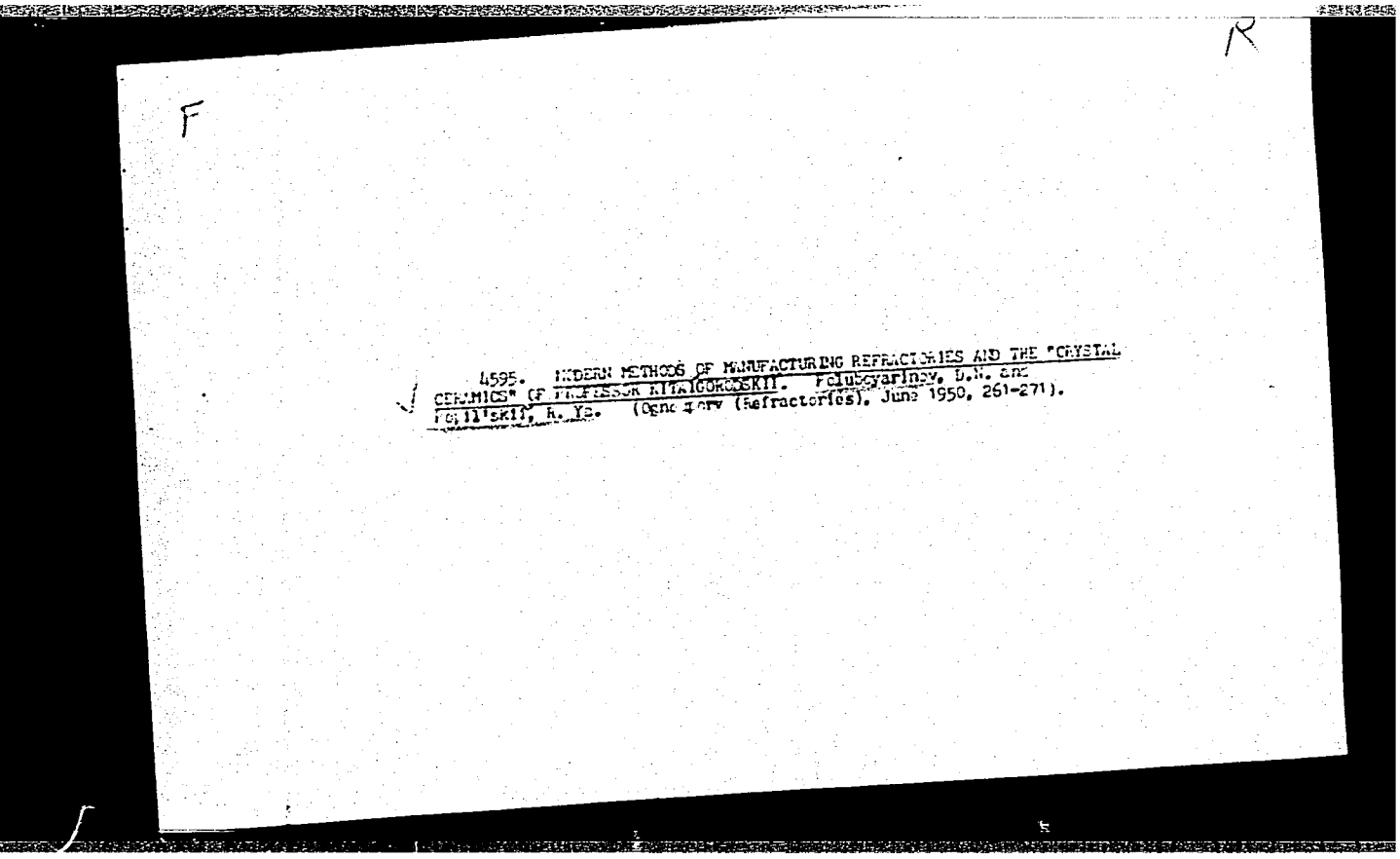
"The process of maufacturing high aluminum content refractories with synthetic mullite as a base"

Ogneupory, No. 2, 1949



Manufacture of high-alumina refractories on the basis of the synthesis of mullite. D. N. Poluboyarinov and R. Ya. Popil'skii. *Ogneupory*, 14 [2] 58-64 (1949).—The following method was developed for the manufacture of refractories containing about 60% Al_2O_3 from Latna clay (Al_2O_3 + TiO_2 37.42, SiO_2 48.04, Fe_2O_3 1.28, MgO 0.15, and ignition loss 12.87%) and technical alumina (Al_2O_3 + TiO_2 98.86, SiO_2 7.96, Fe_2O_3 0.24, CaO traces, MgO 0.14, and ignition loss 2.87%): (1) wet grinding of technical alumina in a ball mill, the final moisture content of the suspension being 40%; (2) preparation of a clay slip containing 50% moisture; (3) preparation of the mix from 58.5% clay and 41.5% alumina (based on weight of dry components); (4) formation of 110 x 75 x 50 mm. briquettes which are dried to 3% moisture, fired at 1570° to 1580° C., and then ground to 54.5% < 0.5 mm., 36.5% 0.5 to 2.0 mm., and 9.0% 2 mm.; (5) preparation of a multigrog mix with 15% clay (6% clay is added as a slip containing 1% liquid glass and 52% moisture, and the remaining 9% is added as a powder < 0.8 mm.; and (6) pressing of brick and firing at 1450°C. for 1.5 hr. Characteristics of the brick were as follows: firing shrinkage 0.7%, reheat shrinkage at 1000° 0.4°, and at 1650° to 1680° 0.8%, bulk density 2.31 gm./cm.^{3}, apparent porosity 17.8%, initial deformation under load 1480°, destruction starting after 11 heat cycles. Further improvement of properties is possible.

B.Z.K



4595. MODERN METHODS OF MANUFACTURING REFRACTORIES AND THE "CRYSTAL CHEMICS" OF PROFESSOR KITAIGORODSKII. Poluboyarinov, D.N. and Pivinskii, N. Ya. (Ogneupory (Refractories), June 1950, 261-271).

POPIL'SKIY, R. YA.

PA 187T23

USSR/Engineering - Refractories, Technology — Jul 51

"On the Problem of Using Paraffin Binders in the Process of Pressing Alumina Products," R. Ya. Popil'skiy, Cand Tech Sci, L. M. Nemets, Engr, Moscow Order of Lenin Chemicotech Inst imeni Mendeleyev

"Ogneupory," No 7, pp 323-332

Investigated to establish optimum compn and content of paraffin binder and to det its effect on sintering of products during firing process. Completely sintered clinker may be obtained at

187T23

LC

USSR/Engineering - Refractories, Technology (Contd) — Jul 51

firing temp of 1,700-1,750° from pure finely dispersed alumina without excess of paraffin binder (about 18%). Neg effect of binder becomes noticeable only when used in amt of 22% and higher.

187T23

LC

POPIL'SKIY, R. Ya.

USSR/Engineering - Refractories, Manufacture — Apr 52

"On Certain Peculiarities of Sintering High-Alumina Refractories With Mullite-Corundum Filler," R.Ya. Popil'skiy, Cand Tech Sci, Moscow Chem-Technol Inst imeni D.I. Mendeleyev

"Ogneupory" No 4, pp 158-169

Investigates sintering process and loosening effect of corundum in firing of synthetic refractories with high Al_2O_3 content. Suggests introducing into mixt sufficient amt of filler in form of fraction <0.09 mm which, on its reaction with clay binder,

220T37

forms more uniform mullite-contg mass capable of re-crystn and sintering. Substitution of unburnt binder of mullite compn for clay binder also gives good results.

220T37

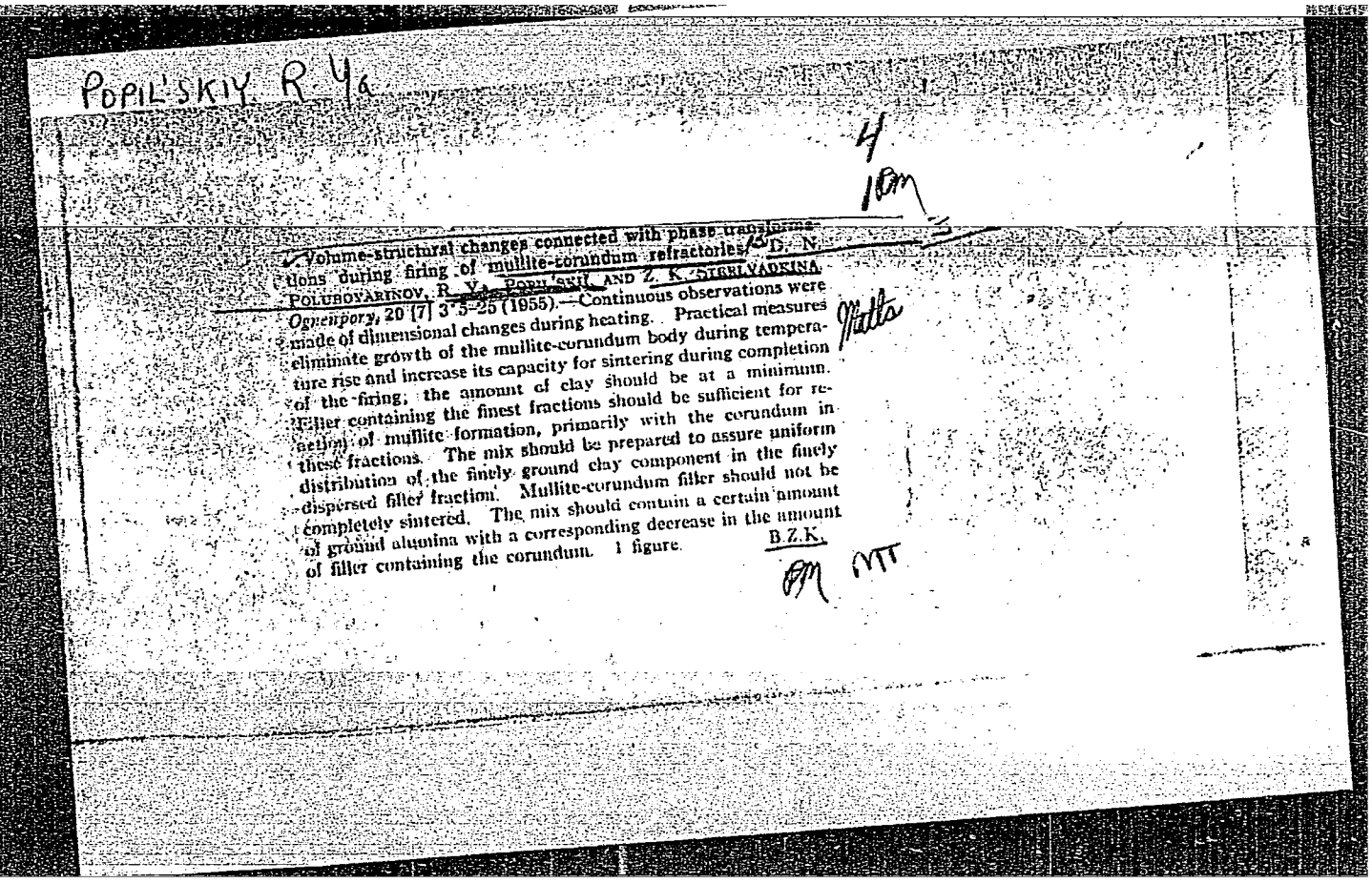
POPIL'SKIY, R. Ya.

Efficient technology of high-alumina refractories on a technical aluminum oxide base. Ogneupory 18 no.4:154-159 Ap '53.
(MIRA 11:10)

1.Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva.
(Refractory materials) (Aluminum oxides)

RUTMAN, D.S.; POLUBOYARINOV, D.N.; VINOGRADOVA, L.V.; POPIL'SKIY, R.Ya.; MIN'KOV, D.V.

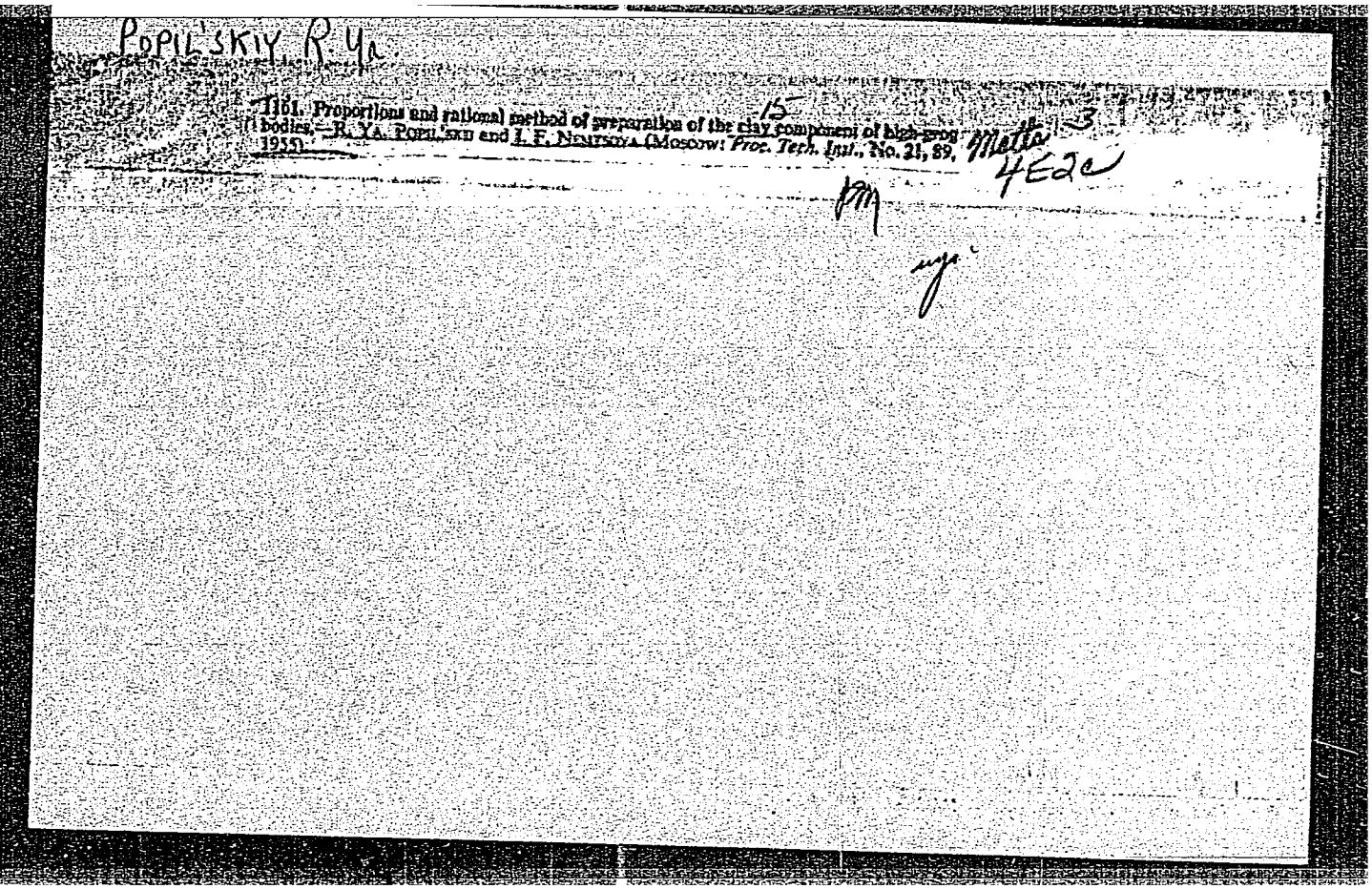
Production of corundum refractories at the Shcherbinka plant. Ogneupory 19 no.4:237-238 '54. (MIRA 11:9)
(Shcherbinka (Moscow Province)-Refractories industry)
(Corundum)



POPIL'SKIY, R. Ya.

Volume-structural changes connected with phase transforma-
tions during firing of mullite-corundum refractories. D. N.
POLUBOYARINOV, R. Ya. POPIL'SKIY, AND Z. K. STEPLYAGINA.
Ogneupory, 20 [7] 325–25 (1955).—Continuous observations were
made of dimensional changes during heating. Practical measures
eliminate growth of the mullite-corundum body during tempera-
ture rise and increase its capacity for sintering during completion
of the firing; the amount of clay should be at a minimum.
Filler containing the finest fractions should be sufficient for re-
action of mullite formation, primarily with the corundum in
these fractions. The mix should be prepared to assure uniform
distribution of the finely ground clay component in the finely
dispersed filler fraction. Mullite-corundum filler should not be
completely sintered. The mix should contain a certain amount
of ground alumina with a corresponding decrease in the amount
of filler containing the corundum. 1 figure.

B.Z.K.



POPIL'SKIY, R. Ya.

1161. Proportions and rational method of preparation of the clay component of high-strength bodies. —R. Ya. Popil'skiy and I. F. Nemtsova (Moscow: *Proc. Tech. Inst.*, No. 21, 89, 1955).

15

13

Metals

4E2e

Popil'skiy R.Ya.

USSR/Chemical Technology. Chemical Products and their Application. Glass. Ceramics. Building Materials. J-12

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27695

Author : L.V. Vinogradov, D.S. Rutman, D.N. Poluboyarinov, R.Ya. Popil'skiy.

Inst :

Title : Experimental Production of Refractory Mullite-Corundum Goods at Podol'sk Factory of Refractory Wares.

Orig Pub: Ogneupory, 1956, No 4, 178-179.

Abstract: The technique of the production of mullite-corundum refractory materials excelling by high heat resistivity, low porosity and satisfactory volumetric stability at high temperatures was developed. The composition of the paste is as follows: 13% of Ch-1 clay and 87% of chamotte with high content of alumina (about 84% of Al_2O_3) and water absorption of 1.5 to 2.0%. The paste is prepared by mixing 49% of the coarse fraction (1 to

Card : 1/2

USSR/Chemical Technology. Chemical Products and their Application. J-12
Glass. Ceramics. Building Materials.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27695

3.0 mm) of chamotte and 51% of fine grained (below 0.09 mm) mixture of clay and filler in crusher rolls. The moisture of the paste at pressing is 5.2%, the pressure is about 240 kg per sq.cm, the burning temperature is 1500 to 1550°, duration 24 hours. Product properties: Al_2O_3 + TiO_2 content - 77%, porosity - 15.2%, volumetric weight - 2.76 g per cub.cm, σ compr = 682 kg per sq. cm; temperature of start of softening under load = 1520°; 40% of compression at 1750°, additional shrinkage at 1750° = 1.2%. The test of the refractory material at 1700 to 1750° in an intermittently working furnace and in a coal dust fireplace of a boiler at 1600° showed that it possessed a good stability under these conditions.

Card : 2/2

POPIL'SKIY, R. YA.

USSR/Chemical Technology - Chemical Products and Their Application. Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62337

Author: Popil'skiy, R. Ya., Nemtsova, I. F.

Institution: None

Title: On the Composition and Appropriate Preparation of Clay Component Added to High Chamotte Content Pastes

Original Periodical: Tr. Mosk. khim.-tekhnol. in-ta, 1956, No 21, 89-99

Abstract: Study of the effect of the clay component on density of high chamotte content paste. Experiments have shown that in press working high chamotte content pastes the clay component should be regarded as being primarily the finest fraction of the system which on proper dispersion permits an effective filling of minutest interstices between grains of pulverulent fraction of chamotte. Hence the trend of producing articles of the high chamotte content type entirely without a clay binder cannot be considered appropriate.

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VINOGRADOVA, L.V.; RUTMAN, D.S.; POLUBOYARINOV, D.N.; POPIL'SKIY, R.Ya.

Experimental products production of heat resistant mullite-corundum at the Podolsk Refractories Plant. Ogneupory 21 no.4:178-179 '56. (MLRA 9:8)

1. Podol'skiy zavod (for Vinogradova, Popil'skiy); 2. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva (for Poluboyarinov, Popil'skiy).

(Podolsk--Refractory materials)

Popil'skiy, R. Ya.

USSR/Chemical Technology - Chemical Products and Their Application. Ceramics. Glass. Binders. Concrete. H-7

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 2001

Author : Pankratov Yu.F., Poluboyarinov D.N., Popil'skiy R.Ya.
Inst : -
Title : Study of Procedures for Increasing the Density of Pressed Articles Having a High Content of Chamotte.

Orig Pub : Ogneupory, 1957, No 3, 109-120

Abstract : A description of the results of a study of procedures for increasing the density of pressed high-chamotte refractories with kaoline chamotte base. Investigated were the effects of the following factors: composition of high-chamotte mixtures, limited to the composition ranges of 30-65% coarse chamotte fraction, 20-55% fine chamotte fraction, 0-30% clay; paste preparation procedure; degree of comminution of fine chamotte fractions; grain size of coarse chamotte fraction; pressure of

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nution of the fine fraction corresponds to a 10% content

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POPIL'SKIY, R Ya.

1823. Study of methods for increasing the density of pressed refractories with a high grog-content.—Yu. E. PANFEROV, D. N. POLUBOYARINOV, and R. Ya. POPIL'SKII (*Ogneupory*, 22, 103, 1957). In Russian. The following conclusions are drawn: for maximum raw-material density of 3-component bodies pressed at 600 kg/cm², composition (%) is: coarse-grain kaolin grog, 45–60; fine-grain grog, 20–35; clay, 15–25. Less than 10% clay gives lower density. Optimum (%) composition for density of the fired body is: coarse grog, 30–45; fine grog, 45–55; clay, 10–20. Thorough mixing of the fine fraction and the clay, and subsequent preparation of the wetted body are essential. Optimum grain-size of the fines is 10% residue on a 90-μ-sieve. Variation of coarse grain-sizes between 0·5–3 mm does not affect raw or fired densities. Increase of making pressure above 600 kg/cm² gives a limited improvement in the raw and fired densities. Increased soaking time at 1,470° gives appreciably higher density. The above conditions give a product with a porosity of 5–10% and a firing shrinkage of about 4%. Clay cannot be completely omitted from the composition. (6 figs., 6 tables.)

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AUTHORS: Popil'skiy, R. Ya., Davidyan, I. G. SOV/131-58-8-6/12

TITLE: On the Anisotropy of the Structure of Pressed Refractory Products (Ob anizotropii struktury pressovannykh ogneupornykh izdeliy)

PERIODICAL: Ogneupory, 1958, Nr 8, pp 372-376 (USSR)

ABSTRACT: The anisotropy of the structure of materials can be brought about during the process of charging and pressing the powder. As shown in the paper by A. S Berezhnyy, this is connected with the configuration of the particles during pressing. In this article the experimental results are mentioned by which the anisotropy of the structure of pressed materials is characterized. The experiments were carried out with a fireclay mass consisting of 40 % clay found at Chasov-Yarskoye and 60 % kaolin fireclay with a water-absorbing capacity of 2 %, as well as with easily meltable clay; a description of the experiments is given. The fireclay samples were burned in the laboratory furnace at 1350°, and clay samples were burned at a temperature of 1100°. The values determined for the specific weight and for porosity are given by table 1. The results obtained when determining the linear shrinkage of samples by fire are

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given in table 2. Permeability to gas was determined by means of the device FP-2; results are given in table 3. Instead of testing tensile strength, bending and breaking strength tests were carried out as arrangements for other tests could not be made. An illustration shows the scheme of the production of plates and the carrying out of bending tests. Test results are given in table 4. The amount of pressure applied within the limits of test conditions, as well as the character of the fireclay grains exercised no influence upon the change of mechanical properties.

Conclusions: 1) The values for permeability to gas testify to an orientation of pores in a direction that is vertical to that of pressure. 2) The connection between the grains of the material is weaker in the direction of pressure than in the direction that is vertical to pressure. 3) It may be assumed that structural stratification is brought about in the first line by the elastic expansion of the material in the mold after pressure ceases. 4) The anisotropy of the pressed refractory fireclay products may in practice occasionally influence the permeability to gas of a refractory brick structure, as well as other properties (such as resistance to slags, heat-resist-

On the Anisotropy of the Structure of Pressed Refractory Products

ance, and thermodynamic properties). 5) The phenomenon of the anisotropy of various kinds of pressed refractory materials, as well as the influence exercised by a number of essential technological factors upon structure has hitherto not been investigated and therefore makes further research work in this direction necessary.
There are 1 figure, 4 tables, and 9 references, 9 of which are Soviet.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. Mendeleyeva (Chemical-Technological Institute imeni Mendeleyev)

AUTHORS: Popil'skiy, R. Ya., Serova, G. A. SOV/131-58-9-6/11

TITLE: On Some Destruction Processes of Highly Refractory Materials Under the Influence of High Temperature and of a Variable Gas Medium (O nekotorykh protsessakh razrusheniya vysokoogneupornykh materialov pri vozdeystvii vysokikh temperatur i peremennoy gazovoy sredy)

PERIODICAL: Ogneupory, 1958, 23 Nr 9, pp. 421 - 424 (USSR)

ABSTRACT: This paper gives an account of the findings concerning the stability of highly refractory materials in the checker chamber of a plant. The checker works in 2 cycles which alternate every two minutes. In the first cycle, the checker chamber is heated by the combustion of methane up to a temperature of 1750 - 1800°, whereat an oxidation medium is existing. In the second cycle methane, hydrogen, and carbon act in a regeneration medium the temperature falling to 1500-1600°, in the coldest part of the checker chamber at cycle change even down to 1500-1300°. The following refractories were tested in a small testing plant:1) refractories on the basis of recrystallized alumina comprising corundum, both pure and with additions, 2) refractories

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On Some Destruction Processes of Highly Refractory Materials Under the Influence of High Temperature and of a Variable Gas Medium

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from zirconium dioxide stabilized by CaO and CaO + MgO, 3) refractories from beryllium oxide, both pure and with additions, 4) refractories on the basis of silicon carbide. All tested materials on the basis of pure oxides proved to be insufficiently stable, as is seen from figures 1,2,and 3. Only refractories on the basis of carborundum gave satisfactory results (Figs 4,5). It was found that the carborundum materials which are stable against the conditions of regeneration are to be regarded as suitable for the checker chamber. A definite selection of the most proper type of carborundum checkers will not be possible before extended investigations are accomplished. There are 5 figures and 3 references, 2 of which are Soviet.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im.Mendeleyeva (Institute of Chemical Technology imeni Mendeleyev)

15(2)

AUTHORS: Popil'skiy, R. Ya., Sereva, G. A. SOV/156-59-2-44/48

TITLE: The Action of Some Admixtures During the Production of Cristobalites From Quartz-sand (O deystvii nekotorykh dobavok pri poluchenii kristobalita iz kvartsevogo peska)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 390-393 (USSR)

ABSTRACT: According to (Refs 1-3) cristobalite is used as a filling agent for gipsum moulds for the precision casting of non-ferrous metals and their alloys. Cristobalite is not technically produced in the USSR. The works of Soviet authors are discussed (Refs 4-6), which partly propose methods, the technical realization of which is too expensive, and partly operated with the sole addition of soda, which resulted in a loosening of the sand formed into briquettes, and the formation of tridymite. The result of the addition of FeO and CaO in the proportion 1 : 4, as it is used for the production of dinas-stones, is being investigated in this work. It was established during the tests that a small addition of FeO + CaO (0.5 - 1%) increases the strength of the briquettes. Higher additions reduce the yield of cristobalite (Figure), owing to the increase of the glazing

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The Action of Some Admixtures During the Production of Cristobalites From Quartz-sand SOV/156-59-2-44/48

phase, but first of all through a reduction of the effect of the sodium-ion added as a mineralizer. When adding 1% Na_2CO_3 and 1% FeO + CaO, a product with a content of 85 - 90% cristobalite was obtained. The burning should be carried out at temperatures of 1300 - 1400 degrees and should be as short as possible, in order to prevent the transformation of cristobalite into tridymite. There are 1 figure, 1 table, and 9 references, 6 of which are Soviet.

PRESENTED BY: Kafedra keramiki i ogneuporov Moskovskogo khimiko-tekhnologicheskogo instituta im. D. I. Mendeleyeva (Chair for Ceramics and Refractories Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: December 31, 1958

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15(2)

AUTHORS: Popil'skiy, R. Ya., Serova, G. A. SOV/131-59-10-7/10

TITLE: Production of Cristobalite From Quartz Sand for Commercial Purposes

PERIODICAL: Ogneupory, 1959, Nr 10, pp 462-470 (USSR)

ABSTRACT: The problem of producing cristobalite from quartz sand has not yet been solved in the Soviet Union. Only Kaynarskiy succeeded in producing highly aluminous Dinas bricks from pure crystalline quartzites which contained cristobalite up to 60-70%. Experiments made by the authors have shown that cristobalite is produced most simply from chalcedony. The authors used here Ch-00 quartz sand of the Lyuberetsy deposit whose chemical composition is given. The quantity of cristobalite in baked samples was ascertained by the dilatometric method and by determination of the specific weight. Table 1 shows the conversion of Lyubertsy quartz sand into cristobalite by heating the former up to at least 1600°. By adding Na_2CO_3, this conversion is attained at 1400° as shown in table 2. By briquetting the samples and heating them up to 1400°, a cristobalite content of more than 90% is attained.

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Table 3 shows the properties of these briquettes at burning temperatures of from 1200 to 1400° as well as with various additions. Table 4 indicates the cristobalite content of the briquettes after their baking at 1400°, and figure 1 shows their microstructure. Radiographic analyses were made by S. P. Shmitt-Fogelevich at the Vsesoyuznyy institut ogneuporov (All-Union Institute for Refractories) (Footnote). Table 5 indicates the phase state of the briquettes after lengthy burning at 1400°. Figure 2 shows the dependence of the cristobalite content of the briquettes on the quantity of additions. Conclusions: The principles underlying the production of commercial cristobalite from quartz sand are indicated. By adding Na_2CO_3, the time and temperature of quartz-sand burning may be reduced to 1350-1400°. The burning of previously briquetted quartz sand proved to be most favorable, but it should be taken into account that it is necessary to maintain the material within the temperature range 1300-1400° only as briefly as possible in order to prevent transition of cristobalite into tridymite. At a

favorable composition of the mineralizer and short stay within the range of final temperatures, a commercial product with a cristobalite content of 85-90% may be obtained. It is easily baked and crushed, and exhibits considerable porosity. There are 2 figures, 5 tables, and 25 references, 19 of which are Soviet.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. Mendeleyeva (Institute of Chemical Technology imeni Mendeleyev)

POPIL'SKIY, R.Ya.; SROVA, G.A.

Conditions for producing cristobalite from quartz sand. Trudy MKHTI no.27:197-204 '59. (MIRA 15:6)
(Cristobalite)

S/123/61/000/005/011/017
A004/A104

AUTHORS: Popil'skiy, R.Ya., Serova, G.A.

TITLE: On some properties of gypsum-silicic molding materials for the precision casting of non-ferrous metals

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 5, 1961, 24, abstract 5G181 ("Tr. Mosk. khim.-tekhnol. in-ta im. D.I. Mendeleyeva", 1959, no. 27, 247 - 259)

TEXT: The authors have determined the dilatometric characteristics of gypsum - silicic mixtures during heating up to 800°C and subsequent cooling down to room temperature. The mixtures consisted of the high-strength 350 gypsum of the Kuybyshev Plant or grade 500 (GDR) and silicic fillers: quartz, ground Dinas, cristobalite. Cristobalite at 220 - 260°C effects an intensive expansion resulting from the transformation of the β-into the α-modification. At 60-80% cristobalite and 40-20% grade 350 gypsum the shrinkage of gypsum does not essentially affect the course of the dilatometric curves. The maximum expansion of the mixture at 700 - 800°C is 1.5 - 1.6%; with 50 - 60% gypsum this value decreases to 1.12 - 1.16%. Mixtures of 30% grade 350 gypsum and 70% high-silicic

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On some properties of gypsum-silicic molding ..

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Dinas containing 60-70% cristobalite at 800°C yielded a maximum expansion of 1.08%. In quartz-gypsum mixtures the quartz transformation effect from the β-to the α -modification appears at 550-570°C. The value of total expansion at 800°C amounts to 1.1%. The German gypsum has a higher shrinkage. The course of the dilatometric curves during cooling is more favorable for castings based on gypsum cristobalite mixtures. The strength of gypsum-cristobalite and gypsum quartz mixtures is rather low owing to the modification transformations. To increase the strength 1-3% low-melting boron-lead-silicate glass of the following composition is added: 70% - PbO, 20% - B_2O_3, 10% - SiO_2. There are 3 figures, 2 tables and 10 references.

M. Anuchina

[Abstracter's note: Complete translation]

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POPIL'SKIY, R Ya

PHASE I BOOK EXPLOITATION SOV/4301

Poluboyarinov, Dmitriy Nikolayevich, Professor, Viktor L'vovich Balkevich, and Rafail Yakovlevich Popil'skiy

Vysokoglinozemistyye keramicheskiye i ogneupornyye materialy (High-Alumina Ceramic and Refractory Materials) Moscow, Gosstroyizdat, 1960. 231 p. Errata slip inserted. 3,000 copies printed.

Ed.: Dmitriy Nikolayevich Poluboyarinov, Professor; Ed. of Publishing House: M.A. Guzman; Tech. Ed.: Ye.L. Temkina.

PURPOSE: This book is intended for scientific, engineering and technical personnel in the building materials industry. It may also be used in schools of higher education.

COVERAGE: The book discusses the present state and the physicochemical bases of the technology of producing articles of high alumina content by ceramics methods. A review is given of the properties of high-alumina ceramics used in various branches of technology. These include refractory, electrical insulating, building, and chemically resistant materials. The book attempts to generalize the theoretical and processing research in this field performed by personnel of the Kafedra tekhnologii keramiki i ogneuporov of the Moskovskiy ordena Lenina khimiko-

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tekhnologicheskiy institut imeni D.I. Mendeleyeva (Department of Technology of Ceramics and Refractories of the Moscow "Order of Lenin" Institute of Chemical Technology imeni D.I. Mendeleyev). Materials from Soviet literature, principal non-Soviet research, and the experiments of industrial enterprises are extensively used. No personalities are mentioned. There are 323 references: 258 Soviet, 58 English, and 7 German.

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S/131/60/000/03/010/013
B015/B005

AUTHORS: Popil'skiy, R. Ya., Galkina, I. P.

TITLE: Experiments of Casting Dross Products With a High Content of Fire Clay 15

PERIODICAL: Ogneupory, 1960, 25 Nr 3, pp 137-142 (USSR)

ABSTRACT: The applicability of ceramic casting 15 with high fire-clay content is investigated, and the results of laboratory work to study the peculiarities of ceramic casting of masses with high fire-clay content are presented. Yu. V. Kuranov took part in the laboratory work. Problems of dilution and the choice of moisture of the dross with high fire-clay content are discussed; table 1 shows the characteristics of this dross. Table 2 indicates the influence of vacuum treatment on the properties of dross with high fire-clay content. Tables 3 and 4 show the influence of vibration on dross structure and density of castings. These experiments were carried out by means of the device of A. Ye. Desov and P. S. Kuznetsov. Figure 2 shows the curves of moisture delivery of dross in plaster molds for 3 types of mass. Table 5 indicates the comparative values of

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Experiments of Casting Dross Products With a High Content of Fire Clay

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B015/B005

the properties of pressed and cast samples. Finally, the authors state that it is possible to cast dross products with a high fire-clay content and a moisture content of up to 15%. A preceding vacuum treatment of the dross, as well as a vibration of the plaster form, is considered to be convenient. With the use of this casting method it is possible to make complicated products with high fire-clay content which cannot be achieved by pressing. Operation experiments are being carried out to check and determine more precisely the characteristic values of the procedure worked out, and to determine the technical and economic efficiency of this method. There are 2 figures, 5 tables, and 9 references, 6 of which are Soviet.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. Mendeleyeva (Institute of Chemical Technology imeni Mendeleyev)

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40078

S/123/62/000/016/008/013
A004/A101

1.1600

AUTHORS: Kondrashev, F. V., Popil'skiy, R. Ya.

TITLE: Some factors determining the elastic expansion and lamination in pressing ceramic powders

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 16, 1962, 31, abstract 16B173 ("Tr. Gos.n.-i. in-t stroit. keramiki", 1960, no. 16, 84 - 99)

TEXT: The authors investigated the elastic expansion process in pressing fine-grained powders of various types on high-speed mechanical and low-speed hydraulic presses at different degrees of humidity, without and with vacuum. They established the dependence of the magnitude of elastic expansion and the properties of the pressed items on the volume of the pressed-in air and its pressure in the pores. Cylindrical specimens 60 mm in diameter and approx. 20 mm in height from two powders (these powders are used for the manufacture of floor tiles and faïence facing tiles) are pressed in a specially designed press mold. Analyzing the dependence of the volume and pressure of the pressed-in air on the humidity, pressing pressure and pressing rate of the specimens from Nikiforov clay, the authors draw the conclusion that the volume of the pressed-in air during the pressing of

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