"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, A.A., inzh.

Problem concerning the reliability of explosionproof electrical equipment. Prom. energ. 17 no.8:23-28 Ag '62. (MIRA 16:4)
(Mining engineering—Electric equipment)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, A.A.

Explosionproof properties of plastic shells of electric equipment. Vop.bezop.v ugol'.shakh. 4:214-224 '64.

(MIRA 18:1)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, A.A.; TSAREGORODTSEV, A.G.

Measurement of the temperature of a flame and incandescent gases at the outlet from shells of explosionproof electric equipment. Vop.bezop.v ugol'.shakh. 41:257-264 '64.

(MIRA 18:1)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, A.A., inzh.; CHILIKIN, N.A., inzh.

Create explosionproof heating equipment for underground storage magazines for explosives. Bezop. truda v prom. 8 no.9:38-39 S '64 (MIRA 18:1)

1. Vostochnyy nauchno-issledovatel'skiy institut po bezopasnosti rabot v gornoy promyshlennosti.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KOMAROV, V.S.; KAYMAKOV, A.A.

New design of explosionproof couplings in electric equipment enclosures. Bezop. truda v prom. 8 no.11:51-52 N '64. (MIRA 18:2)

1. Vostochnyy nauchno-issledovatel'skiy institut po bezopasnosti rabot v gornoy promyshlennosti.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

SHISHKIN, N.F., doktor tekhn. nauk; GORYUNOV, Yu.I.; KAYMAKOV, A.A.; BEZDENEZHNYKH, A.G.; NOVOSEL'TSEV, R.K.; PECHENIN, V.S., kand. tekhn. nauk

Area using penumatic energy in coal mines: Using electric power in coal mines. Ugol' 40 no.4:14-18 Ap '65. (MIRA 18:5)

1. Institut gornogo dela im. A.A. Skochinskogo (for Shishkin). 2. Glavnyy energetik kombinata Kuzbassugol' (for Goryunov). 3. Vostochnyy nauchno-issledovatel'skiy institut po bezopasnosti rabot v gornoy promyshlennosti (for Kaymakov, Bezdenezhnykh, Novosel'tsev). 4. Kemerovskiy gornyy institut (for Pechenin).

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

L 27141-66 EWT(m)/T DJ

ACC NR: AP6009549 (A) SOURCE CODE: UR/0413/66/000/005/0083/0084

INVENTOR: Kaymakov, A. A.; Tsaregorodtsev, A. G.; Pobereznikov, V. M.

ORG: none

27
B

TITLE: Fire safety device for viscous fluids. Class 42, No. 179512

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 83-84

TOPIC TAGS: fire fighting equipment, viscous fluid, thin plate, pipe

ABSTRACT: An Author Certificate has been issued for a fire safety device for viscous fluids, consisting of a hermetically sealed vertical container with nozzles for the fluid inlet and for connection of a gas duct with a hydraulic valve. To increase the effectiveness of the fire safety device and secure productivity for fluids of high viscosity, a number of conic plates are placed into the container with the cone down along the vertical axis. Underneath plates with a central opening alternate with plates with a small pipe at the periphery another version of the fire safety device is made with zig zag plates with rectangular cutouts instead of conic plates. (see Fig. 1). Orig. art. has: 1 figure. [NT]

Card 1/2 UDC: 614.838.44:543.874:665.5

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

L 27141-66

ACC NR: AP6009549

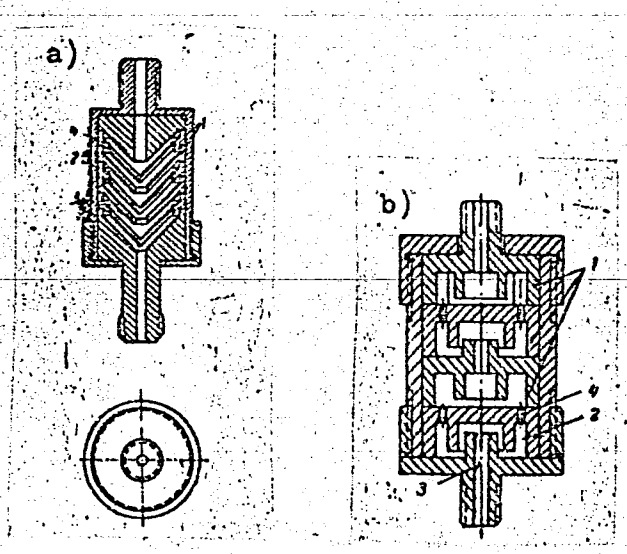

Fig. 1. Fire safety device for viscous fluids.
1 - plates with zigzag right-angle openings;
2 - clearance; 3 - central opening; 4 - small pipes along the periphery.

SUB CODE: 13/ SUBM DATE: 09May64/

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, G.V.

Use of polyamide string in traction apparatus. Ortop., trav.i protez. 20 no.10:69 O '59. (MIRA 13:2)

1. Iz travmatologo-ortopedicheskogo otdeleniya (zav. - A.S. Lositskaya) Kaliningradskoy oblastnoy bol'nitsy (glavnyy vrach - kand. med.nauk, zasluzhennyy vrach RSFSR V.V. Filippov).
(ORTHOPEDIC APPARATUS)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, F. V.,

"Determination of the Functional State of the Liver by Way of Retraction of a Blood Clot for the Purpose of Establishment Disturbances in the Animal Organism." (Dis - sertation for Degree of Doctor of Veterinary Sciences) Min Higher Education USSR Kazan' Veterinary Inst imeni N. E. Bauman, Kazan', 1955

SO: M-1036 28 Mar 56

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Petr Vasil'yevich

Academic degree of Doctor of Veterinary Sciences, based on his defense, 9 May 1955, in the Council of Kazan' State Veterinary Inst imeni Bauman, of his dissertation entitled: "Determination of the Functional Composition of a Blood Clot for Ascertaining Disturbances in the Organisms of Animals."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 1, 7 Jan 56, Byulleten' MVO SSSR, Uncl. JPRS/NY-548

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

USSR/Human and Animal Physiology - (Normal and Pathological) Metabolism. Water and Salt Exchanges. T-2

Abs Jour : Ref Zhur - Biol., No 11, 1958, 50546

Author : Kaymakov, P.V.

Inst : Vitebsk Institute of Veterinary Sciences.

Title : Age Determined Changes of Calcium Contents in the Blood Sera of Healthy Horses.

Orig Pub : Uch. zap. Vitebskogo vet. in-ta, 1956, 14, No 1, 99-101

Abstract : No abstract.

Card 1/1

Card 1/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

USSR / Pharmacology. Toxicology. V

Abs Jour : Ref. Zhur - Biologiya, No. 3, 1959, 14074

established macroscopically and histologically. The determination of prothrombin time can be utilized in veterinary practice as a functional test of the liver. -- Ya. I. Zaydler

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV Ye. A.

AUTHORS: Kaimakov, Ye.A., and Fiks, V.B. 120-6-24/36

TITLE: A Method of Measuring Transport Numbers by a Simultaneous Observation of the Motion of the Ions and the Solution (Metod izmereniya chisel perenosa po sovmestnomu nablyudeniyu dvizheniya ionov i rastvora)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.6, pp. 95 - 97 (USSR).

ABSTRACT: A simple method of measuring transport numbers is described. The method consists in the observation of levels of solutions in a U-tube in which the anode and the cathode sections are separated by a special filter. The method is a modification of the classical experiments of Lodge (Ref.1) and Whetham (Ref.2). Results of measurements on water solutions of NH_4Cl and NaCl are summarised in Figs. 3-5. There are 5 diagrams and 5 non-Slavic references.

ASSOCIATION: Physico-technical Institute of the Ac.Sc. USSR. (Fiziko-tekhnicheskiy Institut AN SSSR)

SUBMITTED: April 17, 1957.

AVAILABLE: Library of Congress

Card 1/1

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.; FIKS, V.B.

Measurement of the transfer munbers of H+ ions in hydrochloric acid solutions by a concurrent observation of the motion of ions and of the solution. Zhur.fiz.khim. 35 no.8:1777-1783 Ag '61. (MIRA 14:8)

1. Leningradskiy fiziko-tekhnicheskiy institut.
(Ions—Migration and velocity)
(Electrolyte solutions)
(Hydrochloric acid)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.

Use of soluble electrodes in measuring transfer numbers in LiCl solutions, using the method of concurrent observation on the motion of ions and of the solution. Zhur. fiz. khim. 36 no.4:840-841 Ap '62. (MIRA 15:6)

1. Fiziko-tekhnicheskiy institut.
(Mass transfer) (Lithium chloride) (Ions)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KONSTANTINOV, B.P.; KAYMAKOV, Ye.A.

Measuring transfer numbers in aqueous $CuCl_2$ solutions, using the method of concurrent observation on the motion of ions and of the solution. Zhur. fiz. khim. 36 no.4:842-845 Ap '62. (MIRA 15:6)

1. Fiziko-tekhnicheskiy institut.
(Mass transfer) (Copper chloride) (Ions)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KONSTANTINOV, B.P.; KAYMAKOV, Ye.A.; VARSHAVSKAYA, N.L.

Use of the Kohlrausch law in determining the transport numbers in solutions of highly concentrated electrolytes. Zhur.fiz.khim. 36 no.5:1028-1034 My '62. (MIRA 15:8)
(Electrolyte solutions) (Ions--Migration and velocity)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KONSTANTINOV, B.P.; KAYMAKOV, Ye.A.; VARSHAVSKAYA, N.L.

Use of the Kohlrausch law for determining the transport numbers in solutions of $CuCL_2$, $CoCl_2$, $ZnCl_2$, and $CdCl_2$. Zhur.fiz.khim. 36 no.5:1034-1037 My '62. (MIRA 15:8)

1. Fiziko-tekhnicheskiy institut, Leningrad.
(Ions—Migration and velocity) (Chlorides)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.

Determination of the temperature dependence of the transfer numbers in aqueous solutions of lithium chloride. Zhur. prikl. khim. 36 no.10:2320-2321 O '63. (MIRA 17:1)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

VARSHAVSKAYA, N.L.; KAYMAKOV, Ye.A.

Determination of transport numbers in aqueous solutions of nickel chloride. Zhur.fiz.khim. 37 no.1:209-210 Ja '63. (MIRA 17:3)

1. Fiziko-tekhnicheskiy institut.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.; BASARGIN, I.V.

Determination of the transfer number in aqueous solutions of uranyl chloride. Zhur. fiz. khim. 38 no.1:203-204 Ja'64. (MIRA 17:2)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.

Measurement of the mobility of impurity ions in highly concentrated electrolyte solutions. Zhur. fiz. khim. 38 no.2: 375-379 F '64. (MIRA 17:8)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

VARSHAVSKAYA, N.I.; KAYMAKOV, Ye.A.

Determination of transport numbers in aqueous solutions of magnesium chlorides. Zhur. fiz. khim. 38 no.2:461-463 F '64. (MIRA 17:8)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.

Measurement of the ionic mobility of lithium admixture in concentrated HCl solutions. Zhur. fiz. khim. 38 no.4:1023-1024 Ap '64. (MIRA 17:6)

1. Akademiya nauk SSSR, Fiziko-tekhnicheskiy institut imeni A.F. Ioffe.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, Ye.A.; SHARKOV, V.I.

Determination of transport numbers in $ZnCl_2$ aqueous solutions. Zhur. fiz. khim. 38 no.6:1645-1647 Je '64. (MIRA 18:3)

1. Leningradskiy fiziko-tekhnicheskiy institut.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMAKOV, [illegible]; VARCHAVSKAYA, N.L.

Galvanic cell in the gravitational field. Elektrokhimiia 1 no.5:585-591 My '65. (MIRA 18:6)

1. Fiziko-tekhnicheskiy institut imeni Ioffe, Leningrad.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KONSTANTINOV, B.P.; KAYMAKOV, Ye.A.; BASARGIN, I.V.

Determination of the relative difference in the mobility of isotope ions of uranyl. Zhur. fiz. khim. 39 no.4:836-839 Ap '65. (MIRA 19:1)

1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR. Submitted June 19, 1963.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KUZEBNYY, V.S.; KAYMAKOVA, V.D.

Devonian volcanic formations in the northwestern part of the Irtysh Valley. Trudy Lab. paleovulk. Kazakh. gos. un. no.2: 54-67 '63. (MIRA 17:11)

1. Altayskiy institut AN KazSSR.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMANOV, Ye.A.

Determination of the mobility of ions of cobalt and copper impurities in LiCl and HCl solutions. Zhur. fiz. khim. 38 no.3:802-804 Mr '64. (MIRA 17:7)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

OSKOL'SKIY, A.A., inzh.; KAYMANOVICH, A.Z., inzh.

Propeller design for motorboats and launches. Sudostroenie 26 no.10: 44-49 O'60. (MIRA 13:10)
(Boats and boating) (Propellers)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

OSKOL'SKIY, A.A., inzh.; KAYMANOVICH, A.Z., inzh.

Diagram for selecting propellers for motor-boat engines.
Sudostroenie 26 no.3 (209):37-41 Mr '60. (MIRA 14:11)
(Motorboats)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

L 08137-67 EWT(m)/EWP(j) IJP(c) WW/RM

ACC NR: AP6030859 (A,N) SOURCE CODE: UR/0191/66/000/009/0062/0063

AUTHOR: Kaymin', I. F.

ORG: none

14

B

TITLE: Universal instrument for studying the thermal characteristics of polymers

SOURCE: Plasticheskiye massy, no. 9, 1966, 62-63

TOPIC TAGS: polymer heat resistance, polymer physical property, polymer stability

ABSTRACT: The paper describes an instrument of universal type (with respect to the shape of the sample and the type of test) for studying polymer materials in the form of films, fibers and plates. The instrument consists of a microscope with an ocular micrometer and a cryothermal stage of special design. It can be used to measure the dilatometric and thermomechanical indices and determine the temperatures of glass transition (T_g), decomposition (T_d) and phase transitions in the range from -100 to +300°C. Changes occurring during heating and cooling, the appearance of gas bubbles, changes in color, etc. can also be observed. When a polarization microscope is employed, phase transitions can be determined from the birefringence effect. The melting point of gutta-percha (56°C) was thus determined. In conclusion, the author thanks P. V. Kozlov, A. I. Kalinin and Ya. A. Surn for valuable suggestions and assistance in the construction of the instrument. Orig. art. has: 2 figures and 1 table.

Card 1/2 UDC: 678.01:536]:620.1.05

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

L 08437-67

ACC NR: AP6030859

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 004

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

L 40127-66 EWT(m)/EWP(j)/T LJP(c) RM

ACC NR: AP6013900 SOURCE CODE: UR/0020/66/167/006/1321/1324

AUTHOR: Kozlov, P. V.; Kaymin', I. F.; Kargin, V. A. (Academician)

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: The heat expansion mechanism in oriented linear polymers

SOURCE: AN SSSR. Doklady, v. 167, no. 6, 1966, 1321-1324

TOPIC TAGS: linear polymer, heat expansion, polymer physical chemistry

ABSTRACT: Heat related changes in the length of samples cut from isotropic cellulose triacetate film, in a direction parallel or perpendicular to the axis of orientation, were analyzed to clarify the shrinking of polymers when heated. The base film was drawn out from 15 to 50% in relation to the initial length and pre-annealed in a free state (10 min, 230C). The temperature of the cut samples was raised at 2 deg/min. The results are plotted graphically and indicate that reversible shrinkage is peculiar only to oriented systems, its intensity relating to the level of orientation. The effect is characteristic for amorphous or crystalline polymers and occurs in glassy or elastic states. An interpretation of the observed phenomenon is given in terms of the amplitude of skeletal temperature vibrations. The authors express

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

L 40127-66

ACC NR: AP6013900

4

their sincere gratitude to L. G. Zhitkova for providing them with cellulose triacetate film, and to N. F. Bakeyev, Yu. M. Malinskiy, and V. V. Guzeyev for useful discussions on the results of this work. Orig. art. has: 4 figures.

SUB CODE: 07/ SUBM DATE: 27Oct65/ ORIG REF: 007/ OTH REF: 002

Card 2/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMIN, N. N.

4553. KAYMIN. N. N.-obobshcheniye opyta raboty novatorov asbestotsementnoy promyshlennosti. m., promstroyizdat, 1954. 52 s. s ill. 22 sm. (M-vo prom-sti stroit. materialov SSSR. tekhn. sovet i tekhn. upr. tsentr. byuro tekhn. informatsii. inform. soobshcheniya). 1.000 ekz. bespl.-avt. ukazany na oborote tit. l.-[55-432]

666.858st

SO: Knizhnaya Letopis', Vol. 1, 1956

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMOV, M.

New cities of Kuybyshev Province. Zhil.-kom. khoz. 7 no.6:3-5 '57. (MIRA 10:10)

1.Zaveduyushchiy oblastnym otdelom kommunal'nogo khozyaystva.
(Kuybyshev Province--Cities and towns)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYMOV, M.

Development of cities in Kuybyshev Province according to seven-year plan. Zhil.-kom.khoz. 9 no.7:4-6 '59. (MIRA 12:11)

1. Zaveduyushchiy Kuybyshevskim oblastnym otdelom kommunal'nogo khozyaystva.
(Kuybyshev Province--Municipal services)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

Kaymsky, D.M.

A Six-Axial Centrifugal-Casting Machine for Bearing Bronzes. D. M. Kaymsky and N. I. Mishchenko (Liteinoe Proizvodstvo, 1953, (6), 27-28). [In Russian]. The design of the machine is described — V. K.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

ANDREYEV, A.S.; KAYN, S.

Determination of copper in aluminum and steel by means of the photocolorimetric diethyldithiocarbamate method. Trudy LPI no.201:42-45 '59. (MIRA 13:3)
(Copper--Analysis) (Carbamic acid)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYNARA, V.I.

Type PT-1m intermediate repeaters. Avtom.telem.i sviaz' no.8:33 Ag '57. (MLRA 10:8)

1.Starshiy elektromekhanik Mineralovodskoy distantsii signalizatsii i svyazi Ordzhonikidzevskoy dorogi.
(Railroads--Signaling)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

KAYNARA, V.I.

KAYNARA, V.I.

Lengthening the ring-off pulse in the KVU-54. Avtom., telem.i sviaz' no.10:22 O '57. (MIRA 10:11)

1. Starshiy elektromekhanik Mineralovodskoy distantsii signalizatsii i svyazi Ordzhonikidzevskoy dorogi.
(Railroads--Communication systems)

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KAYNARA, V.I.

Some shortcomings in communication planning and equipment.
Avtom., telem.i sviaz 3 no.9:42 S '59. (MIRA 13:2)

1. Starshiy elektromekhanik Mineralovodskoy distantsii signalizatsii i svyazi Severo-Kavkazskoy dorogi.
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KAYNARA, V.I., starshiy elektromekhanik

Centralization in the use of dispatcher communication.
Avtom., telem. i sviaz' 4 no.1:36 Ja '60.
(MIRA 13:4)

1. Mineralovodskaya distantsiya signalizatsii svyazi Severo-Kavkazskoy dorogi.
(Railroads—Communication systems)

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KAYNARA, V.I.

Check of an equipment call signal in UATS-49 telephone stations. Avtom., telem. i sviaz' 6 no.10:45 O '62. (MIRA 16:5)

1. Starshiy elektromekhanik Mineralovodskoy distantsii signalizatsii i svyazi Severo-Kavkazskoy dorogi.
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Kalnarskii, I. S. EFFECTS OF LIME ADDITION AND OF GRANULOMETRIC COMPOSITION ON THE PROPERTIES OF DINAS BRICK. *Ogneupory*, 1 [4] 10-15 (1933). -Nine Dinas mixes of similar composition but various grain size distribution and varying additions of lime (1 to 5%) were tested. It was found that the CaO content has a considerable effect on the color, density, and mechanical strength of the brick. The mechanical strength increases in linear dependence on the increased CaO content. The CaO content has no effect on the expansion, porosity, refractoriness, and resistance to pressure at high temperatures. The grain-size distribution is of special importance for the mechanical strength, expansion, porosity, density, and color, but has no effect on refractoriness and resistance to pressure at high temperatures.

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Influence of additions on the properties of silica brick. Z. S. Kalnarskii. *Ogneupory* 2, No. 8, 7-9(1934).—Investigations on the tridymitizing effect in the process of firing silica brick at lower temps., in a shorter time and without growth of vol., led to adding different mineralizers. Since the silica mass contg. Fe_2O_3 admixtures are irregularly distributed in it and new compds. are formed in the mass in the process of firing, different fluxes are obtained. Therefore it would pay to add a ready-made flux. Open-hearth furnace slag and slag from thermal sublimation of P separately or combined with CaO have been added. The results were: (1) Crushing test data vary considerably (from 177 to 732 kg./sq. cm.), depending on the quantity of flux and its chem. compn. (2) Better results are obtained with 3 addns. at a time, masses with one addn. giving lower crushing test data. (3) Masses with high vol. porosity give relatively lower crushing test data. (4) Addns. with a low m. p. contribute to a lowering of the sp. wt. of silica brick. (5) The addn. of a large quantity of phosphoric slag lowers the load-test values (1590-1605° instead of 1660-1670° with other addns.). The best results are obtained with a joint addn. of the 3 materials. (6) The addn. of open-hearth furnace slag gives very bad results.

B. B. Stefanowsky

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Kalnarskii, I. B., and Kostomarov, M. I. LINEAR CHANGES IN SILICA BRICK IN THE PROCESS OF FIRING. *Ogneupory*, 2 [12] 14-18 (1934).—An investigation has been undertaken with the aid of a Hirsch-Hecht device which proved to be appropriate for the investigation of the behavior of silica in the firing process, of the changes taking place in its mass, and of the influence of different composition of the charge and of mineralizing additions. It was found that β to α transformation of quartz is the most perilous; therefore in the interval 500 to 650° the temperature rise must be slowed down; at higher temperatures, up to 1200°, it can be accelerated. Over 1200°, the volume of the brick begins to increase, owing to the beginning transformation of α-quartz to modifications with a low specific weight; therefore from this point the temperature rise must be very slow, and it is necessary to have a low-viscous flux medium at this temperature in the ware being fired. The cooling process can be conducted rapidly to 300°, because the $\beta \rightarrow \alpha$ transformation, owing to a low amount of quartz, does not give a marked volume effect. Further cooling must be carefully done. It is a mistake to apply quick cooling beginning with 1400°, because this leads to an interruption of the transformation that takes place in the brick. The cristobalite and tridymite effects are very marked during the cooling process.

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Silica brick bonded with chalk. I. S. Kainatskii. *Ogneupory* 3, 270-3(1935); cf. *C. A.* 29, 8013.—Chalk contg. CaO 54.6, MgO 0.50, SiO_2 2.23, Al_2O_3 + Fe_2O_3 0.14%, ignition loss 42.34%, was substituted for lime; it was ground to > 0.20 mm. 3.3%, 0.2-0.088 mm. 12.9%, < 0.088 mm. 83.8%. Bricks made from cryst. quartzites with this chalk had a compressive strength of 576 kg./sq. cm. as compared to 375 to 495 for bricks made with different kinds of lime; the sp. gr. was 2.330 compared to 2.370-2.394. Bricks burned to cone 16 had a crushing strength of 405 kg./sq. cm. compared to 101-240, water absorption of 7.0 compared to 7.7-8.6, porosity of 15.1 compared to 15.9-17.2, vol. wt. of 2.00 compared to 1.97-2.08. The brick had the following mineralogical compn.: quartz 7, tridymite 53, cristobalite 26, amorphous matter 14%. These good results are explained by the higher reactivity of silica toward $CaCO_3$ than toward CaO. R. R. Stefanowsky

Anomalous behavior of Tarasovka sandstone when fired. I. S. Kainatskii and L. I. Karyakin. *Ogneupory* 3, 83(1935).—Tarasovka quartzites possess an abnormally low sp. gr. (about 2.34). R. R. Stefanowsky

Kainatskii, I. S., Pines, B. Ya., and Kozlov, S. Ya. SUSPENDED, UNWIRED REINFORCED ROOFS FOR OPEN-HEARTH AND ELECTRICAL FURNACES. *Ogneupory*, 3 [9] 601-66 (1935).—The use of metal-cased, magnesite-chromite blocks gave good results.

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Effect of lime on the properties of silica brick. I. S. Kalnarskii. *Ukrain. Nauch.-Issledovatel. Inst. Ogneupornykh Materialov* No. 35, 90 pp.(1935); *Referativnyi Sbornik Literatur* No. 1902(1936).—The addn. of coarse-grained lime slip to silica mixes lowered the mech. strength, promoted the transformation of quartz into cristobalite and increased the ratio of cristobalite to tridymite. The addn. of CaO in the form of unfired ground chalk increased the tridymite content and the mech. strength. Impure lime contg. Al_2O_3, Fe_2O_3 and MgO had a better effect than pure lime. Even small amts. of finely distributed and intimately mixed oxides of Fe, Al and Mg promoted the transformation of quartz grains into tridymite.

M. V. Kondoidy

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METALLURGICAL LITERATURE CLASSIFICATION

Kalnarskii, L. S., and Bron, V. A. MORTAR FOR COKE OVENS. *Ukrain. Nauch.-Issledovatel, Ogneuporov i Kislotouporov*, No. 30, 60 pp. (1936).—It was found that the introduction of clay (over 20%) into quartzite mixes affects the properties of the mix on firing. Their porosity is greatly lowered on firing to 1350°, their resistance to pressure is increased (when cold), and the volume diminished. The refractoriness of the mixes decreases with increased clay content and reaches cone 26 in mixes containing 40% clay. Mixes of quartzite, clay, and chalk sinter at 850° which allows mortars of different properties to be obtained by varying their ratio of components. The addition of water glass decreased the sintering temperature without greatly decreasing refractoriness. The use of quartz sand instead of quartzite increased porosity and lowered adherence and expansion. The fine grinding of sand does not improve the mix. Crushed silica lowers expansion; mechanical strength and porosity are not affected by the amount of crushed silica introduced. The mixes sinter at 1350° when large amounts of silica and clay are introduced. Variation in grain size affects porosity and strength of fired mixes. Standard specifications for such mortars are given.

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Kainarskii, I. S. CARBORUNDUM REFRACTORIES. U.S.S.R. Pat. 50,111, July 31, 1937. – A mixture of ground quartz and CaO is used as binder.

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KAINARSKII, I. S.

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Kainarskii, I. S., and Bron, V. A. TARASOV SANDSTONE AS RAW MATERIAL FOR SILICA BRICK. *Ogneupory*, 5 [8] 567-76 (1937).—Sandstone from Tarasov contains 99% silica and melts at 1700°. Brick containing 50 to 75% of this sandstone mixed with quartzites are suitable for lining open-hearth furnaces, coke ovens, and electric furnaces. Black silica brick of high grade were manufactured from pure sandstone to which 0.5 to 1.0% "welding slag" was added.

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Tarasovka sandstone as a raw material for the production of silica brick. I. S. Kajnarskii and V. A. Bron. Ogneupory 5, 867-76(1937). H. Stefanowsky

Kajnarskii, I. S., and Bron, V. A. EXPANSION OF SILICA BRICK ON FIRING. Ogneupory, 5 [12] 827-41 (1937). The behavior of silica brick on firing as depending on a series of production factors was studied. The determination of some quantitative relationships gives a series of valuable data with respect to the regulation of firing. The results are shown in tables and graphs.

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KAINARSKII, I. S.

USSR METALLURGICAL LITERATURE CLASSIFICATION

Kainarskii, I. S., and Bron, V. A. EXPANSION OF FIRED SILICA BRICK. *Огнеупоры*, 6 [9] 1413-21 (1938). - The effect of a series of production factors on the expansion of raw silica on firing was studied. These factors may be regulated during manufacture; a rational correlation of these factors will minimize the defects inherent in the property of raw silica of expanding on firing because of the transformation of quartz. The effect of the introduction of mineralizers, crushed fired silica, different quartzite batches, the velocity of rising temperature, and the character of furnace atmosphere were studied. Mineralizers should be used only in cases where the maximum refractoriness of silica is not required. Raw silica from coarse-grained mixes requires a retarded rate of increase in temperature beginning with 1150°. The composition of batches containing quartzites with different properties (soft and hard cement quartzites and mixtures of crystalline quartzites) is very important since it affects the thermal stability of raw materials on firing and allows the use of rapidly transforming quartzites.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220012-4

Kalnarskii, I. S. DETERMINING THE SUITABILITY OF RAW MATERIALS FOR SILICA BRICK AND REFRACTORY SILICEOUS MASSES. *Ogneupory*, 7 [9] 502-08 (1939). — Methods used in investigating siliceous raw materials for the manufacture of silica brick are discussed.

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KAINARSKII, I. S.

Kainarskii, I. S., and Drazhnikova, L. V. DINAS BRICK. U.S.S.R. Pat. 63,981, May 31, 1945.—Chalcedony used in a Dinas batch is calcined at 650° to 1000° before being mixed in. This prevents cracking of Dinas brick during firing.

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Physicochemical properties of Ashdamet chalcedony and its utilization for production of silica bricks. I. S. Kalaarskii and L. V. Drazhnikova. *Bull. acad. sci. U.R.S.S., Classe sci. tech.* 1945, 1099-1104 (in Russian).—In isothermal dehydration, of the chalcedony, ground to be finer than 0.066 mm., the loss of wt. reached a const. value, characteristic of the given temp., after 3-4 hrs. heating; at 180, 250, 450, 650, and 800°, the losses were 0.12, 0.27, 0.88, 1.0 and 1.1%, resp.; only at 800° was the dehydration complete; the gradual loss of H_2O corresponded to zeolitic, crystn., and constitutive H_2O, in the order of decreasing ease of dehydration. Rods expanded on heating, particularly between 500 and 750°; on cooling, an addnl. expansion (about 2% linear) occurred down to 550°; below 550° the sample began to contract. Heating to 800° left an irreversible expansion; microscopic examn. revealed the presence of a network of minute cracks. Samples cut from material preliminarily heated to 650° or 800° showed expansion behavior exactly like that of quartz. Petrographic examn. and x-ray diffraction confirmed the identity of ignited chalcedony with quartz. Further heating to 1000° was accompanied by a decrease of fine cracks and increase of coarse cracks. At 1200°, cristobalite began to appear, along with considerable amts. of tridymite; complete conversion into cristobalite, and disappearance of the tridymite, took place between 1400° and 1600°. For production of silica brick, it is necessary first to dehydrate the chalcedony at 650° to insure satisfactory sintering at 1600°.

N. Thon

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Silica brick from crystalline quartzites. I. S. Kalmarshil. *Ogneupory* 10, No. 1, 14-20(1945).—Data on the production and use of SiO_2 brick contg. cryst. quartzites from the Urals are given. A study of the vitrification of various types of finely ground siliceous materials showed that the detg. factor influencing vitrification of silica are the physicochem. properties of the raw material and of the molten material obtained at high temps. TiO_2, Al_2O_3, and $FeCr_2O_4$ are active vitrifying agents at 1630-1640°.

M. V. Condoble

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Dinas with ferruginous binder. I. S. Kalmarskii and I. E. Dodavskii *Огнеупоры* 10, No. 6, 3-10(1945); *Ceram. Abstracts* 1948, 35(in *J. Am. Ceram. Soc.* 31, No. 2).—The use of Fe oxides as the chief binding component with the ratio of FeO/CaO of 4:1 to 2:1 gives the following advantages in the manuf. of Dinas from cryst. quartzites: fewer rejects; smaller expansion during firing and also smaller subsequent growth; lower porosity; increased compressive strength; and improved tridymitization of the Dinas. Dinas manufd. on a com. scale and contg. 0.5% CaO and 2% Fe dross as the binder showed: compressive strength, 480 kg./sq. cm., vol. porosity, 19.8%; bulk wt., 1.87; sp. gr., 2.33; and expansion during firing, 4.4%; while for Dinas contg. 2.5% CaO and 0.7% Fe dross as binder the respective values were 225 kg./sq. cm., 23.3%, 1.78, 2.33, and 5.7%. The use of this type of binder could also be advantageous in the manuf. of Dinas from quartzites which are friable at high temp. The advisability of using this type of binder for cementing quartzites, however, needs confirmation. M. F. R.

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Dinas from chalcedony. I. S. KAINARSKII AND L. V. DRAZHNIKOVA. *Ogneupory*, 10 [1-8] 3-10 (1945).—Chalcedony of the Adzhamet deposits in the Georgian S.S.R. analyzed SiO_2 97.26 to 97.94, Al_2O_3 0.15 to 1.18, Fe_2O_3 0.53 to 2.13, CaO 0.22 to 0.47, MgO traces to 0.38, R_2O up to 0.21, and loss on ignition 0.96 to 1.18%. Isometric grains (0.03 to 0.05 mm.) constitute 93 to 95% of the different varieties of the chalcedony. Admixtures of opal and claylike material vary from 4 to 7%. The chalcedony cracks at 650° and forms cristobalite intensively at 1200°. After heating to 800°, followed by cooling, it undergoes an additional irreversible linear expansion of about 2%. Chalcedony which has previously been heated to 650° or 800° does not undergo additional irreversible expansion. It loses water at temperatures up to 800°. Dinas made by usual methods cracked during firing and had high porosity and low mechanical strength. To overcome these difficulties, two methods of approach were tried: (1) grinding the materials to a size <3 mm. with or without welding cinders but with the admixture of calcined (650°) chalcedony in each case; (2) grinding the materials to size <3 mm. with the addition of welding cinders, provided the fraction 0.088 mm. is not less than 30%. Dinas was prepared from the following charges: (*a*) 100 parts calcined chalcedony and 2.4 parts CaO; (*b*) 100 parts calcined chalcedony, 1.6 parts CaO, and 1.5 parts welding cinders; (*c*) 100 parts raw chalcedony and 2.4 parts CaO; and (*d*) 100 parts raw chalcedony, 1.6 parts CaO, and 1.5 parts welding cinders. The characteristics of the respective Dinas brick were as follows: (1) growth in firing 3.6, 3.6, 6.3, and 5.4%; (2) volume porosity 24.9, 22.8, 26.3, and 25.1%; (3) compressive strength 265, 402, 145, and 198 kg./cm.²; (4) cone 171 in all cases; (5) start of deformation under a load of 2 kg./cm.² at 1650° in all cases. The brick met the specifications of the Russian metallurgical industry. H. Z. K.

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KAYNARSKIY, I. S. and DRAZHNIKOVA, L. V.

"Physicochemical Properties of Chalcedony from the Adzhametskiy Site and Methods of its Utilization for Dinas Manufacture." Nos. 10-11, 1945
Iz. Ak. Nauk. SSSR. Otdel. Tekh. Nauk.

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Dinas brick. L. S. Kalnarskii and I. K. Dudavskii. U.S.S.R. 65,754, Jan. 31, 1946. The binder for quartzite grains in making Dinas brick is a ferruginous material, such as slag or mill scale, together with lime in quantities not exceeding $^{2}/_{3}$ of the quantity of Fe. Cf. C.A. 40, 5540[9].

M. Hosch

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Technical problems in the manufacture of Dinas. I. S. KAINARSKII. *Огнеупоры*, 11 [6] 6–13 (1948).—K. reviews the chief problems facing Soviet producers of Dinas and outlines plans for their solution. Present Russian standards for Dinas do not meet completely the requirements of the users. K. proposes that the physicochemical characteristics of Dinas be differentiated in accordance with intended use. He outlines a method of grinding quartzites that will insure correct grain-size distribution of the charge and thus make possible such differentiation. Instead of milk of lime, it is proposed to add finely powdered (<0.088 mm.) CaO to the powdered quartzites. The admixture of finely powdered alabaster will cause absorption of water and make it unnecessary to dry the green brick. The construction of a high-output press to produce shapes 600 x 200 x 100 mm. is essential. Friction presses should be modernized to include mechanized gravimetric feeding and two-side pressing. Open-hearth Dinas fired in tunnel kilns in the Soviet Union is of low quality because of the faulty design of the kilns and the inability of the cemented quartzites in use to withstand rapid firing and high temperatures. Because of these disappointing results, the development of tunnel kilns is at a standstill. It is proposed, however, to construct a Soviet designed tunnel kiln that will insure the following campaign: heating up to 500°, 15 hr.; heating up from 500° to 700°, 10 hr.; heating up from 700° to 1000°, 20 hr.; firing from 1000° to 1440° and holding, 40 hr.; cooling down to 300°, 30 hr.; and cooling down to 50°, 25 hr. H. Z. K.

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KAYNARSKIY, I.S.; DULAVSKIY, I.Ye.

Dinas bricks with a ferrous binder. Stal' 7 no.1:77 '47. (MLRA 9:1)
(Refractory materials)

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CA

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Loosening up of silica brick. I. S. Kalnarskii. *Ogneupory* 12, 14-26 (1947).—(1) High-vol. porosity P of silica brick results in impaired heat cond. k, according to the empirical relation $k = 3.0\ e^{-0.03P}$ kcal./m. hr. °C. In order to det. the relation between P after firing and the granulometric compn. of the mass, cubic (50 × 50 × 50 mm.) and cylindrical (50 × 36 mm.) samples were pressed from vein quartz (SiO_2 98.84, Al_2O_3 0.10, Fe_2O_3 0.32, CaO 0.26, K_2O + Na_2O 0.27%) preliminarily fired at 1600° to d. 2.328, and ground to 3 different grain-size compns. (4-3, 3-2, 2-0.5, 0.5-0.088, below 0.088 mm.): I. 8-9, 12-16, 25-29, 22-26, 26-29%; II. 1-4, 11-14, 25-32, 23-26, 31-34%; III. 0, 1-3, 32-39, 19-25, 40-43%; the "overall mean diam." $\bar{d}$, is calcd. by $\bar{d} = 2\gamma d/100$ where $\bar{d}$ = the mean diam. of the grains within the given size class, $\bar{d} = 2l_1l_2/(l_1 + l_2)$ [l_1 and l_2 being the extreme values of the grain diam. in the class], and γ = wt. percent of the given class; for I, II, and III, $\bar{d}$ = 0.86, 0.62, and 0.32 mm., resp. The samples were pressed from I, II, or III, under 250 kg./sq. cm., after addn. of known proportion of either CaO or of CaO + Fe_2O_3, in the form of finely ground scale or slag, and were fired at (a) a higher, (b) a lower temp., so as to result in a sp. wt. in the range (a) 2.44-2.36, (b) 2.37-2.33. The relative decrease of P after this firing diminished from I to III in both case (a) and (b); within each category I, II, or III, the change of P is greater in (b) than in (a), and is greater with addn. of 3.5% CaO than with 2.5%, except in IIIb; with III, increase of the amt. of FeO added (from CaO:FeO = 1:0.3 to 1:0.9) favors decrease of P after both (a) and (b). The effect of the amt. of CaO added on the final sp. wt. is illustrated by the data pertaining to CaO 2.5 and 3.5%: I (a) 2.355, 2.405, (b) 2.334, 2.363; II (a) 2.354, 2.385, (b) 2.343, 2.347; III (a) 2.368, 2.371, (b) 2.342, 2.347. The compressive strength σ of the samples increases very markedly from I to III; in case (a) it is higher with 3.5% CaO than with 2.5, in case (b) it is lower; with addn. of CaO + Fe_2O_3, σ is much higher than with CaO alone and increases in all cases with the amt. of Fe_2O_3, e.g., IIIb, CaO:FeO = 1:0.3 and 1:0.9, σ = 550 and 670 kg./sq. cm., as against 420 and 330 with CaO 2.5 and 3.5. Complete data are given for a quartzite sandstone, II and III; e.g., with 2% CaO and 1.5% of a slag (Fe_2O_3 28.08, FeO 30.83, SiO_2 26.34, Al_2O_3 3.28, MnO 2.82, CaO 9.10, MgO 2.65), P (%), σ (kg./sq. cm.), and sp. wt. were: II (a) 17.3, 628, and 2.378, (b) 18.7, 634, and 2.333, III (a) 19.1, 600, and 2.362, (b) 19.0, 653, and 2.330; with only 3.0% CaO, III (a) 19.9, 476, and 2.363, (b) 20.6, 470, and 2.331. (2) The extent of the long-known (H. Seger and E. Cramer, *Stahl u. Eisen* 23, 1084-7(1895)) increase of P on 2nd firing of silica brick is also a function of granulometric compn. and to a less extent, of the conditions of the 1st firing of the material: after service at 1600°, III suffers the least change of P, (b) less than (a); the change is less with CaO 2.5 than with 3.5 and still less with CaO + Fe_2O_3; the same applies to changes of σ. These effects are illustrated by the abs. final characteristics after the 2nd firing: I (a) P 23.6%, σ 180 kg./sq. cm.; (b) 22.2, 150; II (a) 23, 240, (b) 22.6, 350; III (a) 21.1, 400, (b) 20.5, 420; the higher P and lower σ resulting from milder 1st firing (b) are overcompensated by less impairment on 2nd firing (under service conditions) as compared with (a). The effects of mineralizers on the "initial" and "final" properties (after the 1st and 2nd firing, resp.) of silica brick from quartzite sandstone are illustrated by the following data (read from graphs): II + CaO 2%, initial: (a) P 18.2%, σ 545 kg./sq. cm., (b) 19.8, 555, final: (a) 20.2, 510, (b) 19.9, 580; II + (CaO + FeO) 2.85% (CaO:FeO = 1:0.4), initial: (a) 17.3, 625, (b) 18.7, 645, final: (a)

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20.0, 525, (b) 19.5, 660; III + CaO 2.8%, initial: (a) 19.4, 525, (b) 20.0, 515, final: (a) 20.7, 525, (b) 20.2, 600; III + (CaO + FeO) 2.85% (CaO:FeO = 1:04), initial: (a) 18.1, 600, (b) 19.1, 650, final: (a) 19.5, 650, (b) 19.2, 725.

N. Thoq

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KAYNARSKIY I. S. PA 10T37

USSR/Clays May 1947
Refractory materials

"Metallurgical Dinas Clay Made of Bol'she-Never Quartzite Sandstones," I. S. Kaynarskiy, 7 pp

"Ogneupory" Vol XII, No 5

Gives results of chemical analysis of subject material and microphotos of sandstones at various temperatures. Graph showing change in porosity and specific weight of sandstones after kilning at various temperatures.

10T37

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Sc 1

Refractories 8/1948

1440. SILICA BRICKS FROM THE BOLSHE-NEVER QUARTZITE GRAVELS. —I. S. Kainarsky (*Огнеупоры*, 12, 210, 1947). Bricks made from the quartzite of this deposit generally fail under load at temperatures around 1,600° C. But by selecting gravel which has a silica content of about 97%, and by grinding it very fine, it is possible to produce a brick which is stable up to 1,650° C. (9 figs., 11 tables.)

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1ST AND 2ND ORDERS

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C

Vein quartz as raw material for the production of Dinas. I. S. KAINARSKII. *Ogneupory*, 12 [7] 301-306 (1947).—Dinas brick was made from Balyaginsk (Siberia) vein quartz containing over 98% SiO_2 and of following granulometric composition: 4 to 3 mm., 1 to 2%; 3 to 2 mm., 7 to 18%; 2 to 0.5 mm., 28-37%; 0.5 to 0.088 mm., 10 to 27%; and below 0.088 mm., 30 to 34%. Welding cinder (83% less than 0.066 mm.) was added to give an FeO content of 1% and a CaO content of 2%. Firing lasted 157 hr., including holding for 33 hr. at about 1400°C. About 83% of the brick showed no cracks; their structure was dense, and porosity was 3 to 5% less than that of green brick. Microscopic study showed 12 quartz, 17 cristobalite, and 65% tridymite. Temperature of deformation under a load of 2 kg./cm.² was not lower than 1650°C. Stability of this Dinas in the roof of an electric furnace was as high as that of Dinas made from coarse-grained quartz. Dinas made on a laboratory scale from Georgian vein quartz containing 96.7% SiO_2 also gave satisfactory results. It is possible to obtain high-quality Dinas from vein quartz provided the materials are ground fine (at least as fine as above), iron is added, and firing is conducted to give a sp. gr. of not over 2.34 to 2.36. H. Z. K.

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KAYNARSKIY, I. S.

ALSO LESHICHENKO, S. L.

"Effect of Granular Composition of Dinas Paste on its Solidity," Ogneupory, No. 4, 1948.

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PA 32/49T64

USSR/Minerals Aug 48
Refractory Materials
Clays

"Clinkering of Close-Grained, Dinas Compositions," Professors I. S. Kaynarskiy, S. L. Lesnichenko, Doctors Mech Sci, 8 pp

"Ogneupory" 13 No 8

Clinkering of fine fractions is important because they determine the denseness of the dinas mass which is hindered by the large fractions (See 71T93). Studies denseness of brick clay pressed from small-grain (below 0.5 mm) material

[redacted] 32/49T64

USSR/Minerals (Contd) Aug 48

and its clinkering ability in relation to properties of raw material and additions.

KAYNARSKIY, I. S. PROF.

[redacted] 32/49T64

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Porosity of siliceous rocks and technological methods of producing dense silica brick from them. I. I. Kalnarskii. *Ogneupory* 13, 63-8(1948).—The difficulty of producing brick from siliceous rocks lies in their inability to be heated to high temps. without destruction of their structure, leading to a high porosity and low mech. strength. The increase in porosity is due first to the transformation of α-quartz to α-cristobalite, the rate of change increasing with increase in temp., especially in the interval 1400-1600°. This property differs considerably with different kinds of rocks. For instance, chalcedony is completely dehydrated at 800° and forms a dense microscopic net of fissures. After 6 hrs. heating at 1200°, it shows 60% of the quartz changed to cristobalite, and 100% changed after 2 hrs.' further heating at 1400°. The following methods are suggested to counteract the increase of porosity of silica brick produced from such rocks and to ensure the sintering of fine fractions: (1) a rational fine granulometric compn. based on calcn. and experience (the content of fraction under 0.0088 mm. should be 65 ± 10%; (2) for materials whose fine fraction vitrifies poorly, CaO-FeO binder should be added to method (1); (3) the use of FeO binder with a very low amt. of other oxides (in the proportions 1.5:1 to 4:1). A binder contg. FeO and CaO in the ratio 2.5:1 proved much more efficient than one having a ratio 1:2.5; (4) in the case of chalcedony the first method should be accompanied by a preliminary dehydration at about 800°.

E. E. Stefanowsky

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1ST AND 2ND COVERS

3RD AND 4TH COVERS

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Effect of grain size on the density of silica brick. I. S. Kalnarskii and S. L. Lesnichenko. *Ogneupory* 13, 102-9 (1948). The effect of the amt. and grain-size distribution of the SiO_2 on the d. of the brick was investigated. Wet-ground sandstone, and wet-ground and dry-ground quartzite with particle size under 0.088 mm. were used. Additns. were made of mill scale (Fe_2O_3 61.8, FeO 30.3%), and ball clay (Al_2O_3 32.2%). Cylinders 50 mm. diam. and 50 mm. high were pressed at 250 kg./sq. cm., fired to max. temp. in 60 hrs. and held there for 10 hrs. To study change in d. at high temps., the samples were repeatedly fired to 1600° for 4 hrs. Masses with a min. grain size of 2 mm. have the same porosity as those with 5 mm. max. size. The vitrifying properties of the mass depend on the ratios of the fractions under 0.088 mm. to the coarser one. Vitrification can be improved by increasing the FeO + Al_2O_3 addn. The substitution of wet-ground quartzite for the fraction under 0.088 mm. does not improve vitrification, but the addn. of 15-20% of finely ground cemented quartzite improves vitrification, and permits a reduction in the amt. added. By a suitable choice of granulometric compn. and addns., brick can be made whose porosity does not change on reheating.

R. K. Stefanowsky

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1ST AND 2ND COPDES

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3RD AND 4TH COPDES

Working properties of Dinas in open hearth furnace roofs. I. S. KAINARSKII AND V. D. TSIGLER. *Огнеупоры*, 14 [3] 125–36 (1949).—Two specific requirements which the steel industry applies to Dinas for use in arches of open-hearth furnaces are (1) the formation of threads (icicles) to indicate overheating and (2) the fusion of the arch into a monolith to a certain depth on the working side. A questionnaire of Russian metallurgical plants reveals that some Dinas forms threads, some only small icicles, and some no threads at all and that there are not sufficient data to indicate a relationship between the conditions of the campaign and the capacity of the Dinas to form threads. This capacity should vary with length of service; thus, for 1% Al_2O_3 in mixture with SiO_2, the liquid phase formed at 1650°C. amounts to 32%, and for 3% Al_2O_3 it amounts to 52% at 1550°C. Similar results are shown by TiO_2 in mixture with SiO_2. The migration of Al_2O_3 and TiO_2 into the cold layers of the arch should increase the capacity of the Dinas to form considerable amounts of liquid phase within the depth of the arch despite the dropping temperatures. If the Dinas contains small amounts of these oxides, their migration into the cold layers will cause the hot surface to become depleted, but their accumulation in the upper layers will not become appreciable; this migration will reduce the capacity of Dinas to form threads with length of service. These views were confirmed by a survey which indicated that Dinas with a high content of Al_2O_3 and TiO_2 (usually from southern works) formed threads during the whole campaign when overheated, whereas Dinas with a low content of these oxides (usually from eastern works) formed threads or icicles only at the start of the campaign, if at all. Oxides of Fe and Ca, which do not enter into anionic complex, should reduce the viscosity of the fused mass, but Al should cause an increase. The greater the viscosity of the melt, the greater will be the formation of threads. If the temperature coefficient of viscosity is high, it will result in a sharp elongation and breaking off of the threads. If the molten layer is formed only on the surface and its viscosity is low, the surface tension will cause the liquid to form drops and separate from the arch. If the layer is thin but has a high viscosity, the surface tension will not overcome the inner friction and drops will not form; hence, the effect of surface tension should become more pronounced, the higher the overheating temperature. If overheating occurs in a short period of time, the solution of large cristobalite grains in the fused mass will not be large and the presence of these undissolved grains will greatly reduce the formation of threads. The chemical composition of the large grains of Dinas is of great importance because these are usually richer in silica than the main binding mass. If the raw materials contain noticeable amounts of Al_2O_3 and TiO_2, however, then the former quartz grains in the Dinas will be easily fused during overheating of the arch. This should facilitate the formation of threads. 23 references. B.Z.K.

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KAYNARSKIY I. S. PROF.

PA 44/49T46

USSR/Engineering May 49
Refractories
Open-Hearth Furnaces

"Working Properties of Dinas Brick Used in Open-Hearth Furnaces," Prof I. S. Kaynarskiy, Dr Tech Sci, V. D. Tsigler, Engr, 17 pp

"Ogneupory" No 5

Constructed experimental unit to determine tensile (elongation) strength of hot Dinas bricks under conditions approximating those found in open-hearth furnaces during overheating. Tested Dinas samples from 11 plants, six southern and five eastern,

LC 44/49T46

USSR/Engineering (Contd) May 49

and one Dinas sample of "Standart" type. Tensile strength was evaluated by value of relative elongation, temperature, and nature of break or elongation.

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21804 FAYNARSKIY, I. S. i TSIGIER, V. D.

O rabochikh svoystvakh svodovogo dinasa, (Bliyaniye pogloshcheniya dinasom okislov zheleza na ego sposobnost' obrazovat' niti pri peregreve), Ogneupory, 1949, No. 6, s. 293-97.

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

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ACS

X

Apparatus for determining the thermal stability of silica brick for coke ovens. I. S. KAINARSKII AND I. S. SMELYANSKII *Zavodskaya Lab.*, 15 [7] 873-76 (1949).—The apparatus consists of a brick oven in which the front and side walls are the test brick. The furnace is heated with two Silit rods; after 3 to 4 hr., the temperature inside the front wall is not less than 1200°C. and that on the outside up to 650°. The front wall is then subjected to rapid cooling to 70° or 300° with a water spray. After three heat-shock cycles, the front wall brick were subjected to an abrasion test with quartz sand. Thermal stability was evaluated on the basis of resistance to abrasion. Loss in weight of brick cooled to 70° was greater than for those cooled to 300°. The brick were taken from partition walls near the top of the vertical flues, but brick from the bottom of the oven can also be used for this evaluation. 3 photographs.

B.Z.K.

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CA

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PROCESSES AND PROPERTIES INDEX

Service characteristics of arch Dinas (experimental investigation of the formation of threads during overheating of Dinas). I. S. Kalnarskii and V. D. Taigler. *Ogneupory* 14, No. 5, 212-28(1949).—A lab. method was developed for detg. the capacity of Dinas to form threads due to overheating which is applicable to conditions prevailing in the arch of open-hearth furnaces. T-shaped samples of Dinas are heated in a kryptol furnace up to 1720° in 5 hrs.; the av. temp. rise during the 20-1000, 1000-1300, 1300-1600, and 1600-1720° intervals are 10, 5, 3.5, and 2°/min., resp. The capacity of the Dinas to form threads is evaluated on the basis of relative elongation, temp., and nature of thread formation or rupture. Extensive tests were conducted with both com. and lab. samples to det. the effects of type of quartzite, grain compn., binder, and method of prepn. upon the capacity and character of thread formation. Dinas from southern plants of the U.S.S.R. formed threads during overheating; relative elongation ranged from 1.7 to 3.2. Dinas from some eastern Soviet plants formed threads fairly well (relative elongation of 2.0-2.2) while Dinas from other plants formed only small icicles (relative elongation 1.3-1.6) followed by rupture. When Dinas formed long threads, the surface was completely fused over and rupture occurred at high temps. but, in the case of short threads, the whole surface was not fused over and rupture occurred at lower temps. Dinas from cementing Lozovsk quartzite having low SiO_2 and high $Al_2O_3 + TiO_2$ contents was capable of forming icicles to a greater extent than Dinas from cryst. Pervoural'sk quartzite having a high SiO_2 content. Fine-grained Dinas showed a greater tendency to form threads, while coarse-grained Dinas showed a greater tendency to rupture; these characteristics are inherent in both types of quartzites but the difference between fine- and coarse-grained Dinas was more pronounced in the case of the cryst. quartzite. The effect of the initial sp. gr. was less pronounced than the nature of the quartzite and the grain compn. Dinas from Lozovsk quartzite ($Al_2O_3 + TiO_2$ = 3.56%) formed threads more intensively than Dinas from Prechistovsk quartzite ($Al_2O_3 + TiO_2$ = 1.90%). Binders tested were CaO, CaO + FeO, FeO + Al_2O_3, and FeO + Al_2O_3 + MgO. Coarse-grained Dinas of Pervoural'sk quartzite having low or high sp. gr. was incapable of forming threads regardless of the binder used; fine-grained Dinas, on the other hand, formed threads regardless of the binder and sp. gr. Lime binder prevented rupture to a greater extent than the other binders, especially in Dinas of low sp. gr. which did not rupture at 1700° while the others ruptured at 1670-1690°. Coarse-grained Dinas of Lozovsk quartzite having low or high sp. gr. acquired the ability to form threads when made with the binders 2-3% CaO, 2% FeO + 0.7% Al_2O_3, and 2% FeO + 0.7% Al_2O_3 + 0.5% MgO; fine-grained Dinas formed threads with all binders. The formation of threads can serve as an indication of overheating. However, this property of the Dinas should not be attained by lowering its heat resistance. Expts. have shown that Dinas made from pure vein quartz and fired to a sp. gr. of 2.34 formed threads at high temps. (1700° and over). 15 photographs.

B. Z. Kamich

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C

Service characteristics of arch Dinas – effect of absorption of iron oxides on the capacity of the Dinas to form threads during overheating. I. S. KAINARSKII AND V. D. TSIGLER. *Ogneupory*, 14 [7] 293-97 (1949).—Absorption of 7 to 9% iron oxides by Dinas was regulated in a tubular kryptol electric furnace in which there was a uniform temperature drop from 1000°C. at the bottom to 750° to 850° at the top of the sample 85 mm. high. Samples were then tested for their capacity to form threads during overheating (*Ceram. Abstracts*, 1949, Nov., p. 259c). Results show that after saturation with iron oxides the Dinas exhibits a tendency to overheat and rupture, whereas its capacity to form threads is reduced. Fine-grained Dinas had a greater capacity for forming threads than the coarse-grained form; this was true both before and after saturation with iron oxides. Dinas made from materials of less than 2 mm. and saturated with iron oxides, however, still exhibited a considerable reduction of its capacity to form threads without rupture during overheating. 4 photographs B.Z.K.

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

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KAINARSKIY, I. S.

Service characteristics of crown Dinas. I. S. KAINARSKIY AND V. D. TSIGLER. *Ogneupory*, 14 [12] 532-38 (1949).—The presence of alumina (and of TiO_2) in Dinas will, with all other conditions being equal, increase the capacity of the brick to fuse together because the alumina, in lowering the temperature of deformation of the Dinas, facilitates contact between the brick. Good contact alone, however, will not insure fusion of the brick. For fusion to take place, it is necessary that (1) the spaces between the faces of the contacting brick be filled with silicate melt and (2) the melt liberate a solid phase at the service temperatures of the crown. If contact between the brick is good, the rough contacting faces will create a capillary network which will, as well as the pores of the brick, result in the capillary rise of the melts from the hot surface. Movement of primary melt formed on the working surface into the cooler regions of the crown is governed by the presence of admixtures in the Dinas; the admixtures dissolve and lower the crystallization temperature of the melt. This process continues up to a certain moment, after which the migration stops and the process of normal wear of the Dinas starts. After this moment is reached, the conditions necessary for the crystallization of silica from the melt are present. Solid phase of silica in the Dinas is represented by quartz, tridymite, and cristobalite and at any temperatures (except points of transformation) two of these crystalline modifications are unstable. This increases their solubility in comparison with the third stable modification, so that they dissolve in the melt and supersaturate it with silica in comparison with the stable modification. As a result, the silica separates out in the solid phase. The differences in the behavior of crown Dinas are chiefly the result of unlike mineralogical composition. The presence of large amounts of stable cristobalite in crown Dinas hinders fusion of the brick. Three photographs of fused Dinas. Cf. *Ceram. Abstracts*, 1950, March, p. 47c. B.Z.K.

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PROCESSES AND PROPERTIES

3RD AND

Making dense kaolin refractories at low Gi

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Transfer of silica in the gas phase. I. S. KAISARAKII AND L. I. KASYAKIN. *Doklady Akad. Nauk S.S.S.R.*, 66 [6] 1131-34 (1949).—Microscopic study was made of deposits found in a periodic kiln in which Dinas, prepared from a mix containing 35% anthracite, was fired. The existence of β- and α-cristobalite and quartz glass (lechatelierite) is indicated. Conclusions: Under strongly reducing conditions $SiO_2 + C \rightarrow SiO + CO$ at temperatures not exceeding 1420° C. The SiO is capable of reacting with free O to form lechatelierite. As a result of the intermediate formation of SiO, which has a high vapor pressure, the transfer of SiO_2 in the gas phase takes place under reducing conditions. The quartz glass thus formed crystallizes into α-cristobalite within the temperature region of stability of tridymite (below 1470°), and, upon cooling, it changes into β cristobalite. This cristobalite differs in structure from that found in commercial products because it was formed at temperatures below its stability and in the complete absence of the liquid phase. H Z K.

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PA 171T77

KAYNARSKIY, I. S.

USSR/Minerals - Refractories Jun 50

"Mixing of Dinas Materials," Prof I. S. Kaynarskiy, Kharkov Inst of Refractories

"Ogneupory" No 6, pp 243-254

Experiments compared qualities of 2 mixers of dinas materials-millstone and 2-blade mixer, and established effect of mixing time, moisture, quantity and composition of binders on quality of materials processed in 2-blade mixer. The 2-blade intensive mixer working without additional grinding yields high-quality bricks and is efficient device.

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Bcs

Apparatus & Method of Testing

983. The penetrometer method for the testing of workability in the manufacture of clay bricks.—I. S. KAINARSKY and I. Ya. PIVEN (*Stek. Keram.*, 7, No. 7, 13, 1950). The working properties of a plastic ceramic mix of a given comp. can be indirectly assessed by its water content. However, the water content of different clays of a normal working consistency varies over a wide range. The limits of workability of plastic mixes are set in practice by the making process used. Therefore, to test the quality of mix it is necessary to determine its workability rather than the water content. The cone penetrometer is both simple and reliable. (5 figs.)

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PROCESSES AND PROPERTIES INDEX

C

51

Mixing of Dinas mixes. I. S. KAINARSKII. *Ogneupory*, 15 [6] 243-54 (1950).—Laboratory and semicommercial experiments indicate that edge-runner mills have no technological advantages compared with two-blade mixers. The moisture content of mixes treated in the two-blade mixer should be higher than for those in edge-runner mills. An increase in the moisture content decreases the porosity of the green and the fired product and does not involve repressing; it also increases the output of crack-free products. The addition of adhesive admixtures (molasses and sulfite-alcohol wash waters) tends to lower the porosity of the green product. The development of a mixer (without regrinding) is desirable. H.Z.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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KAINARSKII, I. S.

Pressing of Dinas mixes. I. S. KAINARSKII. *Ogneupory*, 15 [7] 297-300 (1950).—The density of the green product along the depth depends on the composition of mineralizing admixture. Best results were obtained with lime-clay bond; lime bond was next, and ferruginous bond was least satisfactory. An increase of pressure on one side does not improve the density along the depth, but pressure on both sides is effective. For the range of 130 to 800 kg./cm.^{2} there is a linear relationship between the porosity of the green product and the log of the pressure; this also holds for the fired product. The surface active substances in molasses and sulfite-alcohol wash waters reduce the hardness of the quartz grains, resulting in greater compactness and lower porosity. When added together with milk of lime, molasses reduces and sulfite-alcohol wash waters increase the bending strength of the freshly molded green product. It is possible to make metallurgical and coke-oven Dinas of 15 to 16% porosity and of over 600 kg./cm.^{2} compressive strength. B.Z.K.

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ction of ferric sulfate solutions on zinc sulfide. I.N. Kus'minykh and E.L. Kokhontova. J. Applied Chem. U.S.S.R. 23, 1197-1202 (1950) (Engl. translation). See C.A. 45, 1477d.
D.R.

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CA

7

Cristobalite in acid hearths. L. I. Karyakin and I. S. Kalnarskii. *Doklady Akad. Nauk S.S.S.R.* 70, 1049-51 (1950).—From the gray and black zones of silica brick after a long service in an acid steel hearth, three different types of cristobalite crystns. are described: (1) a metastable form which is observed in the immediate neighborhood of quartz relics, and characterized by its isotropy, i.e. the high-temp. (α) modification, with a n 1.485 ± 0.002; (2) a scaly-aggregated cristobalite with the normal ns of the β-modification: γ = 1.487; α = 1.484 ± 0.001; most frequently embedded in a glass of higher n (Excellent paramorphoses of this cristobalite after tridymite are observed, which preserve the exterior habit of this mineral, with its twins, etc.); (3) an acicular, needle-shaped form of cristobalite, often as "Christmas trees," with octahedral endings. Fayalite and magnetite accompany this cristobalite in an obsidian-like dark brown glass matrix. This type is identical with the forms described by Fenner in his fundamental investigation on the SiO_2 modifications, and is evidently crystd. from silica glass by devitrification and inversion product after quartz, at temps. between 1350 and 1600°. W. Eitel

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

7

Mineral formation in acid bottom linings. I. I. KARYAKIN AND I. S. KAĬNARSKIĬ. *Doklady Akad. Nauk S.S.S.R.*, 72 [4] 741–44 (1950).—Acid bottom linings consist of cristobalite, tridymite, glass, silicates, and magnetite; in used linings, metallic iron is also present. The characteristics of these components are described. Slagged, gray, black, and unchanged zones are distinguished in used linings. During service of the lining, there is, under the slagged zone, a gray cristobalite zone, and under it a black zone, chiefly tridymite. If the tridymitization does not extend to the lower levels of the lining, the first formed cristobalite zone will be under the tridymite zone. As the lining wears out, the gray zone shifts into the depth of the lining, replacing the black zone. 2 photomicrographs. B.Z.K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BTR

16

7434* **Porous Ceramics for Dispersing Gases in Liquids.** (In Russian.) I. S. Kainarskii and B. E. Pindrik. *Steklo i Keramika*, v. 8, Sept. 1951, p. 16-21.

The structure of porous material in relation to its efficiency in gas dispersion is discussed. Data are tabulated and charted.

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CA KAYNARSKIY, I.S.

19

Physicochemical method of increasing density of refractories from lean mixes. I. S. Kaynarskiĭ (Karkov Inst. Refractories). *Ogneupory* 16, 60-3(1951).—Porosity detns. were made of cylinders shaped under 1300 kg./sq. cm. from polydisperse quartz powder of less than 60 μ and of 0-0.2% moisture content, with and without the addn. of 0.15 and 0.5% NaCl, $CaCl_2$, $MgCl_2$, and $AlCl_3$. All the surface-active compds. reduced porosity. Effects of $CaCl_2$ and $MgCl_2$ were apparent for 0.15% but not in the case of $AlCl_3$; for 0.5%, the effects of all 3 were equal. Decrease in porosity caused by 0.5% $CaCl_2$, $MgCl_2$, or $AlCl_3$ was equiv. to a 4-fold increase in pressure. The admixts. weaken the surface layers of the grains and thereby facilitate denser packing under pressure. Effects of org. admixts. are also cited.

B. Z. Kamich

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Refractories

BCS

1369. Crystallization of silica in very dense and super-silica bricks.—I. S. KAYNARSKY and L. I. KARYAKIN (*Огнеупоры*, 16, 461, 1951). The phase comp. of silica before and after service at high temps. is not governed by the temp. alone but depends also on the content of mineralizers present. In the absence of the latter, cristobalite predominates. In used bricks cristobalite that has formed in the region below its range of stability is stated to be crystallized mainly in the isotropic form (meta-cristobalite) and that formed within the stability region in the anisotropic form of β-cristobalite. Not much tridymite develops during the firing of silica with a low content of mineralizers; later, in service at temps. within its stability range, the individual tridymite crystals grow but the total amount of tridymite does not greatly increase. The long life of very dense high-SiO_2 bricks in the roof of an O.-H. furnace is attributed to the high proportion of SiO_2 present per unit vol. It is concluded that a reduction in the amount of mineralizers and in the porosity are the most important factors for changing the mineralogical comp. of silica bricks before and during service in order to increase their life in O.-H. roofs. (8 figs., 3 tables.)

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Acs

VD

Transformation of quartz in the presence of a small amount of mineralizers. I. S. KAINARSKII AND L. I. KARYAKIN. *Doklady Akad. Nauk S.S.S.R.*, 81 [5] 887-90 (1951).--Dinas made with a ferruginous bond, having a porosity of 12 to 13%, and analyzing 98% SiO_2 was subjected to microscopic study after service in an open-hearth crown. Because of its low porosity, there was practically no absorption of Fe and Ca oxides by the Dinas, and it retained up to 97% SiO_2 in its working section; increase in mineralizers was insignificant, and all further phase changes of SiO_2 occurred practically in their absence. Without mineralizers, the quartz changes mostly into cristobalite—metastable isotropic below 1470° and stable anisotropic at normal temperature. The transformation of quartz into cristobalite in the absence of mineralizers was especially intensive at 1250° to 1450° (temperature range at which tridymite is stable). 6 photomicrographs.

H Z K.

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AUTHOR: Kaynarskiy, I. S.; Orlova, I. G.; Lertyanova

constant rate. As a result the interrelation of the

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KAYNARSKIY, I.S.; ORLOVA, I.G.; DEGTYAREVA, E.V.

Interrelation between setting and deformation in corundum sintering. Dokl. AN SSSR 164 no.6:1283-1285 O '65.

(MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov. Submitted February 27, 1965.

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KAYNARSKIY, I.S.; TSIGLER, V.D.; STOVBUR, A.V.

Continuous mixing of Dinas mixes. Ogneupory 17, 172-80 '52. (MLRA 5:5)
(CA 47 no.EO:10819 '53)

1. Kharkov Inst. Refractories.

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KAYNARSKIY, I.S.

1638. FIRING OF SILICA SHAPES FOR COKE OVENS IN TUNNEL KILN.
Kaynarskii, I.S. and Finkrik, B.E. (Ogneupory (Fireproof Mat. Moscow), 1952, vol. 17, 339; abstr. in Trans. Brit. Ceram. Soc., Feb. 1953, vol. 52, 60A). It is concluded that the firing of silica shapes of up to approximately 25 lb. in tunnel kilns is possible. The raw material and the manufacturing process before firing should be selected to meet the rapid firing in tunnel kilns.

H.D.

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