MATVEYEV, M.A., doktor tekhn. nauk; ZUYEVA, V.F., inzh.

Structure and properties of alkali-resistant filter ceramics made of serpentinite. Stek. i ker. 20 no.12:17-20 D '63. (MIRA 17:1)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva (for Matveyev). 2. Gosudarstvennyy nauchno-issledovatel'skiy institut stroitel'noy keramiki Gosstroya SSSR (for Zuyeva).

MATVEYEV, M. A.; MAZO, E. E.; VOLCHEK, L. K.; ORLOVA, V. M.; VOLKODATOV, A. F.

4

"Effect of aluminum oxide on properties of glasses of some non-alkaline silicate systems."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

MATVEYEV, M. A.; YERMOLENKO, N. N.

"Vitreous systems and new materials on the basis of glass."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

ACCESSION NR: AP4040682 S/0072/64/000/006/0009/0012

AUTHOR: Matveyev, M. A. (Doctor of technical sciences); Mazo, E. E. (Candidate of technical sciences); Volkodatov, A. F. (Engineer)

TITLE: Influence of Al_2O_3 on some properties of glass in the $MgO-Al_2O_3-SiO_2$ system

SOURCE: Steklo i keramika, no. 6, 1964, 9-12

TOPIC TAGS: alumina containing glass, glass elasticity modulus, Al_2O_3, glass property, magnesium oxide, physico chemical property

ABSTRACT: Because of the advantageous physico-chemical properties of the abcve glasses, their chemical stability, low thermal expansion coefficient, and insulating properties have been much studied. The authors amplify these studies including the investigation of the elasticity modulus. The samples were prepared at 1630C. The area of vitrification in the state diagram applies to a composition containing 47.5-60% SiO_2, 10-20% Al_2O_3, and 25-40% MgO. At 45% SiO_2, independent of the Al_2O_3 content, all glasses crystallize. Melting and clatifying of glaes with 45-50% silica contents already takes place at 1530C. The majority of glasses belong to the cordierite type. Those of the mullite type are highly viscous and have valuable properties. The elasticity modulus was determined with the

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ACCESSION NR: AP4040682

aid of ultrasonic resonance. All these glass types show high values of the elasticity modulus (between 10000 and 11000 kg/mm^2, compared with 4000-7000 kg/mm^2 for ordinary glass). The basic component enhancing the elasticity modulus is magnesium oxide. Conversely, higher SiO_2 content lowers the elasticity modulus. In this respect, Al_2O_3 plays a dual role, its optimum content being 15 mol%. The same applies to titanium. The capacity of these elements to change their coordination numbers explains this phenomenon. Orig. art. has: 6 figures,

ASSOCIATION: Institut obshchey i teoreticheskoy khimii AN SSSR (Institute of General and Theoretical Chemistry, AN SSSR)

SUBMITTED: 00 ENCL: 00

SUB CODE: MT NR REF SOV: 006 OTHER: 008

Card 2/2

MATVEYEV, M.A.; AGARKOV, A.S.

Effect of the thermal history on the kinetics of dissolution of alkali silicate glasses. Zhur.VKHO 9 no.1:119-120 '64.
(MIRA 17:3)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

ACCESSION NR: AP4040505 S/0063/64/009/003/0354/0355

AUTHORS: Matveyev, G. M.; Matveyev, M. A.

TITLE: Thermodynamic analysis of solid phase reactions in the $BeO-SiO_2$ system

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 9, no. 3, 1964, 354-355

TOPIC TAGS: refractory material, beryllium oxide, silicon dioxide, beryllium silicate, beryllium silicate enthalpy, isobar potential, beryllium orthosilicate

ABSTRACT: The present investigation was undertaken because the interaction of BeO with SiO_2 is of great importance in the production of refractory materials and glass. The thermodynamic analysis of Be_2SiO_4 and $BeSiO_3$ of the formation from oxides was conducted. After the thermochemical data were assembled, the enthalpy of $BeSiO_3$ formation from the components was calculated by using the equation

$$\Delta H_{BeSiO_3} = \frac{1}{2}(\Delta H_{Be_2SiO_4} - \Delta H_{Mg_2SiO_4}) + \Delta H_{MgSiO_3}$$

from an earlier paper by G. M. Matveyev (Trudy* MKhTI im. D. I. Mendeleyeva, No. 24, M., 1957, p. 233). The $\Delta H = f(T)$ and $\Delta Z = f(T)$ were calculated for the two basic reactions: $BeO + SiO_2 = BeO \cdot SiO_2$ and $2BeO + SiO_2 = 2BeO \cdot SiO_2$.

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ACCESSION NR: AP4040505

The values for the enthalpy and the isobar potential within the temperature range of 500-1800K are presented in the graph (see Fig. 1 on the Enclosure). The authors conclude that in all instances beryllium orthosilicate would be the most stable compound and that it should be produced by crystallization from a melt or glass. Some of the thermochemical data were calculated by G. M. Matveyev. Orig. art. has: 1 table, 1 chart, 2 formulas, and 1 equation.

ASSOCIATION: Moscow khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Chemicotechnological Institute)

SUBMITTED: 22May63 DATE ACQ: 06Jul64 ENCL: 01

SUB CODE: GC, MT NO REF SOV: 005 OTHER: 000

Card 2/3

ENCLOSURE: 01

ACCESSION NR: AP4040505

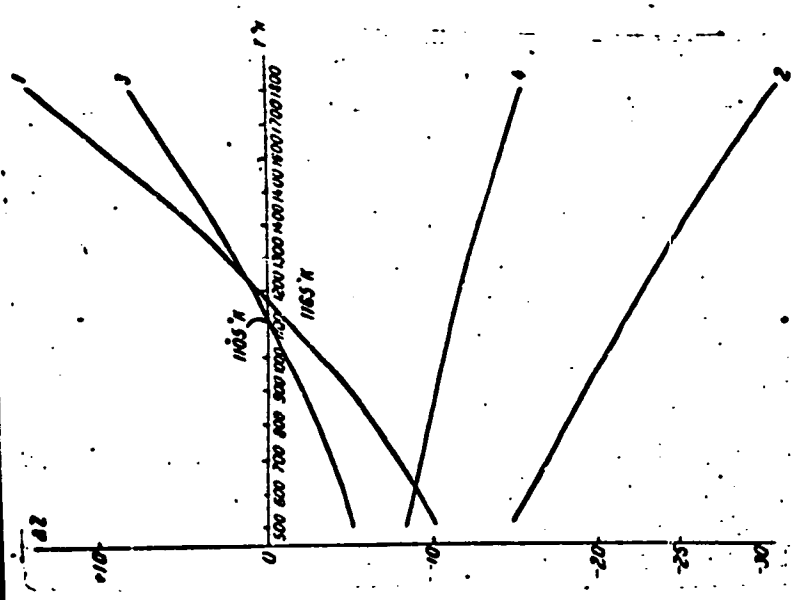


Fig. 1. The relation between ΔH^0 and ΔZ^0 reactions in the system BeO - SiO_2 and the temperature within the range of 500-1800K.

1 - ΔZ = f(T) for Be_2SiO_4; 2 - ΔH = f(T) for Be_2SiO_4; 3 - ΔZ = f(T) for $BeSiO_3$; 4 - ΔH = f(T) for $BaSiO_3$.

Card 3/3

MATVEJEV, M.A. [Matveyev, M.A.], prof. doktor technickych ved (SSSR); BABUSKINA, M.I. [Babushkina, M.I.], kandidat technickych ved (SSSR)

Nonfired acidproof products bonded by water glass. Sklar a keramik 14 no.5:144-146 My '64.

MATVEYEV, M.A., doktor tekhn.nauk, prof.

Hydrated soluble glass in road construction. Avt. dor. 27 no. 3: 17-18 Mr '64. (MIRA 17:5)

BUDNIKOV, P.P., akademik; MATVEYEV, M.A., prof., doktor tekhn. nauk

Helpful book. Stroi. mat. 9 no.6:38 Je '63. (MIRA 17:8)

1. AN UkrSSR (for Budnikov).

MATVEYEV . N.A., prof., doktor tekhn. nauk, otv. red.; BUDNIKOV P.P., akademik, red.; TOROPOV, N.A., red.; GLUSHKOVA, V.B., kand. khim. nauk, red.; ZUYEVA, V.F., nauchn. red.

[Silicates and oxides in the chemistry of high temperatures] Silikaty i okisly v khimii vysokikh temperatur. Moskva, In-t khimii silikatov im. I.V.Grebenshchikova. 1963. 382 p. (MIRA 17:12)

1. Akademiya nauk Ukr.SSR (for Budnikov). 2. Chlen-korrespondent AN SSSR (for Toropov).

BUDNIKOV, Petr Petrovich, akademik; OVCHARENKO, F.D., akademik, otv. red.; BEREZHNOY, A.S., red.; BUTT, Yu.M., prof., red.; MCHEDLOV-PETROSYAN, O.P., red.; AVGUSTINIK, A.I., prof.; BARZAKOVSKIY, V.P., doktor khim. nauk, red.; KUKOLEV, G.V., prof., red.; MATVEYEV, M.A., prof., red.; MCHEDLOV-PETROSYAN, O.P., prof., red.; ROYAK, S.M., prof., red.; POKROVSKAYA, Z.S., red.

[Chemistry and technology of silicates] Khimiia i tekhnologiia silikatov. Kiev, Naukova dumka, 1964. 608 p. (MIRA 17:12)

1. Akademiya nauk Ukr.SSR (for Ovcharenko). 2. Chlen-korrespondent Ukr.SSR (for Berezhnoy). 3. Chlen-korrespondent AN SSSR i deystvitel'nyy chlen Pol'skoy Akademii nauk , AN Ukr.SSR (for Budnikov).

MATVEYEV, M.A. [Matsveeu, M.A.]; MATVEYEV, G.M. [Matsveeu, G.M.]

Chemically stable alkali glasses for the manufacture of continuous fiber glass. Vestsi AN BSSR. Ser. fiz.-tekh. nav. no.[illegible] '64. (MIRA 18:1)

MATVEYEV, G.M.; MATVEYEV, M.A.

Thermodynamic analysis of solid phase reactions in the system BeO - SiO_2. Zhur. VKHO 9 no. 3:354-355 '64. (MIRA 17:9)

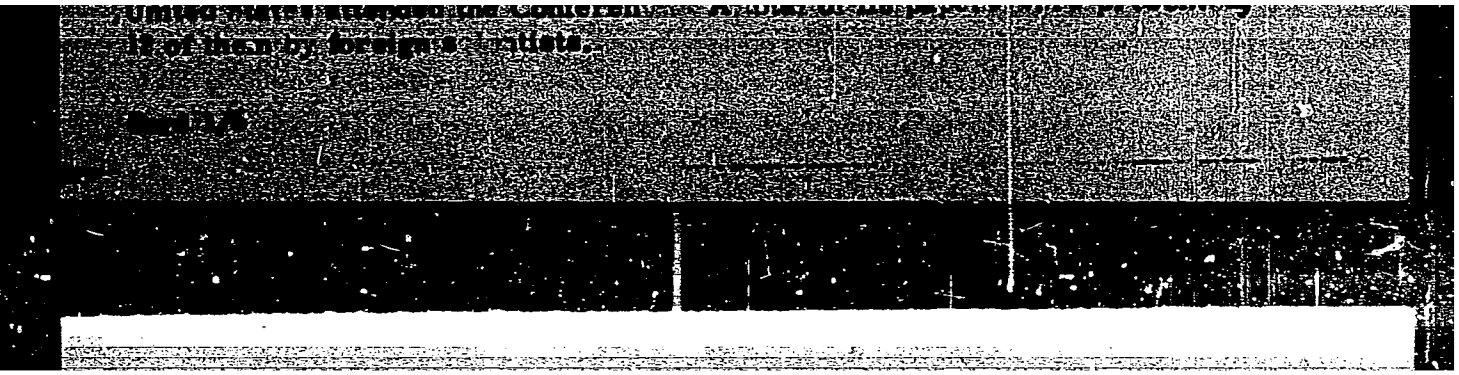
1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyeva.

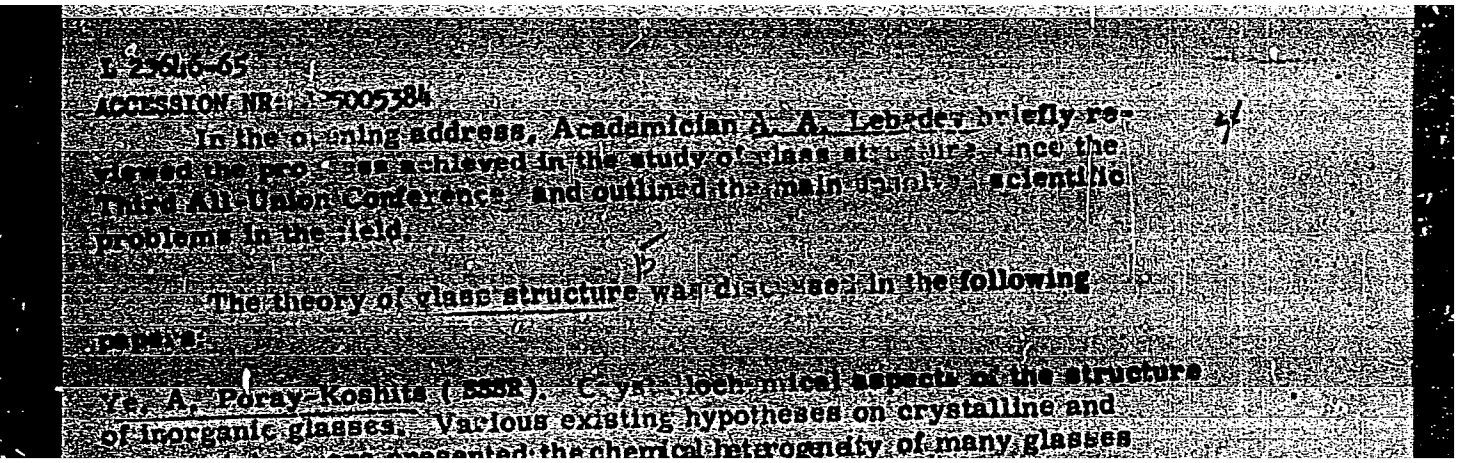
SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 9, no. 6, 1964, 691-[illegible]

TOPIC TAGS: conference report, vitreous state, glassy state, amorphous glass, [illegible], glass structure, glass property

[illegible]

[illegible] in Leningrad. [illegible] institutions (design and planning scientific research institutes, schools of higher education, and industrial enterprises) and 18 scientists from Bulgaria, Hungary, Czechoslovakia, East Germany, Red China, France, and the [illegible] attended the Conference. A total of 118 papers were presented.





L 25806-65
ACCESSION NR: [illegible]5005384

In the opening address, Academician A. A. Lebedev briefly reviewed the progress achieved in the study of glass structure since the Third All-Union Conference and outlined the main current scientific problems in the field.

The theory of glass structure was discussed in the following papers:

Ye. A. Poray-Koshits (USSR). Crystallochemical aspects of the structure of inorganic glasses. Various existing hypotheses on crystalline and [illegible] represented the chemical heterogeneity of many glasses

in composite glasses originated from the application of small-angle X-ray diffraction.

O. K. Botvinkin ([illegible]). Diversity of glass structures. In the author's opinion, microheterogeneity precludes the formulation of a unique theory of glass structure and requires separate theories on glass formation, crystallization, and submicrosegregation.

T 2364-65
Accession Nr: AP5005384

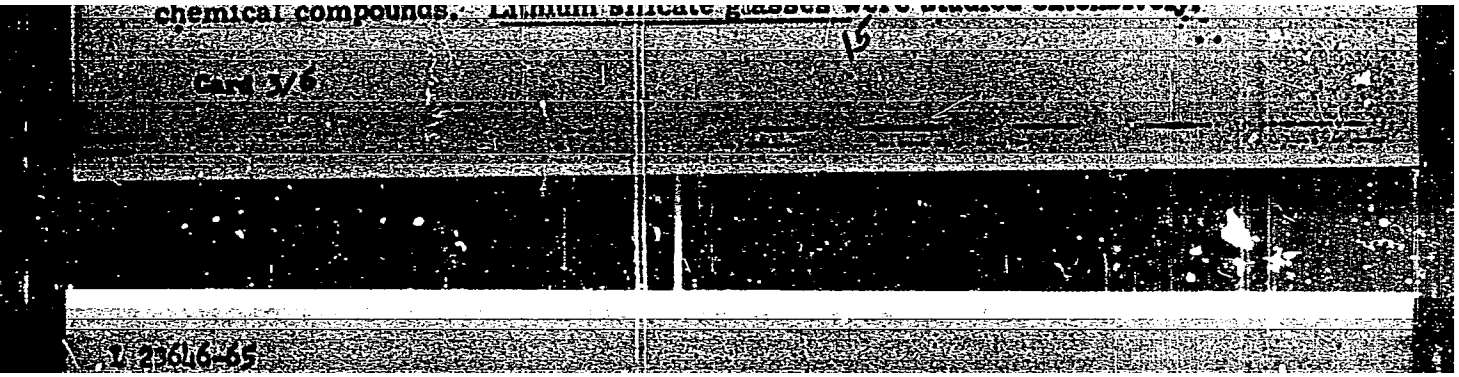
V. N. Filipovich (deceased). Interrelation of structures of the melt, glass, and glass crystallization products. Assuming a "cellular-type" structure, the opinion was advanced that glass is a solidified supercooled melt having the structure of a nonequilibrated liquid.

Important experimental data were presented in the following

Important experimental data were presented in the following papers:

V. A. Florinskaya (USSR). Study of glass structure by various physical methods. The existence of chemically heterogeneous microzones in various simple and multicomponent silicate glasses was deduced from the data on the index of refraction, dispersion, density, infrared and ultraviolet spectra, and stress relaxation.

Dr. Fogel (GDR). Microheterogeneous structure of glass. Electron microscope data indicated that the microheterogeneous phase (drop-like segregations) in most glasses has a composition close to definite

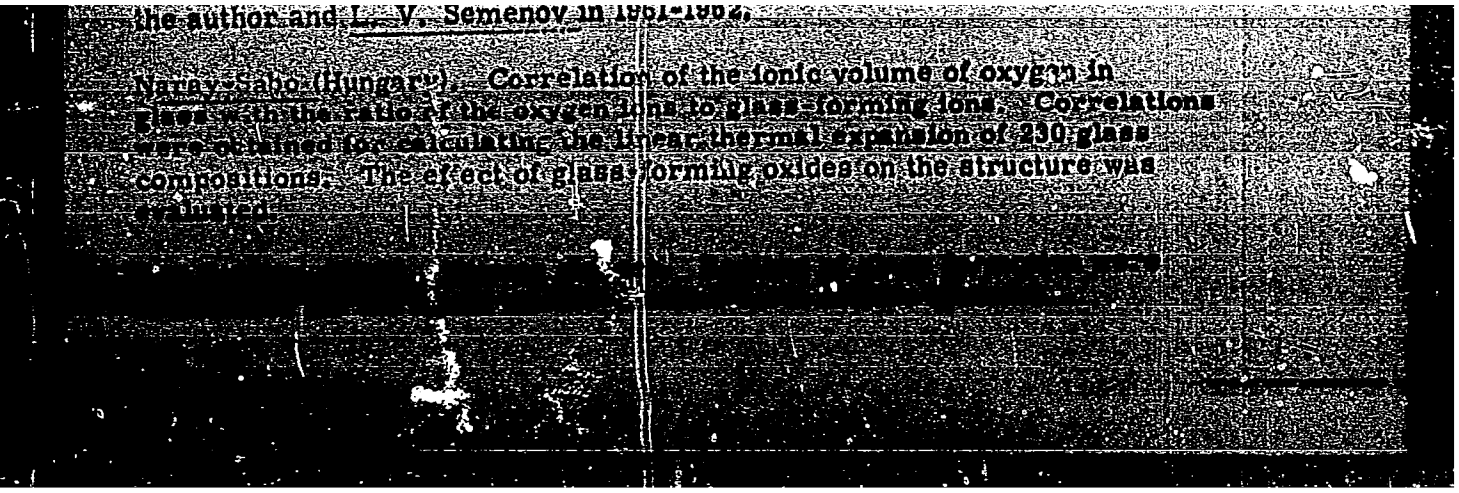


L 23616-65

ACCESSION NR: AP5005384

E. K. Aleynikov (Lithuanian SSR). Electron microscope data on microheterogeneity of ultrathin glass slices.

V. V. Tarasov (USSR). Stereopolymeric, chain-polymeric, and electronic structure of inorganic glasses. Meta-silicate and meta-phosphate, TeO_2 - containing glasses, and glassy boron oxide are linear polymers composed of tetrahedron-, octahedron-, or boroxin-ring monomeric units, respectively. The boroxin ring structure was studied by



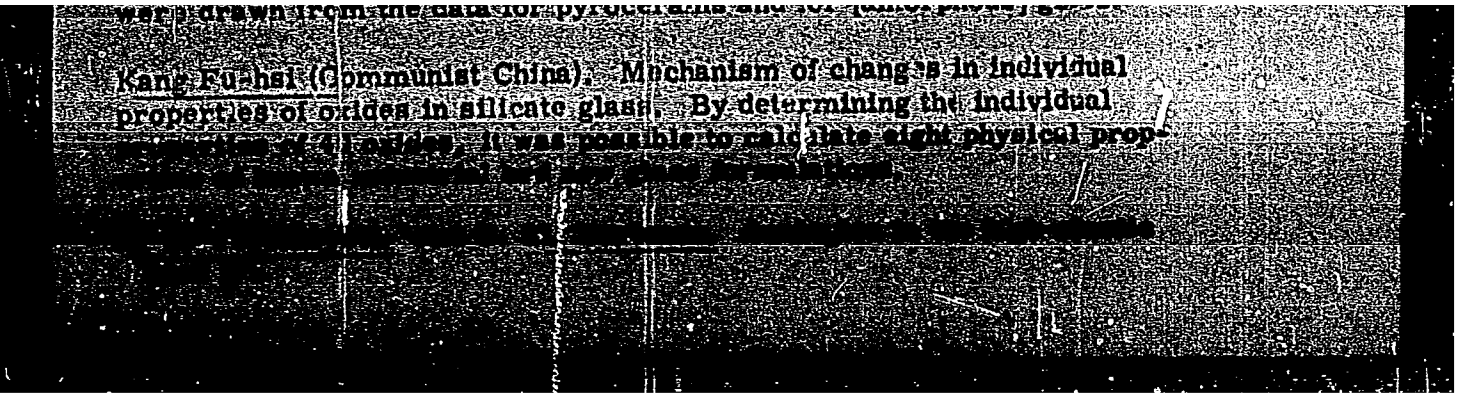
...the author and I. V. Semenov in 1951-1952.

Naray-Sabo (Hungary). Correlation of the ionic volume of oxygen in [illegible] with the ratio of the oxygen ions to glass-forming ions. Correlations [illegible] obtained for calculating the linear thermal expansion of 230 glass compositions. The effect of glass-forming oxides on the structure was [illegible].

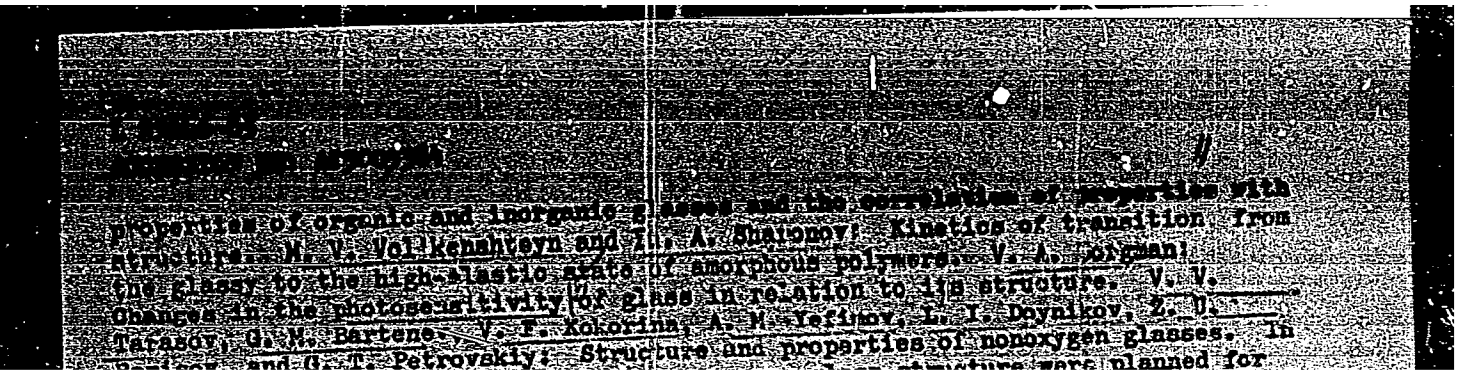
3. 23616-65
ACCESSION NR: AP5005284

Dr. Kyume (GDR). Galvanic circuits in silicate glasses. Concentration emf was studied in alkaline borosilicate glass. The electrochemical theory of glass structure was outlined.

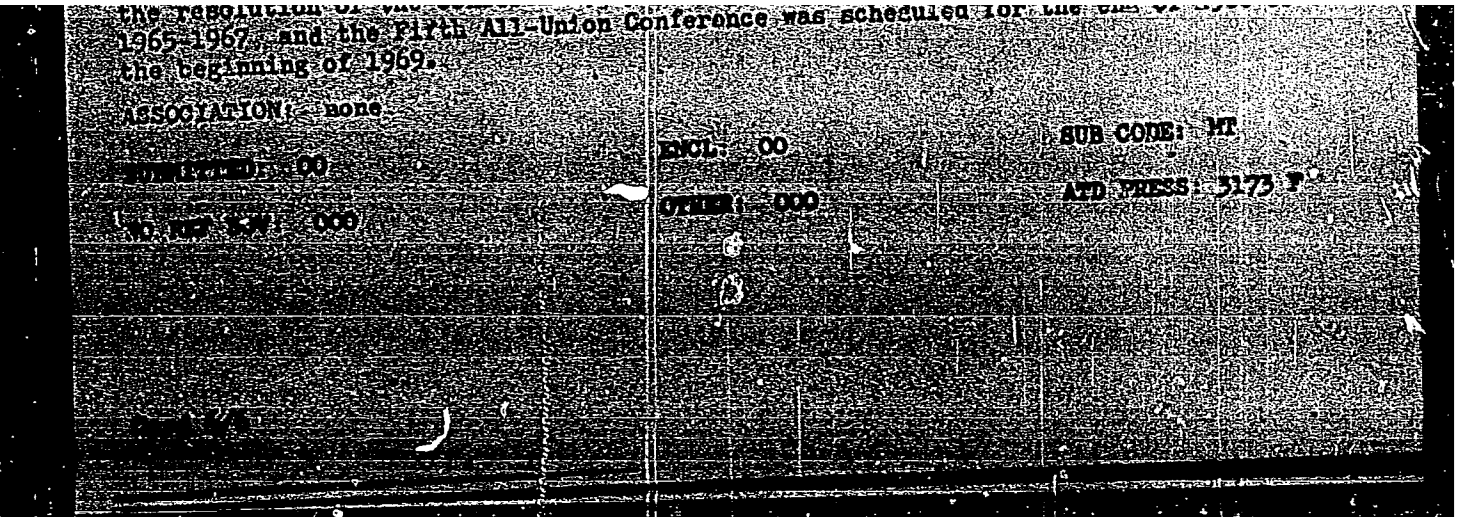
Li Chia-chih (Communist China). Structure of photosensitive pyroceram glasses in the Li_2O-K_2O-Al_2O_3-SiO_2 system. Activation energies of



Kang Fu-hsi (Communist China). Mechanism of changes in individual properties of oxides in silicate glass. By determining the individual



properties of organic and inorganic glasses and the correlation of properties with structure. M. V. Volkenshteyn and Yu. A. Shaitanov: Kinetics of transition from the glassy to the high-elastic state of amorphous polymers. V. A. Kargin: Changes in the photosensitivity of glass in relation to its structure. V. V. Tarasov, G. M. Bartenev, V. F. Kokorina, A. M. Yefimov, L. I. Doynikov, Z. D. and G. T. Petrovskiy: Structure and properties of nonoxygen glasses. In planned for



L 25103-65 EWT(m)/EWG(m)-2/EWG(r) Pe-5/Pw-4 WH

ACCESSION NR: AP5001771 S/0063/64/009/006/0699/0699

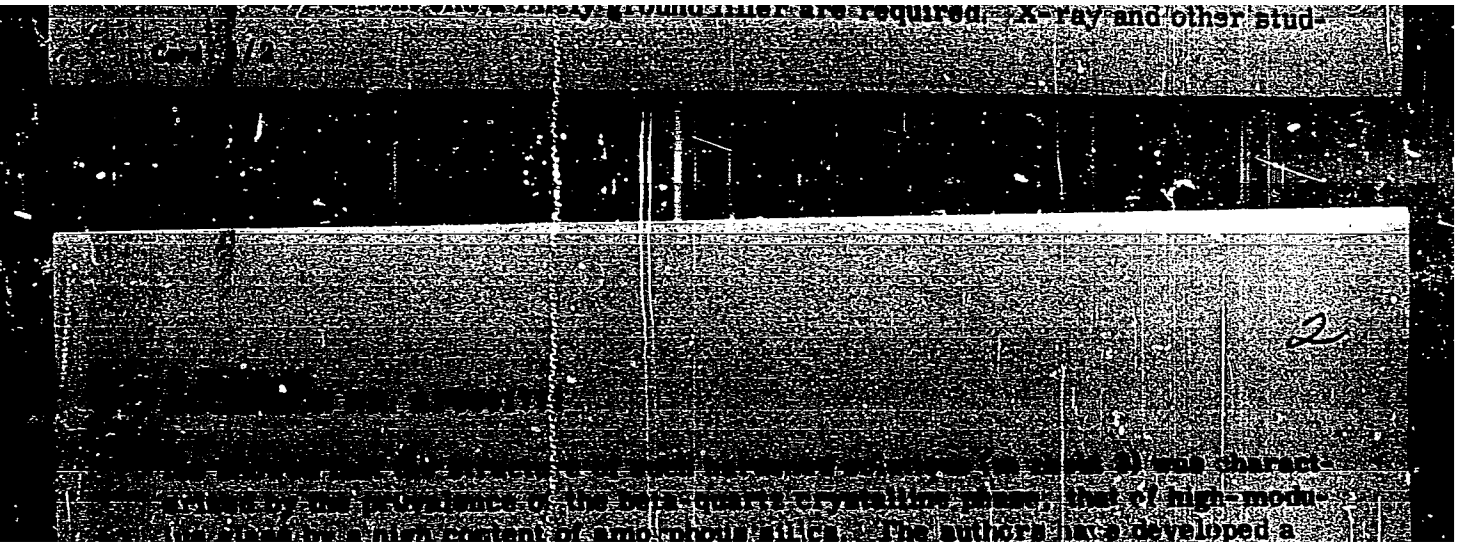
AUTHOR: Matveyev, M. A.; Kurlteyna, Yu. S.

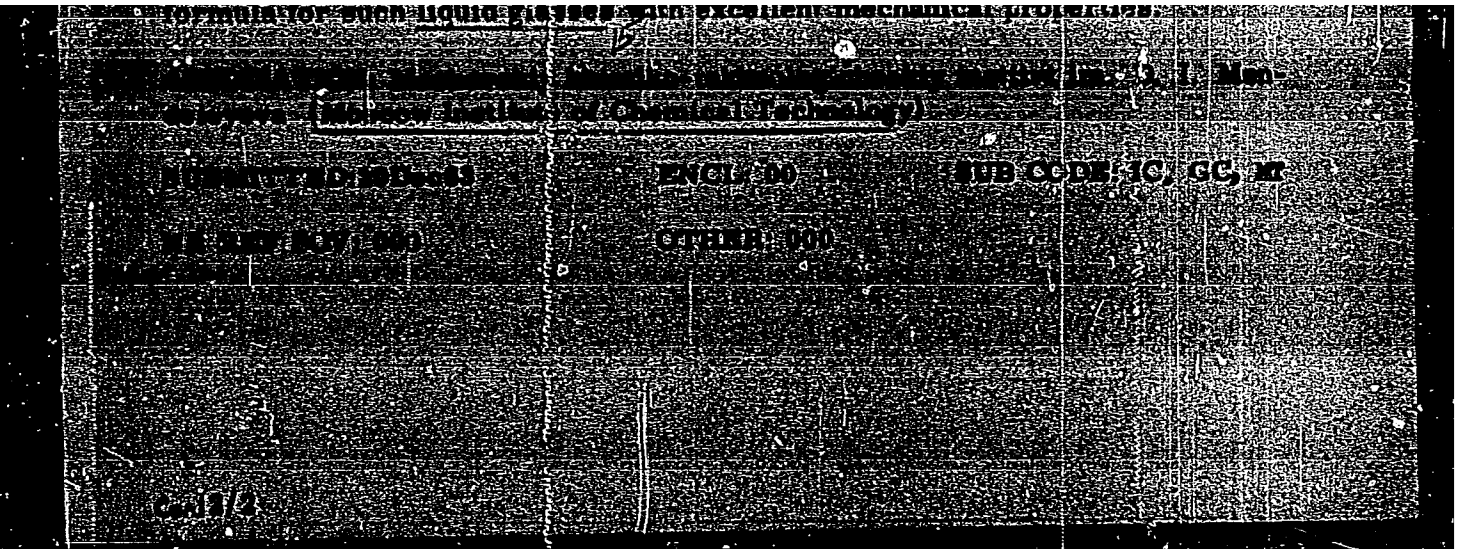
TITLE: The strength of acid-resistant cements, solutions and concrete as a function of the nature and the silicic modulus of alkali silicates

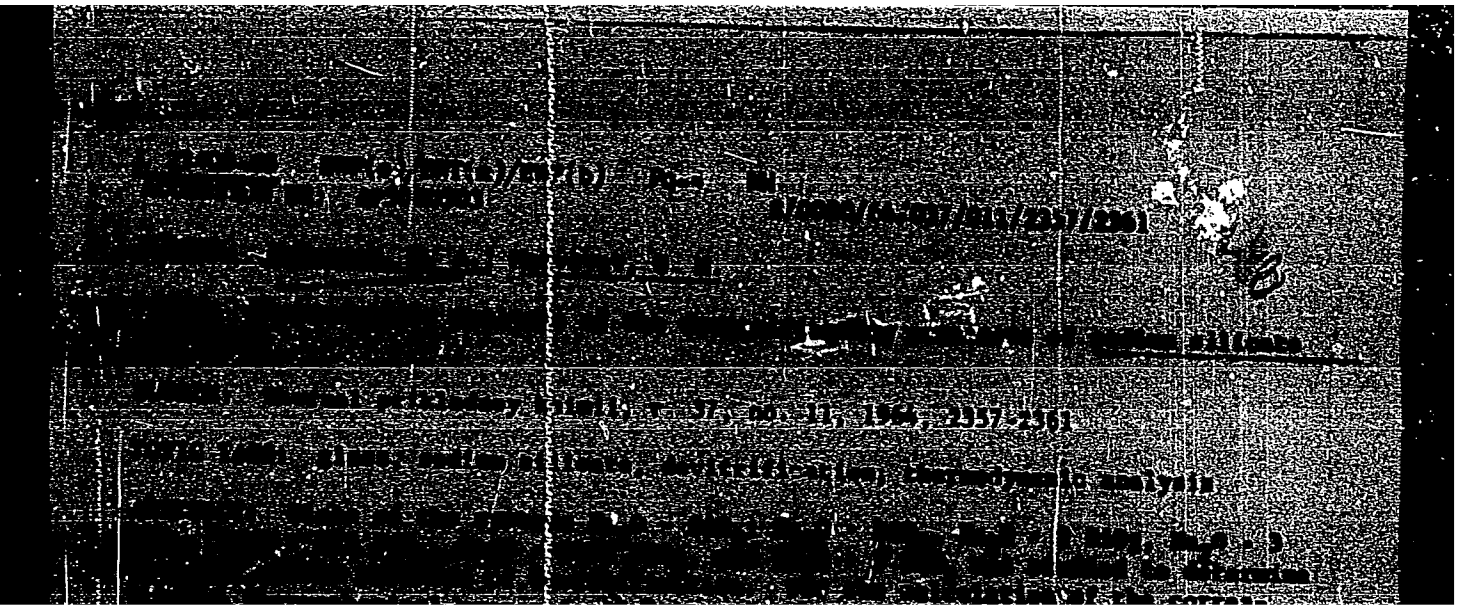
SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 9, no. 6, 1964, 699

TOPIC TAGS: acid resistant cement, acid resistant concrete, liquid glass property, silicic modulus, alkali silicate, cement

ABSTRACT: This strength depends essentially on the nature of the liquid glass, the value of its silicic modulus, density, as well as the amount of sodium silicofluoride and form and amount of the filler. The usual sodium glass with a 2.6-2.8 modulus may be replaced by potassium glass which will increase strength from 280 to 450 kg/cm^2 at a 2.6-2.9 modulus. Increasing the modulus up to 4





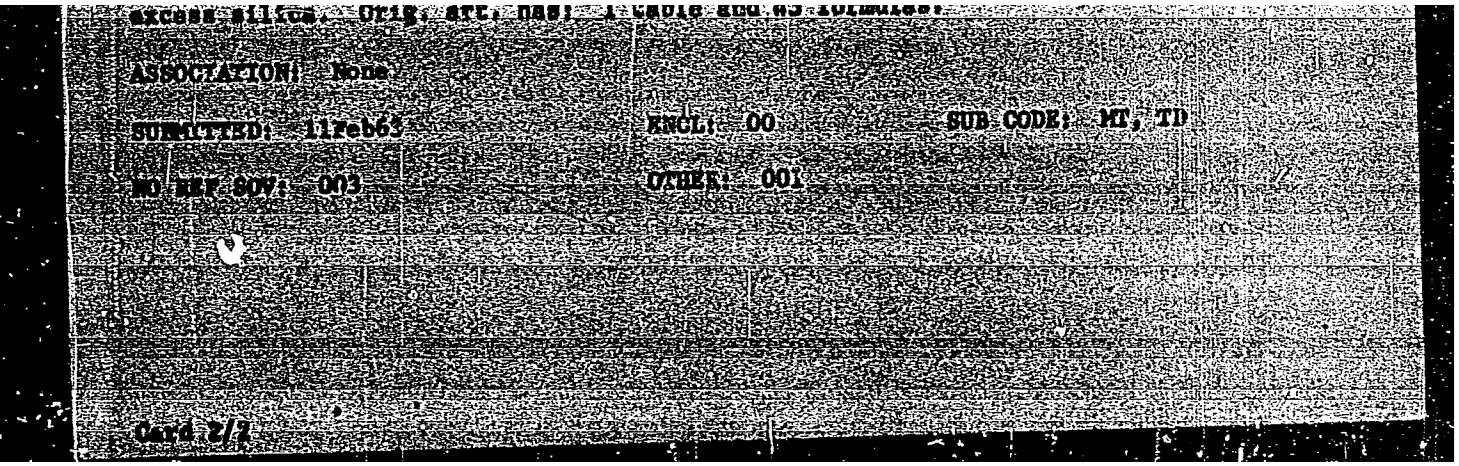


[illegible] of sodium di- and

Card 1/2

L 23409-65
ACCESSION NR: AP5000503

trisilicate from the $Na_2O \cdot 21/2\ SiO_2$ system; and a mixture of trisilicate and excess SiO_2 from the $Na_2O \cdot 5SiO_2$ system. Therefore, the most stable devitrification products of $Na_2O - SiO_2$ glasses are crystalline silicates. Crystalline mix-



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L 41305-65 EWP(e)/EWT(m)/EWI(v)/T/EWP(t)/ETI/EWP(k) JD/WW/HM/WH

ACC NR: AP5007097 (N) SOURCE CODE: UR/2539/64/000/045/0171/0175

AUTHOR: Matveyev, M. A.; Agarkov, A. S.

ORG: none

TITLE: On the bonding properties of aqueous solutions of alkali silicate glasses

SOURCE: Moscow. Khimiko-tekhnologicheskiy institut. Trudy, no. 45, 1964. Issledovaniya v oblasti khimii i tekhnologii silikatov (Studies in the field of silicate chemistry and technology), 171-175

TOPIC TAGS: adhesive bonding, water glass, GLASS, FLAT PLATE

ABSTRACT: An attempt was made to evaluate the rheological properties of sodium and potassium water glasses obtained by dissolving in water prehydrated alkali silicates ground into a powder. The material chosen for bonding was steel, which has good adhesive properties relative to water glasses. An overlapping joint was studied, in which two identical polished steel plates were joined by a layer of glass. The optimum drying schedule for such joints was established. The adhesive and cohesive properties of the adhesive bond were determined from the strength characteristics of these joints. The optimum density of aqueous solutions of sodium and potassium silicates which insures rapid drying schedules and a satisfactory adhesion was found. It is shown that the previous thermal history of vitreous alkali silicates does not appreciably affect the rheological properties of their aqueous solutions. Orig. art. has: 3 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 005

Card 1/1 lek

L 23527-65 EWT(l)/EPA(s)-2/EWT(m)/EWP(e)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/EPA(bb)-2/
EWP(b)/EWP(t) Pab-10/Pr-4/Ps-4/Pt-10/Pu-4 IJP(c), WW/JD/WH

ACCESSION NR: AP5000918 S/0020/64/159/004/0873/0875

AUTHOR: Bochkov, P. P.; Matveyev, M. A.; Yanovskiy, V. K.

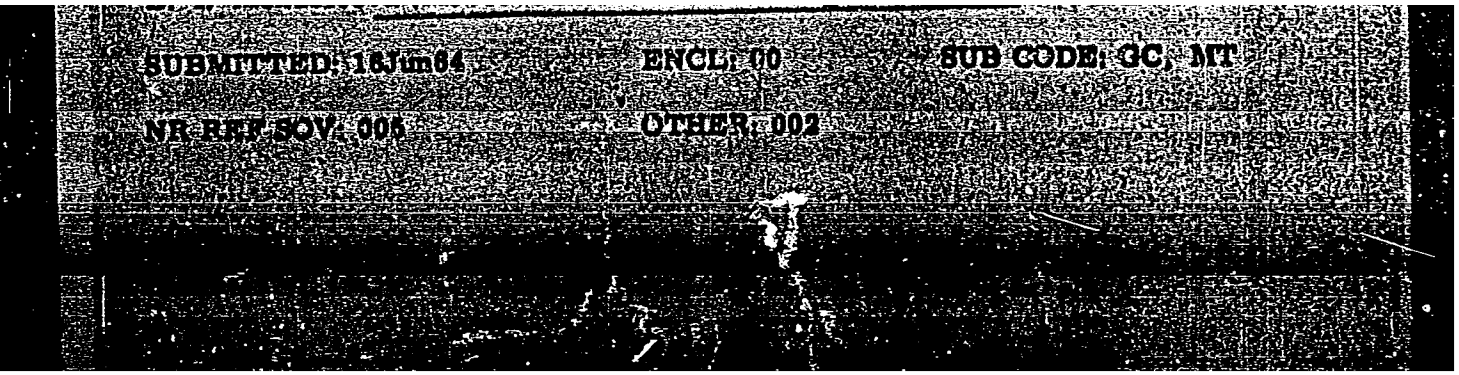
TITLE: Sintering high-purity manganese oxide

SOURCE: AN SSSR. Doklady, v. 159, no. 4, 1964, 873-875

SOURCE: AN SSSR - Doklady, v. 159, n). 4, 1964, 872-875

[illegible] high purity, manganese oxide, sintering, ceramics, sintering mechanism

ABSTRACT: The investigation of sintering of high-purity manganese which was obtained by baking hydroxite and carbonate of manganese shows that it differs considerably from sintering of less pure material of this oxide. It is possible to obtain ceramics with a density which is about 99% of the theoretical one, by using relatively low temperatures. The optimal temperature of baking is about 600C at a 2 hour exposure. After tempering at 1600C, the density is maximal (3.56 gm/cm^3), the losses minimal (~15%). At different stages of sintering,



L 12892-66 EWP(e)/EWT(m)/EWP(b) WH

ACC NR: AT6000482 SOURCE CODE: UR/0000/65/000/000/0144/0146

AUTHOR: Matveyev, M. A.; Mazo, Zh. E.; Volkodatov, A. F.; Volchek, L. K.

38
B+1

ORG: None

TITLE: Effect of aluminum oxide on the properties of glasses of certain alkali-free systems

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964. Steklonbraznoye sostoyaniye (Vitreous state); trudy soveshchaniya. Leningrad, Izd-vo Nauka, 1965, 144-146

TOPIC TAGS: glass property, silicate glass, alumina, coordination chemistry

16,44

ABSTRACT: A study of the properties of glasses in the systems $CaO-SrO-Al_2O_3-SiO_2$ and $MgO-CaO-SrO-Al_2O_3-SiO_2$ showed that the composition-property curves have an inflection point at a certain content of Al_2O_3. Glass of composition corresponding to this inflection point has many valuable properties (water resistance, high elastic modulus E, fast crystal growth rate). Anomalous effects of Al_2O_3 on glass properties were also observed in the systems $MgO-Al_2O_3-SiO_2$ and $SrO-Al_2O_3-SiO_2$. The role of Al_2O_3 is a dual one, since it improves the properties up to a certain content, then lowers them. This behavior is attributed to a change in the coordination of Al^{3+} in alkali-free vitreous systems as their basicity increases, and the corresponding structural interpretation is given to account for changes in crystallizing tendency, chemical stability, and elastic modulus. Analysis of changes in

Card 1/2

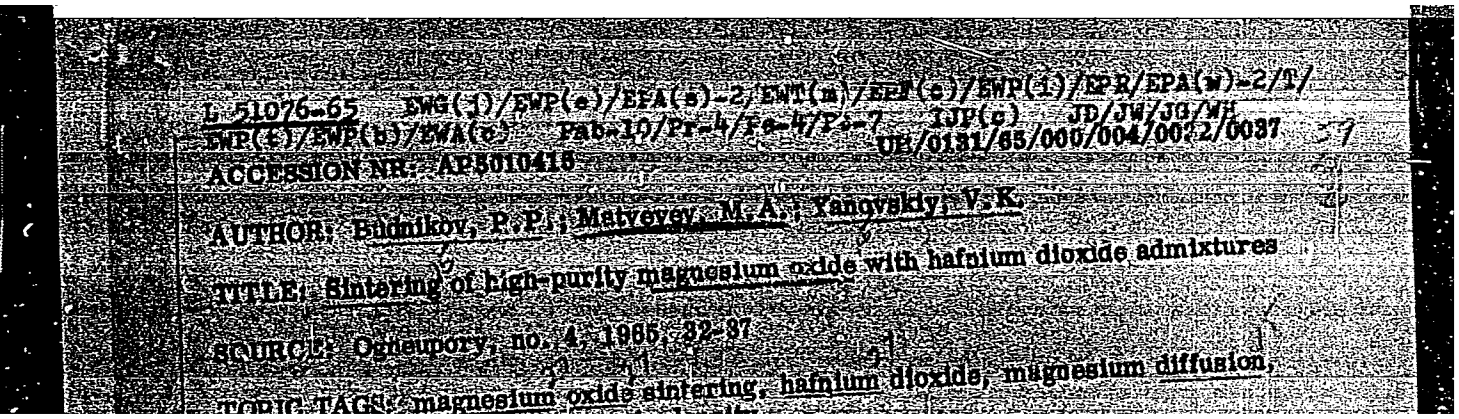
L 12892-66

ACC NR: AT6000482

the molar volume with the composition confirmed the hypothesis that the coordination number of aluminum ion changes from four to six (its structure changes from tetrahedral to octahedral). Orig. art. has: 3 figures.

SUB CODE: 07, 11 / SUBM DATE: 22May65 / ORIG REF: 007

Card 2/2 HW



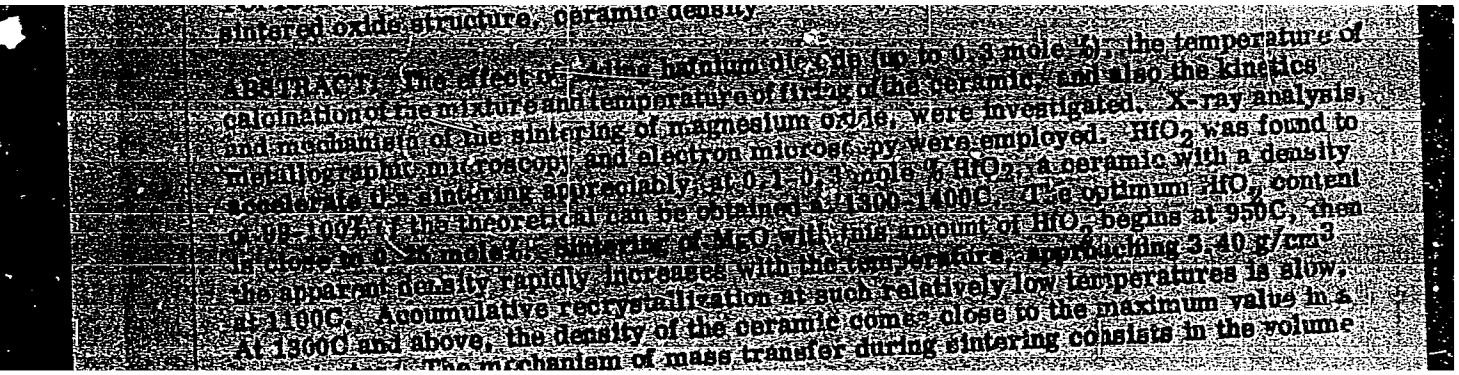
L 51076-65 EWG(j)/EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/EPR/EPA(w)-2/T/
EWP(t)/EWP(b)/EWA(c) Pab-10/Pr-4/Pe-4/P-7 IJP(c) JD/JW/JG/WH
ACCESSION NR: AP5010415 UR/0181/65/000/004/0072/0037 37

AUTHOR: Budnikov, P. P.; Matveyev, M. A.; Yangvskiy, V. K.

TITLE: Sintering of high-purity magnesium oxide with hafnium dioxide admixtures

SOURCE: Ogneupory, no. 4, 1965, 32-37

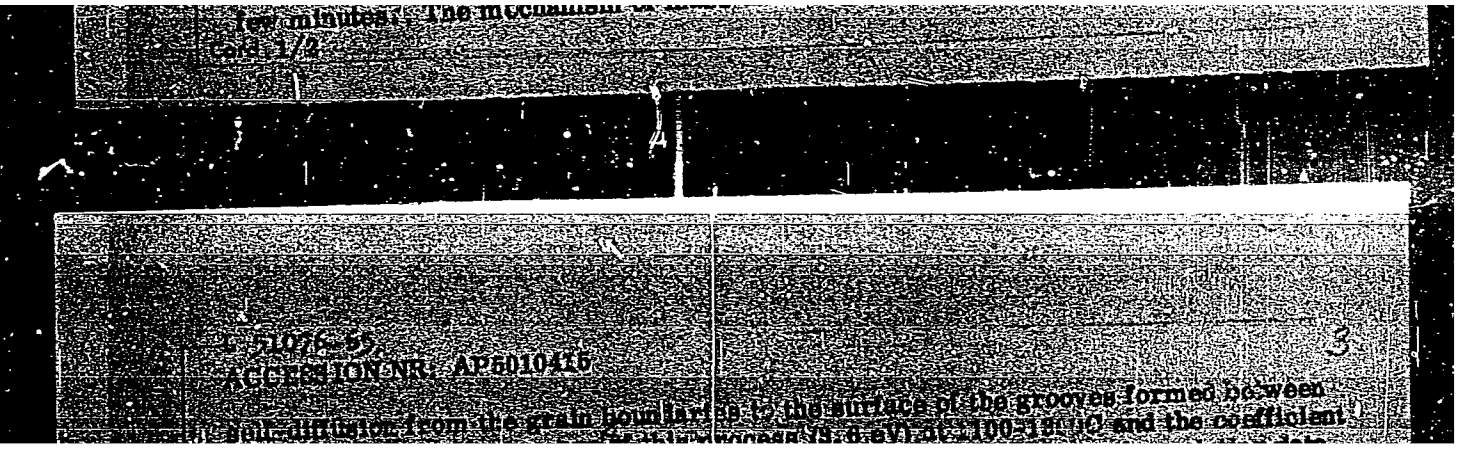
TOPIC TAGS: magnesium oxide sintering, hafnium dioxide, magnesium diffusion,

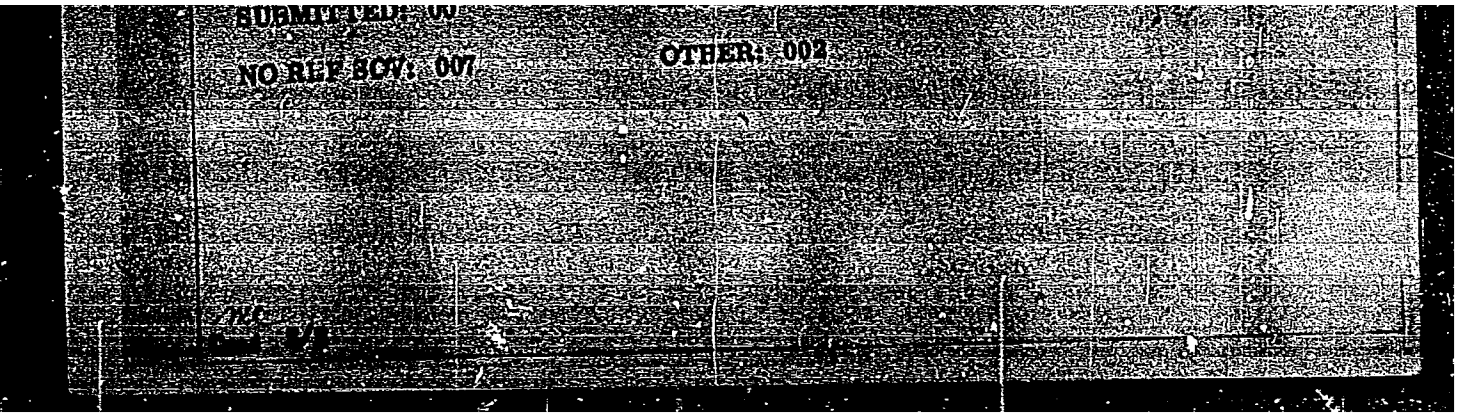


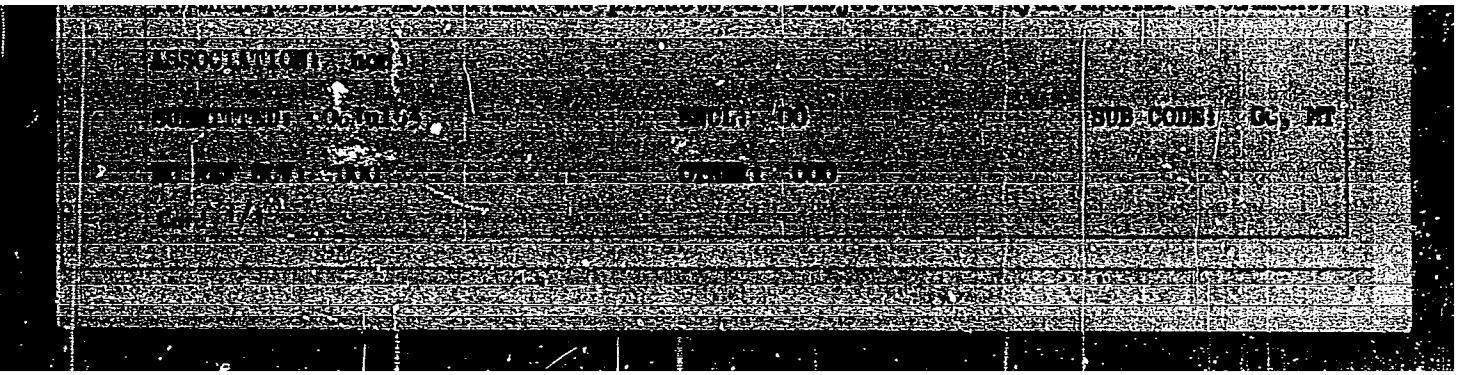
sintered oxide structure, ceramic density

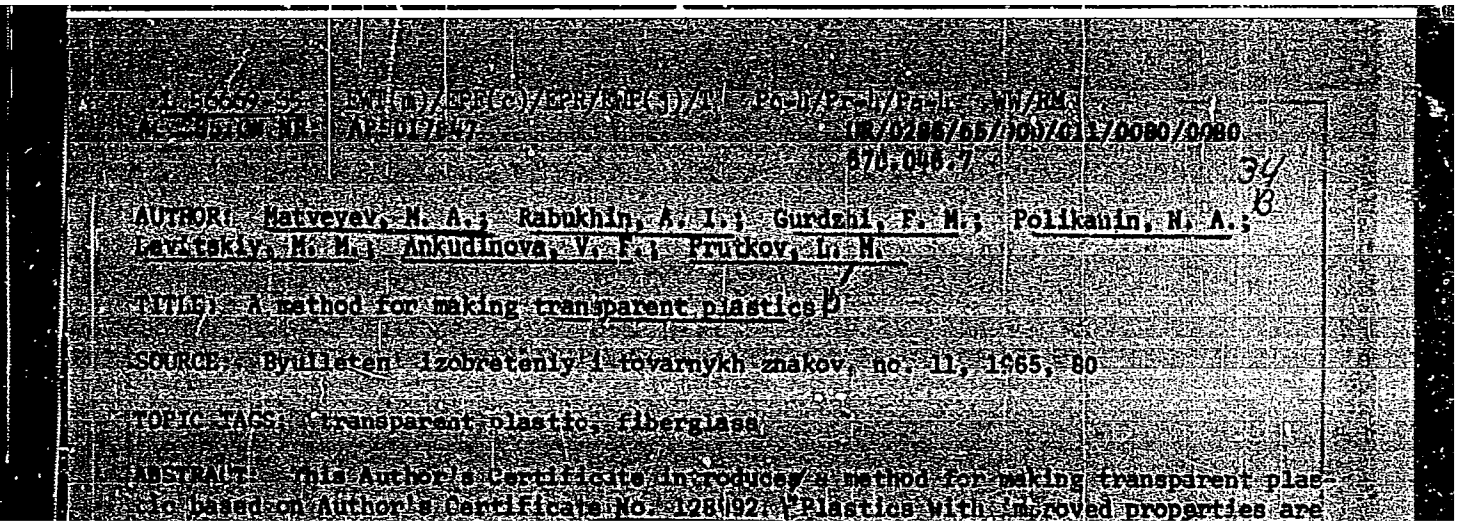
ABSTRACT: The effect of various additions of barium oxide (up to 0.3 mole %), the temperature of calcination of the mixture and temperature of firing of the ceramic, and also the kinetics and mechanism of the sintering of magnesium oxide, were investigated. X-ray analysis, amplitude-graphic microscopy, and electron microscopy were employed. HfO_2 was found to accelerate the sintering appreciably at 0.1-0.3 mole % HfO_2. A ceramic with a density of 98-100% of the theoretical can be obtained at 1300-1400C. The optimum HfO_2 content is close to 0.2 mole%. Solubility of MgO with the temperature, approaching 3.40 g/cm^3 the apparent density rapidly increases with the temperature. Approaching 3.40 g/cm^3 at 1100C. Accumulative recrystallization at such relatively low temperatures is slow. At 1300C and above, the density of the ceramic comes close to the maximum value in a

the mechanism of mass transfer during sintering consists in the volume









ACC NR: AP6017647 SOURCE CODE: UR/0286/66/000/011/0080/0080

AUTHOR: Matveyev, M. A.; Rabukhin, A. I.; Gurdzhi, F. M.; Polikanin, N. A.; Lavrskiy, M. M.; Ankudinova, V. F.; Prutkov, I. M.

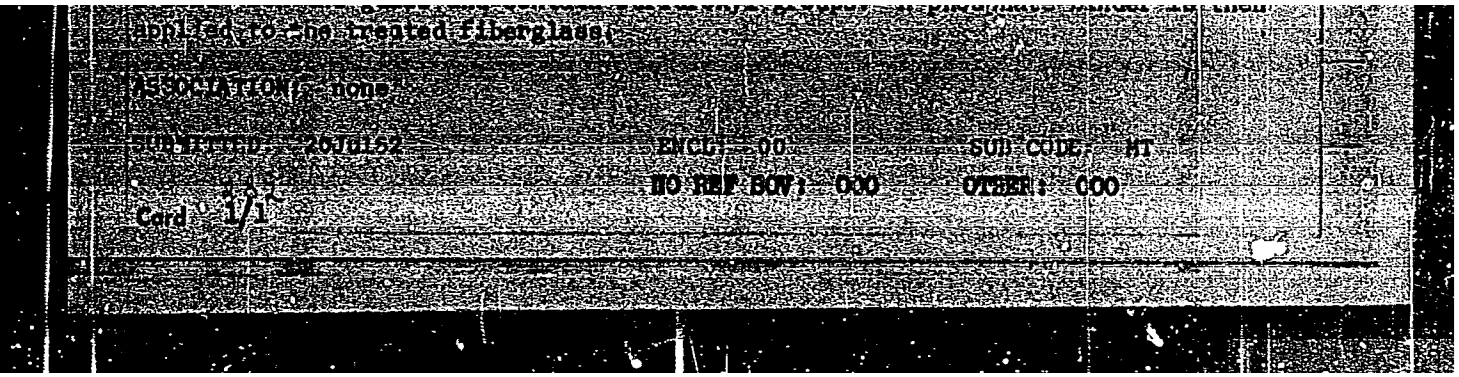
ORG: none

TITLE: A method for making transparent plastics

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1966, 80

TOPIC TAGS: transparent plastic, fiberglass

ABSTRACT: This Author's Certificate introduces a method for making transparent plastics based on Author's Certificate No. 128192. Plastics with improved properties are



L 38931-66 EWT(m)/EWP(j)/EWP(e)/T RM/WH/WW

ACC NR: AP6012255 (A) SOURCE CODE: UR/0072/65/000/012/0012/0013

AUTHOR: Matveyev, M. A. (Doctor of technical sciences); Mel'nik, M. T. (Candidate of technical sciences); Glasova, M. P. (Engineer)

ORG: Institute of General and Inorganic Chemistry, AN BSSR (Institut obshchey i neorganicheskoy khimii AN BSSR)

TITLE: Synthesis and investigation of the electrical and other properties of glasses of the V_2O_5-CdO-P_2O_5 system

SOURCE: Steklo i keramika, no. 12, 1965, 12-13

TOPIC TAGS: glass property, electric resistance, thermal emf, semiconductivity, vanadium compound

ABSTRACT: The authors synthesized 36 glass compositions in the V_2O_5-CdO-P_2O_5 system and estnblished the region of vitrification. The glasses were founded in a Silit furnace at 900—1200C. They had a dark color and most were distinguished by a tendency toward crystallization. The working properties of the glasses were improved by increasing the content of P_2O_5. The chemical resistance of the glasses with respect to boiling water, the temperature at the start of softening, the electrical resistance, and thermal emf was studied and the

Card 1/2 UDC: 666.264.1.3

ACC NR: AP6012255

reactivation energy of the current carriers was calculated. The glasses containing 60 mol.% and more V_2O_5 had the lowest chemical resistance. They completely dissolved in water upon boiling. The softening point of these glasses changed depending upon the composition in the 300—600C range and increased with an increase of V_2O_5 concentration. The investigated glasses had a definite thermal emf varying from 100 to 350μ $V \cdot deg^{-1}$. The electrical conductivity of the glasses of this system increased with an increase of V_2O_5 in the glass or with an increase of the ratio V_2O_5: P_2O_5. The results of these experiments can be useful in the theoretical elaboration of the problems of vitrification and the mechanism of conductivity of amorphous semiconductors, and the glasses with semiconductor properties are of definite interest in studying the role of the "short-range order" in the electrical properties of vitreous substances. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: None /ORIG REF: 006/ OTH REF: 003

Card 2/2

L 62961-65

ACCESSION NR: AP5012657 UR/0369/65/001/002/0225/0230

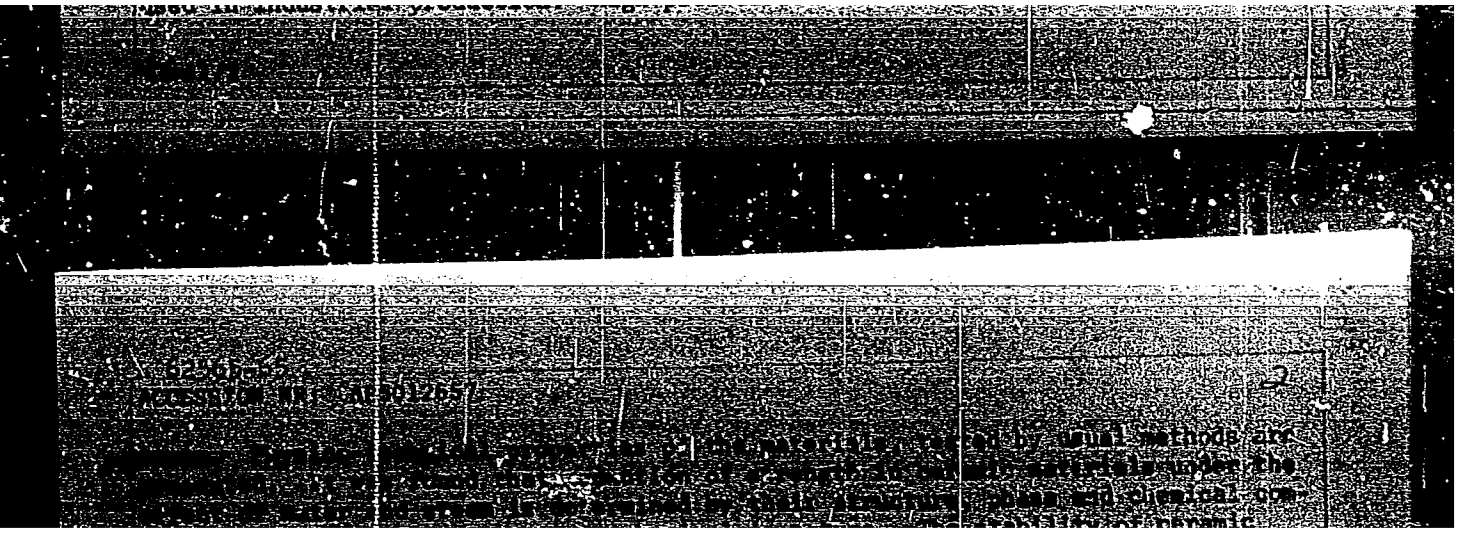
AUTHOR: Budnikov, P. P.; Matveyev, M. A.; Kharitonov, T. Ya.

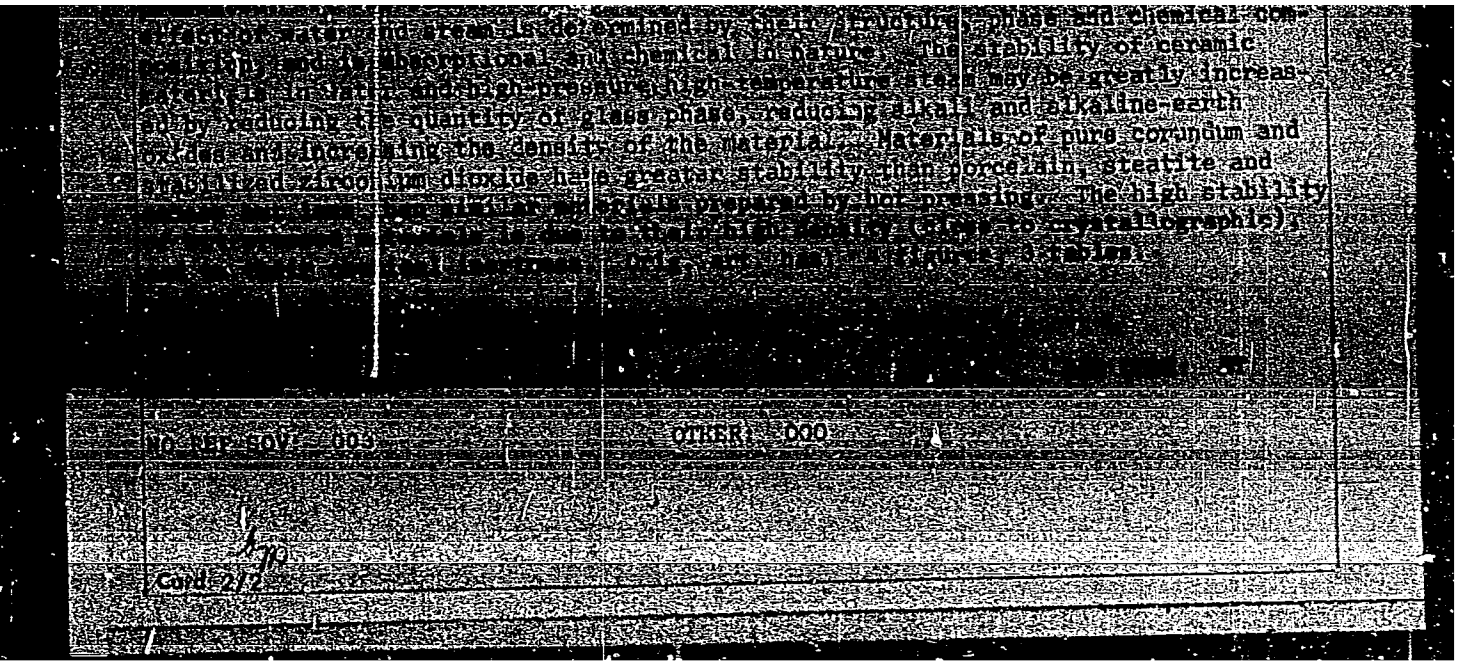
TITLE: Effect of water and high-pressure high-temperature steam on ceramic structural materials

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 1, no. 2, 1965, 225-230

TOPIC TAGS: ceramic material, ceramic thermal stability, material strength

ABSTRACT: Corrosion of ceramic materials in water and steam was studied. A wide





peratures and pressures

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 4, 1965, 623-630

TOPIC TAGS: corrosion, porcelain, water vapor, ceramic material, steatite

ABSTRACT: A study was made of the relationships governing the interaction of ceramic materials--porcelain and steatite--with saturated water vapor under isothermal and isobaric conditions in the 40-100 gauge atmosphere pressure range and 150-310°C temperature range. Corrosion of the ceramic materials increases with the parameters (temperature and pressure) of the water vapor, which becomes slightly acidic. The corrosion is due to adsorption of water by the surface, and hydration [illegible] and alkaline earth silicates. Products of the corro-

ceramic materials is due to substitution [illegible]

Card 1/2

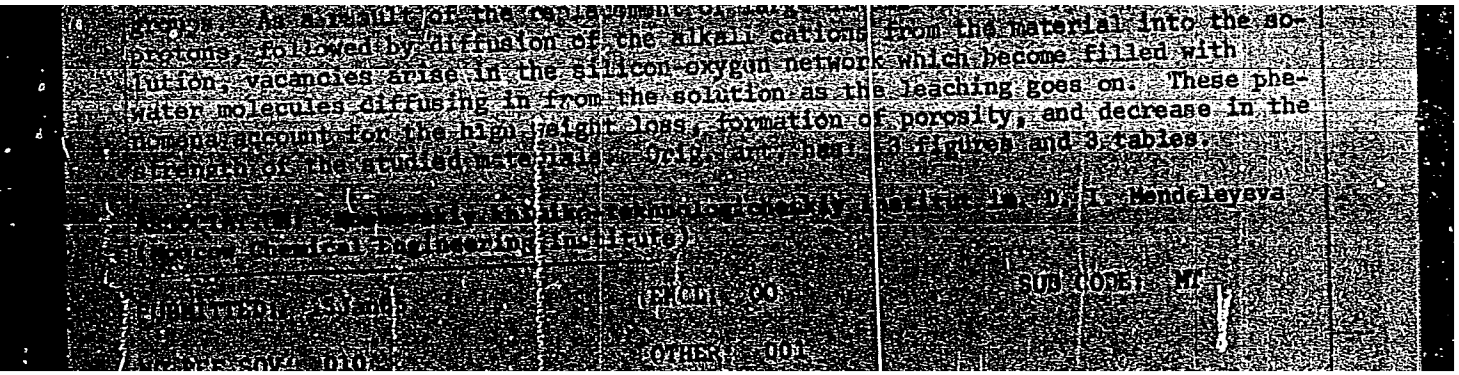
[illegible]

ACCESSION NR: AP5014089

—Si—OH

[illegible] groups of the silicon-oxygen network and the formation of [illegible]

[illegible] cations by the much smaller [illegible] group. As a result of the [illegible] of large alkali cations from the material into the so- [illegible] followed by diffusion of the alkali cations [illegible] filled with



protons, followed by diffusion of the alkali cations from the material into the solution; vacancies arise in the silicon-oxygen network which become filled with water molecules diffusing in from the solution as the leaching goes on. These phenomena account for the high weight loss, formation of porosity, and decrease in the [illegible] 3 figures and 3 tables.

[illegible] D. I. Mendeleyeva

SUB CODE: MT

BUDNIKOV, P.P.; MATVEYEV, M.A.; KHARITONOV, F.Ya.

Interaction of water and high-temperature steam with ceramic materials containing corundum and mullite. Izv. AN SSSR. Neorg. mat. 1 no.6:931-935 Je '65. (MIRA 18:8)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

L 12092-66 EWP(e)/EWI(m)/ETC(F)/EWG(m)/EWP(t)/ETI/EWP(b) LJP(c) JD/JG/AT/WH
ACC NR: AP6001301 SOURCE CODE: UR/0363/65/001/008/1349/1353

AUTHOR: Budnikov, P. P.; Matveyev, M. A.; Yanovskiy, V. K.; Kharitonov, F. Ya.

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Sintering and accumulative recrystallization of spectroscopically pure magnesium oxide containing hafnium dioxide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 8, 1965, 1349-1353

TOPIC TAGS: magnesium oxide, crystallization, hafnium oxide, sintering

ABSTRACT: Accumulative recrystallization was studied in its purest form, i.e., during sintering of high-purity oxide, when no liquid phase or inclusions of other phases are present, and the quantity of impurities and defects due to deviations from stoichiometry caused by interaction with the ambient gaseous medium does not exceed the concentration of inherent thermal defects of the oxide lattice. These conditions are fulfilled in the case of spectroscopically pure MgO and its mixtures with small and precisely known quantities of

Card 1/2 UDC 546:46.666.3

L 12059-66

ACC NR: AP6001301

certain cations, for example, hafnium (0.25% HfO_2 was added). It is shown that the addition of hafnium considerably affects the course of both the sintering and the accumulative recrystallization. The latter and the compaction of the ceramic were found to be closely related. In order to obtain a very fine-grained but dense ceramic, the conditions of preparation and sintering of the samples should be such as to promote a decrease in the surface energy and in the gram-atomic volume of the single crystal of the original material. Orig. art. has: 5 figures and 11 formulas.

SUB CODE: 11, 20 / SUBM DATE: 07Apr65 / ORIG REF: 006 / OTH REF: 004

Card 2/2

MATVEYEV, M.A.

Eightieth birthday of Petr Petrovich Budnikov, 1885-.
Izv.AN SSSR.Neorg.mat. 1 no.10:1626-1628 O '65.
(MIRA 18:12)

MATVEYEV, M.A.; KAMINSKAYA, V.S.

se of celestine in strontium glass-melting. Zhur.VKHO 10 no.4:459 '65. (MIRA 18:11)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva.

MATVEYEV, M.A., prof.; MAZO, E.E.; KAMINSKAYA, V.S.

Strontium glass, its properties and use. Zhur.VKHO 10 no.5:558-565 '65. (MIRA 18:11)

L 25930-66 EWT(m)/EWP(b)/EWP(e)/EWP(t) IJP(c) WW/JD
ACC NR: AP5004512 SOURCE CODE: UR/0063/65/010/005/0590/0592

AUTHOR: Matveyev, G. M.; Matveyev, M. A.

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyeva (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Thermodynamics of reactions of silicate formation from oxides of divalent metals and silica

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 10, no. 5, 1965, 590-591

TOPIC TAGS: silicate, silica, metal oxide, free energy

ABSTRACT: On the basis of the authors' earlier work, a thermodynamic analysis was performed in the following systems: $BeO-SiO_2$; $MgO-SiO_2$, $CaO-SiO_2$; $SrO-SiO_2$, and $BaO-SiO_2$. The most stable compounds in each system are enumerated. Comparison of the reactions of silicate formation shows that the number and region of existence of the various silicates increase from the top to the bottom of the periodic table. Comparison of the free energies of formation of meta- and orthosilicates shows that

Card 1/2

UDC: 546.284 + 546.46 + 546.28

their stability increases from the top to the bottom of the periodic table. Thus, oxides located at the bottom of the table will displace the corresponding oxides from silicates located higher in the table. Such behavior must be taken into account when analyzing reactions used for the preparation of refractory materials, and also in the analysis of reactions of glass formation and in the determination of stable phases in the synthesis of glassceramics. Orig. art. has: 2 figures.

SUB CODE: 07/ SUBM DATE: 05Feb65/ ORIG REF: 004/ OTH REF: 000

BUDNIKOV, P.P.; MATVEYEV, M.A.; YANOVSKIY, V.K.

Calcining high purity magnesium oxide with hafnium dioxide additives. Ogneupory 30 no.4:32-37 '65.

(MIRA 18:6)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva.

BUDNIKOV, Petr Petrovich, zasl. deyatel' nauki i tekhniki RSFSR i Ukrainskoy SSR, prof., doktor tekhn. nauk; MATVEYEV, M.A. prof. otv. red.; BULAVIN, I.A., prof., red.; BUTT, Yu.M., prof., red.; KESHISHYAN, T.N., prof., red.; KUKOLEV, G.V., prof., red.; ROYAK, S.M., prof., red.

[Chemistry and technology of building materials and ceramics] Khimiia i tekhnologiia stroitel'nykh materialov i keramiki. Moskva, Stroiizdat, 1965. 607 p. (MIRA 18:12)

MATVEYEV, M.A., doktor tekhn.nauk; IVAKHIN, S.I., kand.tekhn.nauk; KONSTANTINOV, E.G., inzh.; GAYDASH, B.I., inzh.

Use of pegmatites of the Aleksandrovsk and Krasnovsk deposits in the production of high voltage insulators. Stek. i ker. 22 no.1:30-33 Ja '65. (MIRA 18:7)

1. Moskovskiy ordena Lenina khimikotekhnologicheskiy institut im. D.I.Mendeleyeva (for Matveyev). 2. TSentral'naya nauchno-issledovatel'skaya laboratoriya tresta Armset' (for Gaydash).

MATVEYEV, M.A., doktor tekhn. nauk; MEL'NIK, M.T., kand. tekhn. nauk; GLASOVA, M.P., inzh.

Synthesis and the study of the electric and other properties of glass of the system V_2O_5 - CdO - P_2O_5. Stek. i ker. 22 no.12: 12-13 D '65. (MIRA 18:12)

1. Institut obshchey i neorganicheskoy khimii AN BSSR.

L 17619-66 EWP(e)/EWT(m)/EWP(t)/ETC(m)-6 WW/RM/WH

ACC NR: AP6007679 SOURCE CODE: UR/0413/66/000/003/0049/0049

INVENTOR: Mazo, E. E.; Matveyev, M. A.; Ushakova, L. K.; Iodo, S. S.; Orlova, V. M.; Volkodatov, A. F.; Levinberg, I. M.

ORG: none

TITLE: Glass for glass fiber. Class 32, No. 178458

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 49

TOPIC TAGS: glass fiber, electric insulator

ABSTRACT: An Author Certificate has been issued for a glass for making glass fiber with improved electrical insulation properties and reduced cost. The glass has the following composition: SiO_2, 54—57%; Al_2O_3, 8—9%; CaO, 13—17%; SrO, 13—17%; MgO, not over 3.5%; and, in addition, BeO, 1.5—5%, and Fe_2O_3, not over 1.5%. [BO]

SUB CODE: 11/ SUBM DATE: 07Dec64/ ATD PRESS: 4240

Card 1/1 UDC: 666.189.212

L 22285-66 EWT(m)/EWP(e)/EWP(t) IJP(c) WH/JD

ACC NR. AP6007264 (A) UR/0363/66/002/002/0395/0402

AUTHOR: Matveyev, M.A.; Matveyev, G.M. Kharitonov, F.Ya. 79 B

ORG: Moscow Chemico-Technological Institute im. D.I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Strength of ceramics made of pure oxides

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v.2, no.2, 1966, 395-402

TOPIC TAGS: ceramic material, inorganic oxide, high temperature strength, crystal structure, crystal lattice, single crystal

ABSTRACT: The article discusses practical applications of the relationship between the thermal and mechanical characteristics of ceramic materials. An extensive table lists the structural, mechanical, and thermophysical properties of a large number of ceramics made of pure highly refractory oxides. The comparatively low strength of industrial ceramic materials is due to the non-uniformity of their structure--the presence of non-uniformly distributed imperfect crystalline structures (dislocations, voids, foreign atoms) and of the grain boundaries, and to industrial defects (pores, chemical non-homogeneity, etc.). This leads to a drop in the energy capacity of ceramics as a result of the non-homogeneous character of the absorption of energy by different volumetric materials. From a comparison of the strength of monocrystalline oxides and monocrystalline aggregates of these oxides, we can see that the greater

Card 1/2 UDC: 666.3

L 22285-66

ACC NR: AP6007264 0

the strength of the bonds of the crystalline lattice, the greater the divergence between the strength of a single crystal and that of the oxide in the polycrystalline state. This permits the conclusion that the relative effect of the structural factor on strength decreases with a decrease in the specific energy capacity of the material. The optimum structural state of a given material is a structure which will assure the greatest uniformity in the absorption of energy by the crystalline lattice in the process of deformation of the ceramic material. Orig. art. has: 10 formulas and 1 table.

SUB CODE: 11, 20/ SUBM DATE: 04May65/ ORIG REF: 015/ OTH REF: 007

Card 2/2

MATVEYEV, M.A., prof., doktor tekhn.nauk (Moskva)

Important contribution to the study of silicates; on the 80th birthday of Petr Petrovich Budnikov, corresponding member of the Academy of Sciences of the U.S.S.R. Priroda 55 no.1:105-106 Ja '66. (MIA 19:1)

USSR/Chemical Technology -- Chemical Products and Their Application. Pesticides, I-7

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1498

Author: Mauyer, F. M., Matveyev, M. A., Abramova, L. A., and Zav'yalov, A. P.

Institution: Academy of Sciences Uzbek SSR

Title: New Chemicals for the Defoliation of the Cotton Plant

Original Periodical: Izv. AN UzSSR, 1956, No 1, 15-22 (summary in Uzbek)

Abstract: The utilization of magnesium chlorate (I), sodium ethyl xanthate (II), endothal (III), and an emulsion of pentachlorophenol (IV) in the defoliation of cotton plants is described. A suspension of a mixture of 1% calcium cyanamide (V) and 0.6% sodium fluorosilicate (VI) in water was used as a standard. When the treatment was carried out in a 0.4 solution of I, defoliation after 10 days attained 95-100%; the standard (S) gave 50-81%. When large-scale tests were carried out with the utilization of crop dusting techniques and an application dose of 200 l/ha, 73-76% defoliation was observed.

Card 1/2

USSR/Chemical Technology -- Chemical Products and Their Application. Pesticides, I-7

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1498

Abstract: Defoliation was observed whe 3-4% solutions of I and II as well as a 0.8% of III were used. An emulsion of I gave low yields. Treatment with S (a 15% solution of V to which 5% VI was added) gave defoliation of 59-71%. When the tests were carried out during periods of severe chilling, I alone gave satisfactory results. I also gives satisfactory results when the application dose is reduced to 100 l/ha. III sometimes produces severe burns on the leaves, bolls, and petals.

Card 2/2

MATVEEV, M.A.

USSR/Chemical Technology - Chemical Products and Their Applications -- Pesticides. I-7

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8840

Author : Zhuravskaya, S.A., and Matveev, M.A.
Inst : Academy of Sciences of the Uzbek SSR.
Title : Air-Borne Chemical Methods for the Control of Suctorial Parasites of the Cotton Plant by Means of Internal-Action Chemicals.

Orig Pub : Izv. AN UzSSR, 1956, No 1, 23-33 (summary in Uzbek)

Abstract : The air-dusting of cotton crops with mercaptofos (0.5 kg/hectare in 100 liters) and oktametil (1.5 kg/hectare) is highly effective against the cottonweb mite (Tetranychus urticae Koch), the melon patch or cotton plant aphid (Aphis gossypii Koch), the acacia tree

Card 1/2

COUNTRY :USSR
CATEGORY :Cultivated Plants. Commercial Oleiferous. Sugar-Bearing.
ABS. JOUR. : RZhBiol., No. 4, 1959, No. 15737

AUTHOR :Matveyev, M.A.
INST. :
TITLE :The Work Of Aircraft in Pre-harvest Removal of Cotton Plant Leaves.

ORIG. PUB. :V sb.: Materialy Ob"yedin. nauchn. sessii po khlopkovodstvu. T. 2. Tashkent, Gosizdat UzSSR, *1958, 521-527

ABSTRACT : The shortcomings and advantages of the aviation method of pre-harvest cotton plant leaf removal are set forth. The results are cited of work done by the civil air fleet's state research institute in elimination of these defects. It is recommended that solution of magnesium chlorate in place of N_c be used for aerial spraying of cotton plantations.
-- B.L. Klyachko-Gurvich

CARD: 1/1

MATVEYEV, M.A., inzh.

Use of airplanes in cotton defoliation. Zashch. rast. ot vred. i bol. 6 no.9:34-35 S '61. (MIRA 16:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut Grazhdanskogo vozdushnogo flota.
(Aeronautics in agriculture) (Defoliation) (Cotton--Harvesting)

MATVEYEV, M., inzh.

Three million rubles should be saved every year. Grazhd.av. 18 no.8:10 Ag '61. (MIRA 14:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut Grazhdanskogo vozdushnogo flota.

(Aeronautics in agriculture)

L 46734-66 EWP(t)/ETI IJP(c) WW/RM

ACC NR: AR6000272 SOURCE CODE: UR/0081/65/000/014/M016/M015

AUTHORS: Matveyev, M. A.; Yakimovich, D. T.

TITLE: Mechanical properties of glass fiber made of datolite

SOURCE: Ref. zh. Khimiya, Abs. 14M170

REF SOURCE: Sb. Stekloobrazn. sostoyaniye. T. 3. Vyp. 4, Minsk, 1964, 176-181

TOPIC TAGS: glass fiber, elastic modulus, elastic deformation, solid mechanical property

ABSTRACT: The elasticity modulus of fiber glass is determined by the degree of uniformity of the glass mass at the moment of fiber formation. Deformation of the nonuniform glass mass results in lowering of the elasticity modulus of the fiber glass. The breaking elongation of the glass fiber is a function of the dimensions of the defects created on the surface (crystallites), whose magnitude depends upon the formation temperature (cooling rate). Increased stretchability of the glass fiber has a positive effect upon its breaking elongation. The mechanical properties of the glass fiber can be adjusted within very broad limits by varying the formation conditions. Authors' resumé [Translation of abstract]

SUB CODE: 11

Card 1/1

L 04694-67 EWP(e)/EWT(m) JXT(CZ)/WH

ACC NR: AP6019735 SOURCE CODE: UR/0063/66/011/003/0332/0334

AUTHOR: Matveyev, M. A. (Professor); Frenkel', B. N.

ORG: none

TITLE: All-union conference on boron-free, alkali-free and low-alkali content vitreous systems as raw materials for the production of industrial glass

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 11, no. 3, 1966, 332-334

TOPIC TAGS: glass product, glass, chemical conference, scientific conference, research personnel, silicate, zirconium, glass property, optic glass, optic fiber, silicate glass, chemical resistant material

ABSTRACT: A conference on vitreous systems was held in Minsk from 23 to 25 November 1965 and was sponsored by the State Committee for Coordination of Scientific Research in the USSR; the All-Union Chemical Society (Central and Belorussian offices); State Committee of the Council of Ministers, BSSR, for Coordination of Scientific Research; and the Ministry of Higher and Secondary Specialized Education, USSR. The conference was attended by 172 delegates from 79 organizations; 60 papers were read at the meetings. The following is a partial listing of the contributors and topics of their papers.

Card 1/3 UDC: 006.3+535.82

L 04694-67

ACC NR: AP6019735

A report on the work of Professor I. I. Kitaygorodskiy (deceased) and G. A. Ellern described vitrification of 3-component silicate-zirconium systems, and the solubility of zirconium as a function of alkaline-earth content. Zirconium was considered the most promising component in vitreous materials.

Professor M. S. Aslanova, Z. M. Syritskaya, and S. Ya. Feyknere determined two phases: a high-melting silica phase, and a low-melting high-titania phase, in the TiO_2-SiO_2-P_2O_5 system. They prepared high-titania glass resistant to mineral acids, and compositions which can be used in fiber optics.

Z. M. Syritskaya and coworkers obtained HF-resistant glass with 0.5—2.0 mohm electrical resistance from the La_2O_3-TiO_2-P_2O_5 system; UV-transparent, thermoluminescent glass from the MgO-Al_2O_3-P_2O_5 system; and cesium glass for welding with low-melting metals from the R_2O-$PbO(Bi_2O_3)$-P_2O_5 system.

A. K. Yakhkind and N. V. Ovcharenko determined a wide vitrification range in the TeO-V_2O_5-BaO system and prepared IR-translucent glass and semiconducting glass.

Research by Professor I. I. Kitaygorodskiy, L. A. Zhunina, M. I. Kuzmenkova, and Z. I. Govorushko established that Cr_2O_3 is the best crystallization promoter in the isomorphic series of the CaO-MgO-SiO_2 + (R_2O_3, R_2O) system.

Card 2/3

N. M. Bobkova and Ye. F. Smirnova discussed the effect of the degree of crystallization on the electrical properties of SiO_2-Al_2O_3-PbO-CaO-TiO_2 glass.

G. M. Matveyev and S. I. Udovenko showed originality in their study of devitrification in the CaO-Al_2O_3-SiO_2 system by means of thermodynamic analysis.

Several papers which were written by Professor I. I. Kitaygorodskiy and others elucidated the role of additives used for the preparation of glass with predetermined properties.

The final resolutions of this conference called for continuation of research on vitreous systems which contain no boron or alkali or with a low boron or low alkali content; for improvement of research methods and apparatus; and for improved coordination of research work through two new sections of the State Committee for Science and Technology: 1) section for research on vitreous systems and synthesis of industrial glass, and 2) section for the intensification of industrial-glass melting. Special attention was called to the need for preparation of high-quality, poorly crystallizing boron-free and alkali-free silicate glasses containing such bivalent cations as Sr-Ca; Sr-Mg; Sr-Zn; Sr-Ca-Mg. The next conference on vitreous materials will be held in 1968. [ATD PRESS: 5015-F]

SUB CODE: 11, 07 / SUBM DATE: none

L 06490-67 EWT(m)/EWP(e) WH
ACC NR: AP6028303 SOURCE CODE: UR/0363/66/002/006/1119/1123

AUTHOR: Matveyev, M. A.; Khodskiy, L. G.; Fisyuk, G. K.; Bolutenko, A. I.; Strugach, L. S.

ORG: Institute of General and Inorganic Chemistry, BSSR (Institut obshchey i neorganicheskoy khimii BSSR)

TITLE: Some properties of glasses based on the systems $BaO-TiO_2-B_2O_3$, $BaO-TiO_2-P_2O_5$, $BaO-TiO_2-SiO_2$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 6, 1966, 1119-1123

TOPIC TAGS: borate glass, phosphate glass, silicate glass, titanium dioxide

ABSTRACT: Glasses of the systems $BaO-TiO_2-B_2O_3$, $BaO-TiO_2-P_2O_5$ and $BaO-TiO_2-SiO_2$ were synthesized from barium carbonate, ammonium monohydrogen phosphate, boric acid, titanium dioxide and quartz sand by melting at 1300-1400°C, and the properties of the glasses were measured on annealed cylindrical specimens. The dependence of the volume electrical resistivity, temperature of the start of softening, chemical stability (to boiling in distilled water), density, and microhardness on the composition was measured, and the crystallizability was determined from tests in a gradient furnace and from thermographic studies. Titanium was shown to decrease the electrical resistivity of the glasses, particularly when it is present in a lower oxidation state. As a rule,

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L 06490-67
ACC NR: AP6028303

not more than one compound is formed during the crystallization of the glasses studied; in silicate glasses, barium silicotitanate $BaO \cdot TiO_2 \cdot SiO_2$ crystallizes out. Low-melting glasses with a high electrical resistivity (10^{4}-10^{n} ohm·cm) were synthesized, and were found to have a satisfactory chemical stability. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 28Jun65/ ORIG REF: 013/ OTH REF: 003

Card 2/2

L 06282-67 EWT(m)/EWP(e) WW/GD

ACC NR: AT6027137 SOURCE CODE: UR/0000/65/000/000/0063/0067

AUTHOR: Matveyev, M. A.; Mazo, E. E.; Volkodatov, A. F.; Volchek, L. K.

ORG: none

TITLE: Effect of ionic radii Me^{2+} on the properties of glasses

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Issledovaniya v oblasti khimii silikatov i okislov (Studies in the field of chemistry of silicates and oxides). Moscow, Izd-vo Nauka, 1965, 63-67

TOPIC TAGS: beryllium compound, silicate glass, glass property

ABSTRACT: The systems $RO-Al_2O_3-SiO_2$, where RO = SrO, MgO or BeO, were studied in the following concentration range of the components (mole %): SiO_2, 45-60; Al_2O_3, 0-30; RO, 20-55. The temperature of the upper crystallization limit, chemical stability, and elastic modulus were determined in glasses of the $SrO-Al_2O_3-SiO_2$, $MgO-Al_2O_3-SiO_2$, and $MgO-BeO-Al_2O_3-SiO_2$ systems. Comparison of the results shows that these properties change in regular fashion with the cationic radius of the divalent oxide. As the latter decreases, the temperature at which the glasses are melted and their crystallizability, chemical stability and elastic modulii increase. The Be^{2+} ion has the strongest force field and the smallest difference of force fields with silicon (0.7) as compared to Mg^{2+} (1.12) and Sr^{2+} (1.30). This explains the marked crystallizability of beryllium glasses observed in this study, and also the higher T_g of magnesium glasses

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ACC NR: AT6027137

as compared to strontium glasses. As the ionic radii decrease and the force fields of Me^{2+} increase, the influence of Me^{2+} on the packing and rigidity of the glass structure grows, causing a rise in the fusion temperature and in the elastic modulus. The decrease in the cationic radius also increases the chemical stability, since the size of the cations washed out of the glass determines the porosity, and hence, the protective effect of the film formed on the glass during reactions with corrosive agents. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 13Feb64/ ORIG REF: 008/ OTH REF: 001

Card 2/2

L 0937.6-67 EWT(m)/EWP(e) WH
ACC NR: AP6029826 (N) SOURCE CODE: UR/0363/66/002/008/1505/1513

AUTHOR: Matveyev, M. A.; Pevzner, R. L.; Matveyev, G. M.; Kharitonov, F. Ya

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Use of ceramic materials in a water vapor medium of high parameters

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 8, 1966, 1505-1513

TOPIC TAGS: ceramics, water vapor, corrosion resistance

ABSTRACT: The reactions of ceramic materials of various phase and chemical compositions with water and water vapor of high parameters were studied in tests lasting up to 1000 hr. An extensive attack of water-glass compositions, materials made of porcelain, steatite, forsterite and wollastonite was observed. The attack causes a decrease of density (an increase in water absorption and porosity) and strength as a result of the formation of hydrated ions of the corresponding metals and silicon-oxygen anions. Less subject to attack under these conditions are materials based on corundum and mullite. The experimental data were confirmed by thermodynamic calculations of the hydration of the tested materials involving the use of known values of the thermodynamic potential of the original silicates and hydrated cations and anions. Orig. art. has: 4 tables.

SUB CODE: 11/ SUBM DATE: 12Jun65/ ORIG REF: 015

UDC: 666.3:539.4

Card 1/1

ACC NR: AP6035680 SOURCE CODE: UR/0413/66/000/020/0111/0111

INVENTOR: Matveyev, M. A.; Mazo, E. E.; Kachur, F. T.; Yakimovich, V. I.

ORG: none

TITLE: Glass for manufacturing glass fiber. Class 32, No. 187266

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 111

TOPIC TAGS: glass, glass fiber, reinforced glass fiber

ABSTRACT: This Author Certificate introduces a glass for manufacturing glass fiber containing SiO_2, Al_2O_3, CaO, MgO, Na_2O, and F. To increase the chemical stability of the glass fiber, TiO_2, K_2O, Li_2O are added to the original components as follows (wt %): 70.8—80 SiO_2+TiO_2; 5.6—13.86 $Al_2O_3+CaO+MgO$; 11.9—14.19 $NaO+K_2O+Li_2O$; about 2.5 MnO; about 2 F. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 08Apr65/

Card 1/1 UDC: 666.113.821'621'46'41'34'33'32'28'16 666.189.211

L 29901-66 EWT(m)/EWP(e) WH/WW

ACC NR: AR6000269 SOURCE CODE: UR/0081/65/000/014/M012/M012

AUTHOR: Matveyev, M. A.; Mazo, E. E.; Volchek, L. K.

TITLE: Effect of additives on the crystalization of boronless, alkaliless strontium containing glass

SOURCE: Ref. zh. Khimiya, Abs. 14M125

REF SOURCE: Sb. Stekloobrazn. sostoyaniye. T. 3. Vyp. 4. Minsk, 1964, 85-88

TOPIC TAGS: glass, fiber glass, crystallization property, strontium

ABSTRACT: The crystallization properties of the SrO - CaO - Al_2O_3 - SiO_2 system glass improves with the addition of MgO, BaO and MgO, BaO combined. At the same time the temperature of the crystallization upper limit lowers and the speed of crystallization growth decreases. The addition of B_2O_3 in a small amount (up to 4 mol%) improves the melting properties but impairs its crystallizing properties. P_2O_5 impairs both the melting as well the crystallizing properties of stronium glass. A No. 14 composition was developed which has optimal crystallization properties in accordance with requirements for glasses used in making glass fiber. I.M.

SUB CODE: 11,07 SUBM DATE: 25Jul65

Card 1/1 ce

L 27395-66 EWP(e)/EWT(m)/EWP(t)/ETI IJP(c) JD/MH

ACC NR: AP6017669 SOURCE CODE: UR/0063/65/010/005/0558/0565

AUTHOR: Matveyev, M. A. (Professor); Maso, E. E.; Kaminskaya, V. S.

ORG: none

TITLE: Strontium glasses and their properties and applications

SOURCE: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 10, no. 5, 1965, 558-565

TOPIC TAGS: glass, strontium compound, strontium mineral, refractive index

ABSTRACT: Strontium oxide thus far has not found use in the glass industry of the USSR, which is due, on the one hand, to the limited exploration and assimilation of raw material deposits, and on the other, to the inadequate study of properties of strontium glasses. Relatively recently, inexhaustible reserves of strontium minerals have been prospected in the USSR, concentrated chiefly in Central Asia, which can be regarded as a geological province of strontium. This fact naturally has heightened interest of researchers in formulating new kinds of glasses based on strontium. Several studies have dealt with the effect of small additions of strontium oxide on the properties of lime-sodium glasses. The replacement of sodium oxide with 1-4% SrO in glasses of the following composition: SiO_2 -- 73.5%; CaO -- 10.5%; Na_2O -- 16%; has increased the

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ACC NR: AP6017569

temperature of the upper limit of crystallization, and improved viscosity and chemical resistance of the glass.

Among the most important and most typical properties of strontium glasses are the high indices of refraction and specific bulk resistance. Both alkali and nonalkali glasses are marked by good founding and working properties and by high water stability. Nonalkali glasses are characterized by higher resistance to alkali solutions, and good acid resistance is afforded when the composition contains not less than 60 mol.% silica. These valuable properties govern the areas of application of strontium-containing glasses and the possibility of replacing such short-supply materials as compounds of boron and lead. At present, strontium glasses have already found use in the production of optical, medical and chemico-laboratory glass. Orig. art. has: 5 figures and 7 tables. [JPRS]

SUB CODE: 11 / SUBM DATE: none / ORIG REF: 020 / OTH REF: 003

L 5016-66 EWT(m)/EWP(e)

ACC NR: AP6008264 SOURCE CODE: UR/0080/66/039/002/0289/0293

AUTHOR: Matveyev, M. A.; Zuyeva, V. F.

ORG: none

TITLE: Serpentinite alkaline filters

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 2, 1966, 289-293

TOPIC TAGS: ceramic material, sintered filter, chemical agent filter

ABSTRACT: The properties of roasted alkaline serpentine rock are investigated with a view to its use in ceramic filters. The determined properties are used in designing a technique for manufacturing ceramic filters from serpentine rock. Upon roasting, serpentine rock becomes highly porous. A clay filler consisting of either bentonite, argillite or an argillo-bentonite combination is added to the serpentine. Graphs are presented of the % porosity and the density of the resulting mixture as a function of the roast temperature with the various clay fillers as parameters. The optimum roasting temperature is set at 1250°C. Desired properties after roasting include: alkalinity, up to 99%; porosity, up to 36-45%; mechanical stability upon deflection, 160--180 kg/cm^2, and upon compression, 250-650 kg/cm^2. Experimentation reveals that heating at 1200-1250° increases the mechanical stability upon deflection by 6-8 times and also increases the air and water permeability threefold. Results of x-ray analysis of

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the roasted products, with optimum temperatures producing two crystalline phases of forsterite ($2MgO \cdot SiO_2$) and enstatite, with quartz as an insignificant impurity are presented. The effectiveness of the product as a filter for acid and base solutions is plotted. The mixture of serpentine rock prior to roasting has a plastic number of 1-3 but is easily molded into tubes of 300 mm with an outer diameter of 120 mm. This elasticity, however, is lost upon roasting. A rough step-by-step method for the development of serpentine rock as filter material is given. Orig. art. has: 7 figures, 1 table.

SUB CODE: 07,11 / SUBM DATE: none

Card 2/2

KAMYNIN, Yuliy Nikolayevich; MATVEYEV, M.G., kand. tekhn. nauk, retsenzent; SEMENENKO, M.D., red.; STARODUB, T.A., tekhn. red.

[Contactless control diagrams in mine automation] Beskontaktnye skhemy upravleniia v shakhtnoi avtomatike. Kiev, Gostekhizdat USSR, 1963. 214 p. (MIRA 17:1)

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Matveyev, M. I.: "Watering conditions of certain grafts on the Bukhara almond", Soobshch. Tadzh. filiala Akad. nauk SSSR, Issue 10, 1948, p. 18-20.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 10, 1949).

MATVEYEV, M. I.

Matveyev, M. I.: "On the physiological effect of growing matter on th mulberry tree", Soobshch. Tadzh. filiala Akad. nauk SSSR, Issue 10, 1948, p. 21-23, - Bibliog: 13 items.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 10, 1949).