MINAKOV, A. G.

GORODINSKIY, G.M.; MINAKOV, A.G.; TSOY, R.I.

Plant control of the surface finish of polished glass.
Stek. i ker. 13 no.12:9-11 D '56.   (MLRA 10:2)

(Plate glass--Quality control)
(Reflectometer)

MINAKOV, A.G.; DUBROVSKAYA, T.S.

Some chemical processes used in the polishing of glass. Stek.
i ker. 13 no.9:23-25 S '56.   (MIRA 9:10)

(Plate glass) (Glass manufacture--Chemistry)

Minako; A G

Refractories for service in the melting of industrial glasses in continuous tank furnaces V. I. Khmelevskiĭ and A. G. Minakov. *Ogneupory* 22, 275-82(1957).—Industrial glasses of the approx. compn. of SiO_2 75, Al_2O_3 0.5, CaO and MgO 8.7, and Na_2O 0.6% produced in continuous flow differ from ordinary window glass in possessing higher transparency, attained by the addn. of 0.05% of As_2O_3 or Sb_2O_3 and a higher fusion point. However, because of the high furnace temps required, erosion of high-Al_2O_3 refractory tank linings raises the Al_2O_3 content of the glass melt with consequent deterioration of its optical qualitites, e.g. for-

PINAKOV, A.G.

KOZ'MIN, M.I.; MINAKOV, A.G.; KOVAL'CHUK, G.M.

Service of the new refractory "TSiralit" in tank furnaces. Stek. 1
ker. 15 no.4:11-16 Ap '58.   (MIRA 11:5)

1. Konstantinovskiy zavod "Avtosteklo."
                        (Refractory materials)

15(2)
AUTHORS: Minakov, A. G., Korchagina, Z. F.,   SOV/72-59-8-8/17
              Pogarskiy, N. I.

TITLE: "Steklofon" (Steklofon)

PERIODICAL: Steklo i keramika, 1959, Nr 8, pp 21-22 (USSR)

ABSTRACT: At the destruction of splinter-proof automobile windshields
              and windows the glass breaks into minute splinters and loses
              its transparency. It was therefore necessary to produce wind-
              shields which retain their transparency at least in a certain
              small sector. In 1957 the first samples of such windshields
              were produced in the USSR at the plant imeni Dzerzhinskiy
              (see footnote 1). The authors of the present paper succeeded i
              obtaining such panes, called steklofon, with different degrees
              of hardness (Fig 1). The center part of the panes is shielded
              off, as is shown in figure 2, by the application of protective
              coatings of kaolin and aluminum dye. They are then heated in
              an electric stove to a temperature of 640° and then cooled on
              a grid by an air jet. After annealing the protective coating
              removed. It was found by testing steklofon according to the
              GOST 5727-57 method that such panes are not damaged by an 800
              steel ball dropped on them from the height of 2.5 m. Steklofc

Card 1/2

"Steklofon"

SOV/72-59-8-8/17

also tolerates temperature drops within a range of 125°. At a
temperature drop of 135° steklofon breaks along the ring
separating the two parts of different degrees of hardness, as
can be seen from figure 3. There are 3 figures and 1 Soviet
reference.

Card 2/2

AUTHORS: Bondarev, K. T., Koz'min, M. I.,   S/072/60/000/04/002/029
             Minakov, A. G., Koval'chuk, G. M.   B015/B014

TITLE: Production of Heat-resistant Sheet-glass by Means of the Method
             of Continuous Rolling

PERIODICAL: Steklo i keramika, 1960, Nr 4, pp 4-12 (USSR)

TEXT: In the article under review the authors describe the methods used to
produce heat-resistant sheet-glass by means of continuous rolling, which were
developed by them in cooperation with I. G. Gurvits, Ye. G. Gurvits, O. V.
Vyshinskaya, D. F. Milodanov, G. I. Poltoratskiy, V. A. Zheleztsov, N. A. Korsun,
and Ye. S. Gnedashevskaya. The first experiment was performed with MKR-1 glass in the
furnace shown in figure 1. An ordinary rolling machine with two rolls made of
EKh-25 steel (diameter of 320 mm, water cooling) was used for this purpose. The
glass band was annealed in a furnace of the type LN-1000x18 of the Zavod'"Steklo-
mashina" (Plant "Steklomashina"). The temperatures of the glass-melting furnace
are shown in figure 2. The quality of MKR-1 glass is listed in table 1. The
heat-resistant glass produced in this way was unsuited. Nonalkaline glass of the
sort Nr 31, which meets all requirements, was obtained by experiments. Its
composition and some of its physicochemical properties are given. A new tank
furnace was installed, whose design and temperatures are shown in figures 3-6

Card 1/2

Production of Heat-resistant Sheet-glass by Means of   S/072/60/000/04/002/029
the Method of Continuous Rolling   B015/B014

and 7, respectively. The EKh-25 rolling machine which has rolls 120 mm in
diameter (instead of 320 mm), is illustrated in figures 8 and 9. Data on the
glass band and the rolling rate are contained in table 2, and the quality of
polished glass is shown in table 3. Figures 10 and 11 illustrate the condition
of the furnace lining after a campaign of nine months. Mass production of heat-
resistant glass is only possible by means of a tank furnace designed for high
melting temperatures and an output of at least 300-350 kg/24 h per 1 m^2 of the
hearth. It is further necessary to build a rolling machine whose rolls are
made of heat-resistant steel and warrant normal operation in the temperature
range 1400-1420°. It is also necessary to establish a continuously working
annealing furnace which permits normal annealing of the glass band. There are
11 figures, 3 tables, and 1 reference.

Card 2/2

MINAKOV, A.G.

Scratches caused by the presence of stones during the polishing of glass. Stek.1 ker. 17 no.5:33-34 My '60.   (MIRA 13:8)
         (Glass)
      (Grinding and polishing)

KOZ'MIN, M.I.; MINAKOV, A.G.

Zonal glass-melting furnaces. Stek.i ker. 17 no.7:
29-31 Jl '60.   (MIRA 13:7)
              (Glass furnaces)

MINAKOV, A.G.

Centrifugal feeder for supplying iron-oxide suspensions to polishing machines. Stek. i ker.17 no. 11:18-20 N '60. (MIRA 13:12)
    (Glass manufacture)   (Grinding and polishing)

KOZ'MIN, M.I.; MINAKOV, A.G.

Alternate melting of colored and colorless glass without stopping tank furnaces. Stek. i ker. 18 no. 1:11-16 Ja '61.

(MIRA 14:1)

(Glass manufacture)   (Glass, Colored)

MINAKOV, A.G.; KRIGER, I.B.

      Durability of pot furnace refractory materials in making contrast
glass. Ogneupory 26 no.7:318-321 '61.   (MIRA 14:7)

1. Konstantinovskiy zavod "Avtosteklo".
                      (Refractory materials)
                      (Glass furnaces)

MINAKOV, A. N. Prof. and PETROV, A. S. Aspirant

"The Problem of Diminishing the Breaking Tendency in Spinning Processes," paper given at the All-University Scientific Conference "Lomonosov Lectures", Vest. Mosk. Un., No.8, 1953.

Translation U-7895, 1 Mar 56

FD-769

MINAKOV, A.P .

USSR/Physics - Dynamics of a Moving Thread

Card 1/1   : Pub 129-6/24

Author   : Minakov, A. P. (deceased)

Title   : "Certain peculiarities of forceless contour of motion of a ideally
                   flexible inextensible thread (chain) in a fixed plane.

Periodical   : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, Vol 9, No 2,
                   57-64, Mar 54

Abstract   : Sets up the textile problem of the motion of a thread between two rolle
                   Defines the basic quantities and their designations. Derives the es-
                   sential equations of motion of the thread. Expresses the principal vec
                   tor, moment and virial of a system of forces of inertia for a moving
                   thread, and finds the center (Hamilton center) of this system. Estab-
                   lishes the principal quantities. One reference A. P. Minakov, "Certair
                   centers in mechanics, "Nauchnoissledovatel' skiye trudy Moskovskogo
                   tekhtil'nogo instituta, Vol. 10, Gizlegprom [Publishing House of Light
                   Industry], 1948.

Institution   : Chair of Theoretical Mechanics

Submitted   : November 28, 1953

Minakov.D.D.

ARUTYUNYAN, N.S., inzhener; MATSUK, Yu.P., inzhener; MINAKOV, D.D., inzhener.

Investigation of crambe seeds and oil. Masl.-zhir.prom. 17 no.11:4-6
N '62.
(MIRA 10:9)

1. Krasnodarskiy institut pishchevoy promyshlennosti. 2. Vsesoyuznyy
nauchno-issledovatel'skiy institut zhirov.
(Crambe)   (Oils and fats)

MUKHIN, Ye.; MINAKOV, I.

Work of the Public Institute of Innovators. Rech. transp. 21
no.5:22-23 My '62.   (MIRA 15:5)

1. Predsedatel' Soveta Obshchestvennogo instituta novatorov (for
Mukhin). 2. Uchenyy sekretar' Soveta Obshchestvennogo instituta
novatorov (for Minakov).
            (Inland water transportation--Technological innovations)

MINAKOV, Ivan Fedorovich; ONIKIYENKO, Vladimir Vasil'yevich [Onykiienko, V.V.]; ONISHCHENKO, P.D., otv. za vypusk; MIRONOVA, Ye.V. [Myronova, IE.V.], red.; MUZICHKO, G.I. [Muzychko, H.I.], tekhred.

[Chernovtsy Province; economic and geographical outline] Cherni-vets'ka oblast'; ekonomiko-geografichnyi narys'. [Manual for geography teachers] Posibnyk dlia vchyteliv geografii. Cher-nivtsi, obl.vyd-vo, 1958. 101 p.   (MIRA 12:9)
     (Chernovtsy Province--Economic conditions)

MINAKOV, K. L.

MINAKOV, K. L.

Dairy Cattle

Changes in physiological processes
in highly productive cows. Sov.
zootekh. 7 No. 9, 1952.

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

1. MINAKOV, K. L.

2. USSR (600)

4. Calves - Diseases

7. Enzootic goiter in calves and its prevention. Sots. zhiv. 14 no. 10, 1952

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

MINAKOV, M.

Problems of rational inter-regional production relations. Vop.
ekon. no.3:121-129 Mr '61.   (MIRA 14:3)
                    (Steel industry—Costs)
                    (Industries, Location of)

MINAKOV, M.S., inzhener; CHEREP, I.L., inzhener.

Reconstruction of desiccators.   TSement no.4:26-28 Jl-Ag '53.   (MLRA 6:8)

1. TSementnyy zavod "Proletariy"   (Drying apparatus)

MINAKOV, M.S., inzhener; CHEREP, I.L., inzhener.

Changing the cross section of a rotary kiln. TSement 20 no.2:8-9
Mr-Ap '54.   (MIRA 7:5)
          (Kilns, Rotary)

MINAKOV, M.S.

GERMAN PEOPLES REPUBLIC/Chemical Technology -   I-10
              Chemical Products and Their Appli-
              cations - Silicates. Glass. Ceramics.
              Binders.

Abs Jour   : Ref Zhur - Khimiya - No 3, 1957, 9074

Author   : Minakow, M.S., and Tscherep, J.L.
Inst   :
Title   : Cross Section Variation in Rotary Kilns.

Orig Pub   : Silikattechnik, 1956, Vol 7, No 4, 158-159
              (in German)

Abstract   : Translation. See RZhKhim, 1955, 7944.

Card 1/1

MINAKOV, M.S.; RADOCHINSKIY.

Replacement of the band supporting plates of a rotary kiln in the course of its general overhaul. TSement 17 no.6:20-21 M-D '56.

(MLRA 9:8)

1. TSementnyy zavod "Proletariy".
(Kilns, Rotary)

SHCHERBAKOV, A.D., inzh.; MINAKOV, M.S., inzh. (g. Skovorodino)

Some hidden coal losses. Zhel.dor.transp. 40 no.11:86 N '58.
(MIRA 11:12)

(Coal) (Locomotives--Fuel consumption)

MINAKOV, N. A., Cand Agr Sci -- (diss) "Action of the herbicide 2,4-D on weed growth in sowings of corn." Stalingrad, 1960. 18 pp; (Ministry of Agriculture RSFSR, Stalingrad Agricultural Inst); 150 copies; price not given; (KL, 25-60, 137)

MINAKOV, N.A.

Using 2,4-D herbicide on corn fields. Zemledelie 8 no.6:88-90 Je'60.
(MIRA 13:10)

(Corn (Maize)) (2,4-D)

MINAKOV, N.A.

Leaching the herbicide 2,4-D from the soil. Pochvovedenie
no.7:105-107 Jl '63.   (MIRA 16:8)

1. Voronezhskiy sel'skokhozyaystvennyy institut.
              (2,4-D)   (Leaching)

MINAKOV, N.A., kand. sel'skokhoz. nauk (Voronezh); ZOLOTUKHIN, A.A. (Voronezh)

Chemical weed control of potato fields. Zashch. rast. ot vred. i
bol. 9 no.9:17-18 '64.   (MIRA 17:11)

MINAKOV, Nikolay Antonovich; ITUNINA, R.G., red.

[Use of herbicides on collective and state farms] Opyt
ispol'zovaniia gerbitsidov v kolkhozakh i sovkhozakh.
Voronezh, TSentral'no-chernozemnoe knizhnoe izd-vo,
1964. 64 p.   (MIRA 18:10)

MINAKOV, N. N.

Pean uts

New method of drying peanuts in the field, Sel. i sem., 19, No. 7, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952.   UNCLASSIFIED.

ALEKSEYEV, V.N.; VINOGRADOV, A.N.; kand.ekon.nauk;.VLADIMIROV,.V.A.; inzh.;
KOCHETOV, I.V., prof.; doktor ekon.nauk;_MINAKOV, P.F.; POTAPOV,
I.A.; ROMANOV, M.P., dotsent, kand.ekon.nauk; SPENGLER, Ye.N.,
kand.ekon.nauk; SHITOV, A.V.; SHUKHATOVICH, I.M.; YAKUBOV, L.S.;
IVLIYEV, I.V., red.; KRISHTAL', L.I., red.; KOCHETOV, I.V., prof.,
doktor ekon.nauk, nauchnyy red.; IVANOV, A.P., nauchnyy red.;
BOBROVA, Ye.N., tekhn.red.

[Statistics and bookkeeping in railroad transportation; manual]
Statistika i bukhgalterskii uchet na zheleznodoroshnom transporte;
spravochnik. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va
putei soobshcheniia, 1960. 485 p.   (MIRA 14:3)
        (Railroads--Accounts, bookkeeping, etc.)
            (Railroads--Statistics)

IVANCHENKO, Anatoliy Antonovich; MINAKOV, Pavel Semenovich; POTAPOV,
Kh.Ye., red.; OVCHINNIKOV, N.G., red.; GERASIMOVA, Ye.S.,
tekhn.red.

[Method of planning labor productivity in agriculture] Voprosy
metodiki planirovaniia proizvoditel'nosti truda v sel'skom
khoziaistve. Moskva, Gosplanizdat, 1960. 142 p.

(MIRA 13:5)

(Agriculture--Labor productivity)

VEBER, F.A.; MINAKOV, S.P.; CHEREP, I.L.

Spiral chain filter-heater for sludge. TSement 29 no.3:16-17
My-Je '63.   (MIRA 17:1)

1. TSementnyy zavod "Proletariy."

MINAKOV, V.

Public control committee at Minsk tractor plant.
Sov. torg. 35 no.10:42-44 O '61.   (MIRA14:12)

1. Presedatel' komissii obshchestvennogo kontrolya, Minskogo
traktornogo zavod.
                (Minsk—Restaurants, Lunchrooms, etc.)

MINAKOV,V.

We are improving the quality of equipment repairs. Mast. ugl.
4 no.2:8-9 F '55.   (MIRA 8:6)

1. Mekhanik uchastka shakhty no. 33-bis kombinata Stalinugol'
        (Coal mines and mining--Equipment and supplies)

MINAKOV, V.

Hidden potentialities of the "Donbass" cutter-loader. Mast.ugl.
4 no.11:25-26 N '55.   (MIRA 9:2)

1.Mekhanik uchastka shakhty no.33-bis tresta Snezhnyanantratsit.
     (Coal mining machinery)

86455
S/072/60/000/012/006/008
B021/B058

15.2120

AUTHORS: Bondarev, K. T., Minakov, V. A.

TITLE: Submicroscopically Inhomogeneous Structure of Glass

PERIODICAL: Steklo i keramika, 1960, No. 12, pp. 22 - 27

TEXT: On the basis of the curves of dispersion intensity of small-angle
X-ray scattering, Ye. A. Poray-Koshits and N. S. Andreyev inferred a sub-
microscopically inhomogeneous structure of sodium borosilicate glass.
O. K. Botvinkin and N. I. Ananich showed that these glasses, such as
noneks, 3C-9 (ZS-9), and others have two phases. Electron-microscopic
studies were made with an ЭМ-3 (EM-3) electron microscope which has a
resolution of 100 A. X-ray structural analyses were conducted on the
УРС-50 (URS-50) device. The liquation in glass of the system $Na_2O \cdot B_2O_3$
is illustrated in Fig.1. L. I. Demkina and A. A. Appen demonstrated the
possibility of the transition of boron into the tetrahedral form. The
glass was melted by Ye. G. Gurvits and O. M. Vyshinskaya; the heat t
ment was performed by S. Ye. Dvorkina and G. S. Porvenkov; and

Card 1/3

86455

Submicroscopically Inhomogeneous Structure   S/072/60/000/012/006/008
of Glass   B021/B058

V. P. Stativ and V. N. Karlyuk assisted in the structural analysis. The electron micrograph of the surface of $B_2O_3 \cdot 3SiO_2$ glass is shown in Fig.2. The results of the authors agree with the conceptions of Ye. A. Poray-Koshits and S. P. Zhdanov on the structure of borosilicate glass. Sodium borosilicate glass (6% Na_2O, 29% B_2O_3, 65% SiO_2) shows inhomogeneous zones but remains perfectly transparent (Fig.3), thus proving O. K. Botvinkin's hypothesis on the structure of glass. The heat treatment of these glasses at temperatures between 490 and 800°C changes their structure radically (Fig.4). Large and small pores can be detected by irradiating a preparation of porous glass, which was obtained by completely leaching out sodium borosilicate glass in hydrochloric acid (Fig.5). Tests of some industrial glasses, the composition of which is tabulated, showed that phase composition is characteristic of most types of glass. Inhomogeneous regions were detected in samples of Pyrex glass with slight opalescence (Fig.6). The mass-produced glass No. 31 has a submicroscopically inhomogeneous structure, which is distinctly marked after heat treatment (Fig.7). After hardening, zirconium glass Ц-18 (Ts-18) shows inhomogeneous regions (Fig.8). Inclusions similar to

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86455

Submicroscopically Inhomogeneous Structure   S/072/60/000/012/006/008
of Glass   B021/B058

crystal formations were discovered in samples of mass-produced window
glass which had been subjected to heat treatment and remained transparent
(Fig.9). A liquation in the absence of a crystalline phase was discovered
in continuously rolled glass after heat treatment (Fig.10). The mass-
produced transparent glass 0253 has a submicroscopically inhomogeneous
structure (Fig.11). Lithium-containing glass remained transparent after
heat treatment and exhibited a submicroscopically inhomogeneous struc-
ture in the absence of a crystalline phase (Fig.12). Transparent glass of
the cordierite system showed no chemical inhomogeneity but a crystalline
phase (Fig.13). The properties of glass and microcrystalline materials
can be influenced by regulating the process of liquation, i.e., the sepa-
ration of glass into phases. The authors' studies of the submicroscopical-
ly inhomogeneous glass structure contradict Zachariasen-Warren's hypo-
thesis on the structure of glass as a continuous, disordered lattice,
and prove the crystallite hypothesis by A. A. Lebedev and the aggregation
hypothesis by O. K. Botvinkin. There are 13 figures, 1 table, and
13 references: 6 Soviet, 4 German, and 3 US.

Card 3/3

WRITE BELOW THIS LINE

S/0032/64/030/004/0465/0465

ACCESSION NR: AP4033617

AUTHORS: Min'ko, N. I.; Minakov, V. A.

TITLE: Structure study of crystalline silicate materials in reflected light

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 465

TOPIC TAGS: crystalline silicate material, structural study, reflected light, vacuum evaporation, reflection coefficient, hydrofluoric acid, hydrochloric acid, sulfuric acid, nitric acid, sodium hydroxide, vacuum apparatus EVP 2

ABSTRACT: Experiments were performed to determine the structure of crystalline silicates. The surface to be studied was covered with a film (0.05-0.1 μ) of aluminum. Evaporation of aluminum was performed in a EVP-2 apparatus in a vacuum of $1\cdot10^{-4}$-$5\cdot10^{-5}$ mm Hg. The film was semitransparent and had a reflection index of 60-70% in the visible part of the spectrum. The etched surfaces of polished sections had a mirror-like aspect, the smoothness of which varied with the degree of etching. These variations accentuated the contrasts of the image in a reflected

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ACCESSION NR: AP4033617

light. The type of etching reagent, its concentration, and the length of its application were determined experimentally. HCl, H_2SO_4, HNO_3, NaOH, and HF of various concentrations were tested, with HF producing the best results. This is explained by the fact that all crystalline silicates contain some glassy material soluble in HF. Orig. art. has: 2 microphotographs.

ASSOCIATION: Nauchno-issledovatel'skiy institut zavoda "Avtosteklo" (Scientific Research Institute of the "Avtosteklo" Plant)

SUBMITTED: 00   DATE ACQ: 28Apr64   ENCL: 00

SUB CODE: PH   NO REF SOV: 000   OTHER: 000

Card 2/2

L 60951-65   EWT(1)/EWP(e)/EWT(m)/EPA(s)-2/EPF(c)/EWP(1)/EPA(w)-2 /EWP(j)/
T/EEC(b)-2/EWP(b)   Pc-4/Pq-4/Pr-4/Pt-7/P1-4   IJP(c)   WW/GG/RM/WH

ACCESSION NR: AP5018930   UR/0363/65/001/006/0943/0946
                                      661.1:542.6

AUTHOR: Bondarev, K. T.; Barsukov, M. I.; Golius, T. Ye.; Minakov, V. A.;
Min'ko, N. I.; Karlyuk, V. N.

TITLE: Effect of abrupt temperature changes on the structure and properties of certain
pyroceramics

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 943-946

TOPIC TAGS: pyroceramic, crystallized pyroceramic, glass structure, glass mechanical
property

ABSTRACT: Samples of normally crystallized pyroceramics were subjected to additional
multiple heating up to the maximum working temperature and were then cooled to the
ambient temperature. To prevent mechanical failure, the rate of the thermal changes

a process of "film" crystallization lasting 2-5 days and changing into polycrystallinic

Card 1/2

L 60951-65

6

ACCESSION NR: AP5018930

takes place during the initial period of exposure to high temperatures; this process is associated with an increase in density and strength, and consolidation of structure. As a result, the original structure of pyroceramics changes appreciably, and their physico-...structure is labile. At high tempera-

their crystallization temperature. Orig. art. has: 4 figures.

ASSOCIATION: None

SUBMITTED: 11Feb65

NO REF SOV: 001

ENCL: 00

OTHER: 000

SUB CODE: MT, TD

Card 2/2

BONDAREV, K.T.; MINAKOV, V.A.; ZAIKINA, A.A.

Chemical microinhomogeneity of glasses and pyroceramics. Izv. AN SSSR. Neorg. mat. 1 no.6:961-968 Je '65.   (MIRA 18:8)

L 60948-65   EWT(1)/EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EWP(1)/EWP(j)/EPA(w)-2/
T/EEC(b)-2/EWP(b)   Pc-4/Pq-4/Pr-4/Pt-7/Pi-4   IJP(c)   WW/GG/RM/WH

ACCESSION NR: AP5018934   UR/0363/65/001/006/0969/0972
                                           661.1:542.65

AUTHOR: Bondarev, K.T.; Karlyuk, V.N.; Minakov, V.A.

TITLE: Kinetics of heterogeneous crystallization of a slag pyroceramic

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 969-972

TOPIC TAGS: pyroceramic, glass porcelain, pyroceramic crystallization, heterogeneous crystallization

ABSTRACT: The formation of nucleation centers and the growth of crystals thereon were studied as a function of temperature in a slag pyroceramic and in glass porcelain. The specimens had been subjected to a special heat treatment in a platinum furnace with a

specimens had been subjected to a special heat treatment in a platinum furnace with a highly extended temperature gradient. Electron microscopy, x-ray structural analysis, and differential thermal analysis were employed. The curves representing the temperature dependence of the number of nucleation centers and linear growth of the crystals were found to be similar to the known curves of homogeneous formation of nucleation centers and crystal growth in supersaturated liquids, and to curves predicted theoretically for the case of pyroceramization of glass. The maximum quantity of separated nucleation centers was observed in the region of a weak exothermic effect preceding the main one of the curve

Card 1/2

L 60948-65

ACCESSION NR: AP5018934

of differential thermal analysis. In the white slag pyroceramic investigated, a relatively small number of aggregates acting as nucleation centers remain in the system up to the instant when the growth rate of silicate crystals becomes practically measurable. Since the temperature of the start of crystal growth is 150 degrees higher than Tg, an article made of this composition must be deformed during pyroceramization because of an insufficient quantity of silicate crystals and a decreasing viscosity of the main phase (glass) with rising temperature. In the case of glass porcelain, however, the pyroceramization occurs under more favorable conditions, and deformation does not take place. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 11Feb65   ENCL: 00   SUB CODE: MT,

NO REF SOV: 000   OTHER: 002

Card   2/2

TCKAREVA, L.V.; ZEMLYANOY, A.D.; MINAKOV, V.A.

Quantitative determination of the amorphous phase in pyrocerams.
Izv. AN SSSR. Neorg. mat. 1 no.6:979-983 Je '65.

(MIRA 18:8)

BONDAREV, K.T., kand. tekhn. nauk; MINAKOV, V.A., inzh.; ZAIKINA, A.A., inzh.

Investigating the composition and the nature of chemical heterogeneities in industrial glass. Stek. i ker. 22 no.8:13-15 Ag '65.   (MIRA 18:9)

1. Zavod "Avtosteklo".

L 06476-67   EWT(m)/EWP(o)/EWP(t)/ETI   IJP(c)   WH/WW/JW/JD

ACC NR: AR6028233   SOURCE CODE: UR/0081/66/000/009/M012/M012

AUTHOR: Bondarev, K. T.; Karlyuk, V. N.; Minakov, V. A.

TITLE: Nucleation of catalyst and crystals in certain pyroceramics

SOURCE: Ref. zh. Khimiya, Part II, Abs. 9M98

REF SOURCE: Steklo. Tr. In-ta stekla, no. 3(128), 1965, 103-109

TOPIC TAGS: nucleation, catalyzed crystallization, glass property, glass product

ABSTRACT: A study was made of the temperature dependence of the quantity of centers
and growth of crystals of the main silicate phase on them in the glass of white slag-
pyroceramic and for the purpose of comparing some other pyroceramics. The studies
were made on samples which had undergone a special thermal treatment in a Pt furnace
with a highly stretched temperature gradient. The soaking time was 2 hr. The temper-
ature dependence of nucleation was studied by means of quantitative electron micros-
copy. The temperature curves of precipitation of nuclei and growth of crystals of the
main silicate phase in the slag-pyroceramic and glass porcelain were found to be simi-
lar in shape to curves of homogeneous nucleation and growth of crystals in supersatu-
rated liquids and curves theoretically predicted for the case of glass crystalliza-
tion. However, in glasses tending toward liquation, the nucleation of Zn, Fe and Mn
sulfides and fluorides probably occurs immediately upon cooling of the glass melt.
The curve of the number of crystallization centers as a function of the reheating tem-

Card 1/2

L 06476-67

ACC NR: AR6028233   0

perature of the glass has a characteristic horizontal branch. The cause of the ob-
served warping of articles made of the slag-pyroceramic has been determined and ex-
plained. This occurs when the temperature curves of the precipitation of nuclei and
crystal growth do not overlap. The observed temperature dependences of nucleation and
crystal growth in the slag-pyroceramic and glass porcelain showed the fundamental pos-
sibility of plotting the temperature dependence of the nucleation rate and crystal
growth and their relationship to the chemical composition. I. M. [Translation of
abstract]

SUB CODE: 11

Card 2/2 m fc

ACC NR: AP6021473

SOURCE CODE: UR/0413/66/000/011/0094/0094

INVENTOR: Zhuravel', V. I.; Minakov, V. I.; Bobrov, V. T.; Dimitraki, P. N.; Nikiforenko, Zh. G.; Budenkov, G. A.; Gitis, M. B.

ORG: None

TITLE: An ultrasonic pulse-shadow immersion flaw detector. Class 42, No. 182390 [announced by the All-Union Scientific Research Institute of Nondestructive Methods for Material Quality Control (Vsesoyuznyy nauchno-issledovatel'skiy institut nerazrushayushchikh metodov kontrolya kachestva materialov)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 94.

TOPIC TAGS: flaw detection, ultrasonic flaw detector, quality control

ABSTRACT: This Author's Certificate introduces: 1. An ultrasonic pulse-shadow immersion flaw detector which contains an ultrasonic probe unit, line scanning mechanism, oscillator and ultrasonic amplifier. The unit is designed for increased productivity in checking parts of complex shape. The installation incorporates an electronic unit which generates a control signal after the ultrasonic probe unit passes beyond the outline of the part being checked. This signal controls the line scanning mechanism and temporarily disconnects the receiving head from the amplifier. 2. A modification of this flaw detector in which the electronic unit is made in such a

Card   1/2

UDC: 620:179.16.08

ACC NR: AP6021473

way that when there is a single pair of ultrasonic probes in the installation the receiver head is disconnected from the amplifier during the period when the probe unit is returning to the article being checked. 3. A modification of this flaw detector in which the electronic unit is made in such a way that when there are two pairs of ultrasonic probes located one behind the other along their line of motion in the installation, the receiver head disconnected from the amplifier is the one which first passes beyond the outline of the part being checked. This receiver head is connected when the second pair of probes passes beyond the outline of the part on the return travel of the probe unit.

SUB CODE: 09, 13/ SUBM DATE: 07Dec64

Card 2/2

KAVSHERAV, P.In., Inzh. Kand....

C ts of a work that driven by a... of... mechanism. Shakht. stroi, ... no.A. ... ... res.

1. Proyektnaya kontora ... .

KRENDELEV, V.P.; MINAKOV, V.M.

Procedure of evaluating errors in different methods of
sampling and prospecting for deposits. Razved. i okh. nedr
31 no.7:14-20 Jl '65.   (MIRA 18:11)

1. TSentral'nyy nauchno-issledovatel'skiy geornorazvedochnyy
institut tsvetnykh, redkikh i blagorodnykh metallov, Moskva.

GRIDNEV, V.N. [Hridniev, V.N.]; MINAKOV, V.N.; TREFILOV, V.I.;

Resistance of metals to deformation during phase transformation.
Ukr.fiz.zhur. 4 no.4:526-527 Jl-Ag '59.   (MIRA 13:4)

1. Institut metallofiziki AN USSR.
        (Deformations (Mechanics))   (Metals)

S/601/60/000/011/013/014
D207/D304

AUTHORS: Minakov, V. N., Rudoy, A. P., and Trefilov,
                V. I.

TITLE: A dilatometer with a capacitance detector

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut
                metalofyzyky. Sbornik nauchnykh rabot. no.
                11. 1960. Voprosy fiziki metallov i metallo-
                vedeniya, 158-159

TEXT: The authors describe a simple dilatometer with rapid
response suitable for studies of phase transformations at high
rates of heating. The detector is a capacitor with a movable
(b) and fixed (a and c) electrodes (Fig. 1). The change of
length of a sample is transformed into a change of capacitance
by motion of the movable electrode. The two electrode systems
(ab, cb) form parts of two separate oscillatory circuits working
at or near resonance. The resonance is distributed when the

Card 1/3

S/601/60/000/011/013/014
D207/D304

A dilatometer with...

capacitances ab and bc are altered. This affects the natural
frequencies of the circuits and the anode currents of a double
triode 6H15Π (6N15P). An induction coil L_2 and capacitances
C_1 and C_2 form the grid circuit, while inductance L_1 and the
the capacitance C_{cb} form the anode circuit of the left-hand
part of the double triode. Both these circuits are loosely
coupled, and the coils L_1 and L_2 are placed on the same axis.
The grid circuit is tuned by means of C_2 so that any change of
C_{cb} produces a directly proportional increase of the anode cur-
rent. The oscillator on the right-hand side contains C_{ab} and
is constructed in a similar fashion. The circuits are assembled
from intermediate frequency filters of the audio parts of the
"Rekord" television set. When the capacitances C_{ab} and C_{cb}
are varied, the current in one triode increases and falls in the

Card 2/3

A dilatometer with...

S/601/60/000/011/013/014
D207/D304

other. The difference current is passed through loop no. 8 of
an oscillograph МПО-2 (MPO-2) connected between the triode
anodes. The direct proportionality between the oscillator indica-
tion and the dilatometer displacement is obtained by suitable se-
lection of the gap between the fixed electrodes a and c and
of the working regions on the resonance curves of the oscillators.
The instrument constructed by the authors has a linear charac-
teristic for capacitor plate displacements of 0 - 1 mm. The in-
strument gives reliable dilatometric curves when used in conjunc-
tion with a loop oscillograph. The oscillograph readings are
practically unaffected by the cathode drift and supply voltage
variations. There are 2 figures and 2 Soviet-bloc references.
/ Abstracter's note: Essentially complete translation. 7

SUBMITTED: September 15, 1959

Card 3/3

84469

S/020/60/134/006/012/031
B019/B067

16.7500

AUTHORS: Gridnev, V. N., Trefilov, V. I., and Minakov, V. N.

TITLE: Martensitic Transformation in the System Titanium - Zirconium

TEXT: The authors studied the temperature dependence of the martensitic transformation on the composition of the Ti-Zr alloy. Furthermore, they examined the existence of a reverse martensitic transformation. Iodides of both metals were used for the production of the alloys. The production method is described in detail. The apparatus used for the investigation of the phase transformation was described in Ref. 3. It allowed the simultaneous determination of temperature, dilatation curves, voltage drop in the sample, and the amperage of the current heating the sample. Heating to 950 - 1000°C was effected in quartz ampoules, quenching was carried out at a rate of 1000 - 1500°C/sec by previously crushing the ampoules in the water. The X-ray diffraction pattern showed

Card 1/3

Martensitic Transformation in the System   S/020/60/134/006/012/031
Titanium - Zirconium   B019/B067

only a martensitic alpha prime phase; an undercooled beta phase could not
be found. The authors arrive at the conclusion that the residual beta
phase in the Ti-Zr alloy is the smaller the lower the amount of nitrogen
and oxygen impurities in the alloy. The alpha prime phase has the
characteristic martensitic structure, and the reverse martensitic trans-
formation could be proved on heating $(500^\circ C/sec)$. Fig. 2 graphically
shows the transformation temperatures for direct and reverse martensitic
transformations as a function of the composition of the alloy. In the
range from 40 to 80 at%, the transformation temperature is independent
of the composition. The authors conclude from the results that in the
ranges from 0 to 40% Zr and from 80 to 100% Zr the transformation $\beta \rightarrow \alpha'$
takes place on quenching in water or in an argon jet. With accelerated
heating the transformation $\alpha' \rightarrow \beta$ occurs. In the range from 40 to 80% Zr,
the same transformations occur on quenching in water and on rapid
heating. On cooling in the argon jet $(200 - 300^\circ C/sec)$, however, $\beta \rightarrow \omega$
transformation occurs besides the transformation mentioned. Great
significance is ascribed to the formation of the ω-phase in the Ti-Zr
system, and it is discussed in detail. The results of other authors are
described, and it is found that the difficulty in producing the ω-phase

Card 2/3

84859

Martensitic Transformation in the System
Titanium - Zirconium

S/020/60/134/006/012/031
B019/B067

in the system investigated lies in the fact that the temperature of the
$\beta \to \omega'$ transformation is below the temperature of direct $\beta \to \alpha'$ trans-
formation. The ω-phase is formed on undercooling a certain amount of the
β-phase to the temperature of formation of the ω-phase. Yu. A. Bagaryatskiy
(Refs. 5 and 6) is mentioned. There are 3 figures and 8 references:
3 Soviet, 3 US, 1 German, and 1 British.

ASSOCIATION: Institut metallofiziki Akademii nauk USSR (Institute of
Metal Physics of the Academy of Sciences UkrSSR)

PRESENTED: May 25, 1960, by G. V. Kurdyumov, Academician

SUBMITTED: March 22, 1960

Card 3/3

S/032/61/027/002/018/026
B134/B206

AUTHORS: Minakov, V. N., Trefilov, V. I.

TITLE: Instrument for studying martensite transformations

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 2, 1961, 207-210

TEXT: An instrument for studying martensite transformations is described. It permits a determination of temperature during heating and cooling, the elongation of the sample, the potential drop in the sample, the amperage which passes the sample, as well as the taking of microfilm pictures of the sample surface during direct and reverse martensite transformations. A block circuit diagram of the instrument is given in Fig. 1, (1) being the time-limit relay, (2) the hardening mechanism (sample cooling with argon), (3) the electronic dilatometer (A. P. Rudoy cooperated in its elaboration), (4) electronic shielding of the loop oscilloscope, (5) a ferroresonance stabilizer, (6) sample, (7) MД-6 (MD-6) bridge, and (8) the dilatometer pickup. For studies of phase transformations at a rate of heating above 1000-1500°C/sec, the current frequency of the heater current

Card 1/3

Instrument for studying martensite...

S/032/61/027/002/018/026
B134/B206

of the sample is raised. The resistance stability of the thermocouples
is maintained by a slide wire, and controlled by the MD-6 bridge. The
maximum error in temperature measurement is $\pm 8^{\circ}C$ when an MПО-2 (MPO-2)
oscilloscope is used. The dilatometric curve is obtained by means of a
differential capacitance pickup which is connected to the anode lines
of two generators with 6Н15П (6N15P) tubes. Through the capacitance
variation of the pickup, the natural frequency of the generators changes
and, thus, the anode currents of the triodes. A loop oscilloscope is
connected between the anodes of the triodes, and records the difference
of the anode currents of the generators. The potential drop in the
sample during heating is recorded by a loop oscilloscope which is shielded
by an electronic block. The voltage is fed to a rectifier (ДГЦ-27
(DGTs-27)tube). For various rates of heating, the maximum heating
temperature is adjusted by a time-limit relay which contains a
ТГ 1-01/1.3 (TG1-01/1.3) thyratron and an STV 280/80 stabilizer-divider.
If the sample is to be hardened immediately after heating, the hardening
mechanism is automatically switched on, and argon blown onto the sample
whereby a cooling of $300^{\circ}C$/sec can be attained. Long-focus objectives

Card 2/3

Instrument for studying martensite...

S/032/61/027/002/018/026
B134/B206

of the types OCФ-16 (OSF-16) (from the MBT (MVT) microscope) and
"gomal' II" (from the МИМ-8 (MIM-8) microscope) were used for taking
microfilm pictures. Magnification was 250x for pictures taken with a
KC-50Б (KS50B) camera, and 64 pictures per second could be taken. An
CKC-1 (SKS-1) movie camera was used for up to 4000 frames/sec. Some
motion pictures of martensite transformations are mentioned in a paper by
V. N. Gridnev and V. I. Trefilov (Ref. 1). A vacuum of $10^{-3}-2 \times 10^{-5}$ mm Hg
is maintained in the vacuum chamber containing the sample in order to
prevent oxidation of the sample during heating. There are 6 figures and
6 Soviet-bloc references.

ASSOCIATION: Institut metallofiziki Akademii nauk USSR (Institute of
               Physics of Metals of the Academy of Sciences Ukr SSR)

Fig. 1
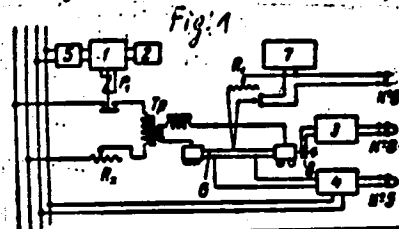
Card 3/3

MINAKOV, V.N.; TREFILOV, V.I.

Effect of plastiv deformation on the temperature of the start of
martensite transformations. Sbor. nauch. rab. Inst. metallofiz.
AN URSR no.17:166-169 '63.   (MIRA 17:3)

GRIDNEV, V.N. [Hricniev, V.N.]; MINAKOV, V.N.; TREFILOV, V.I.

Austenite formation in quick heating of steel. Ukr. fiz.
zhur. 9 no.3:318-324 Mr '64.   (MIRA 17:9)

1. Institut metallofiziki AN UkrSSR, Kiyev.

L 20882-65 EWT(m)/EWA(d)/T/EWP(t)/EWP(b) ASD(m)-3 JD/MLK

ACCESSION NR: AT4046873 S/0000/64/000/000/0384/0388

AUTHOR: Gridnev, V. N., Minakov, V. N., Trefilov, V. I.

$B+1$

TITLE: A method for rapid X-ray analysis

SOURCE: AN SSSR, Nauchny*y sovet po probleme zharoprochny*kh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 384-388

TOPIC TAGS: metal X-ray analysis, austenitic steel, steel structure transformation, X-ray circuit, metal roentgenography

ABSTRACT: During investigations of phase and structural changes in metals, high speed recording equipment is required. This is needed, for instance, when studying engine recording equipment is required. This is needed, for instance, when studying engine ... ... ships and electrical heat treatment where the metal

10^{-3} sec. every 3 . 10^{-4} sec., As shown in Fig. 1 of the

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L 20882-65
ACCESSION NR: AT4046873

is the transformation of the angular distribution of intensity of interference lines into changes in amperage. A working unit has been designed (see Fig. 2 of the Enclosure) for investigating austenite formation at high heating rates (up to 1000 deg/sec). A steel sample shaped as a plate (0.3 mm thick, 50 mm long and 12 mm wide) is clamped in the contacts of the heating unit. The temperature is registered on an oscillograph by a chromel-capel the heating unit. A 1.5 microfarad condenser is installed for eliminating pulsation of the two FEU-35 meters with luminophors, all of the gamma

Goetze and ~. ~~~~~~~~~ and ~~~~~~~

ever, this unit is cumbersome and difficult ~

ASSOCIATION: None

SUB CODE: MM

ENCL: 02

SUBMITTED: 16Jun64

OTHER: 002

NO REF SOV: 006
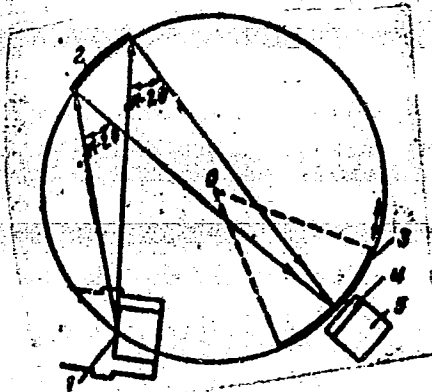
Card 2/4

ENCLOSURE: 01

Fig. 1. Diagram of the X-ray camera: 1-focus of X-ray tube; 2-sample; 3-movable slit; 4-luminophor; 5-photomultiplier.

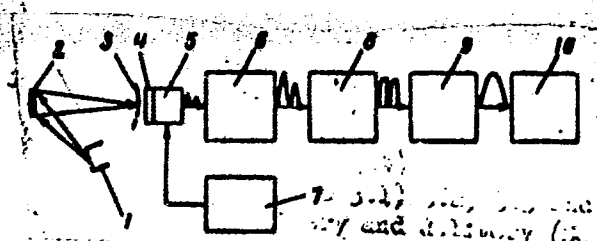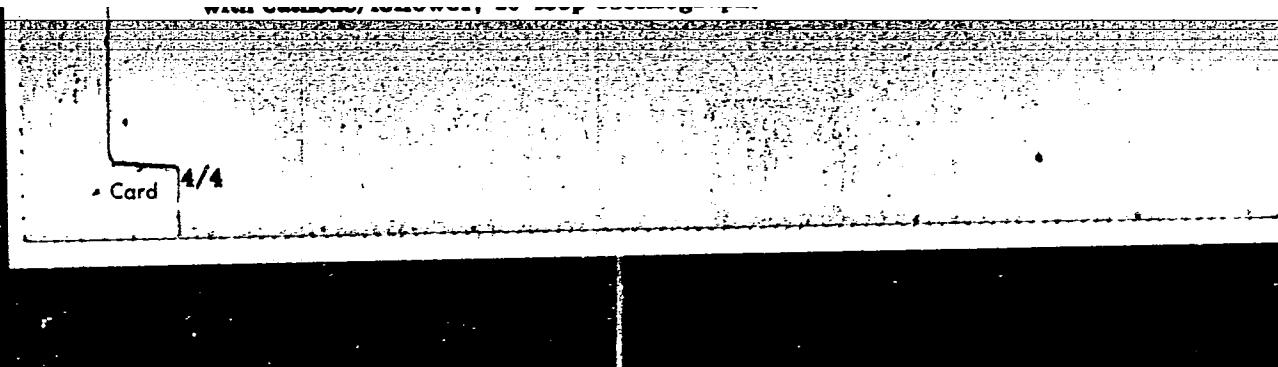Card 3/4

L 20882-65

ACCESSION NR: AT4046873

ENCLOSURE: 02

Fig. 2. Block diagram of the unit: 1-5 (see Fig. 1); 6-US$_h$-10 amplifier;
7-source of current for amplifier; 8-pulse-height discriminator; 9-integration chain
with cathode/follower; 10-loop oscillograph.

▴ Card 4/4

MINAKOV, V.N.; TREFILOV, V.I.

Spectrometric resolution of a sintillation counter in the recording of soft X rays. Sbor. nauch. rab. Inst. metallo-fiz. AN URSR no.18:220-221 '64

GRIDNEV, V.N. MINAKOV, V.N.; TREFILOV, V.I.

Mechanism of austenite formation on a rapid heating of carbon
steels. Dokl. AN SSSR 154 no. 3:675-678 Ja '64.   (MIRA 17:5)

1. Institut metallofiziki AN UkrSSSR. Predstavleno akademikom
G.V.Kurdyumovym.

ACC NR: AP6036019   (N)   SOURCE CODE: UR/0125/66/000/010/0072/0073

AUTHOR: Novikova, D. P.; Minakov, V. N.

ORG: none

TITLE: Method of studying austenitic transformation during welding

SOURCE: Avtomaticheskaya svarka, no. 10, 1966, 72-73

TOPIC TAGS: austenitic transformation, austenitic transformation study, austenitic transformation study equipment welding technology, steel welding, alloy steel, electric resistance, metal inspection, metallurgic testing machine

ABSTRACT: A method and equipment for observation of austenite transformation in a weld-adjacent zone of medium-alloy steels has been developed at the Institute of Electric Welding im. Ye. O. Paton. The method employs a high-temperature vacuum unit of the IMASH type and permits a direct observation of the microstructural changes with simultaneous measurements of electric resistance. The construction of the unit permits loading of the specimens during the thermal cycle and creating stresses identical to those occuring in actual welds. Deformations are measured with an accuracy of ± 1 μ. The electric resistance of the specimen during the thermal cycle is determined by measuring the electric current passing through the specimen and the voltage drop in the zone of constant temperature field. This method of measuring the electric resistance makes possible the investigation of electric characteristics not only during the heating or cooling processes with or without deformation, but also under isothermal conditions. Microphotographs of the process

Card 1/2   UDC: 621.791:620.192.4

ACC NR: AP6036019

help to determine not only the beginning of transformation, but also the type of
transformation (martensitic or bainitic). The final stage of austenitic transforma-
tion is very difficult to register but it can be studied from the changes in electric
resistance. Orig. art. has: 3 figures.

SUB CODE: 13, 14/ · SUBM DATE: none/

Card   2/2

GRIDNEV, V.N.; MINAKOV, V.N.; TREFILOV, V.I.

Mechanism of the formation of austenite at high rates of
heating. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.18:
107-114 '64.   (MIRA 17:8)

MINA KOV. V. S.

PEDOSENKO, A.G.; MINAKOV, V.S.

Burning milled peat in cyclone furnaces at the Lotoshino Alcohol
Plant. Spirt. prom. 23 no.3:29-32 '57.   (MIRA 10:6)

1. Mosspirtotrest.
            (Peat)   (Furnaces)

MINAKOV, V.S.

MINAKOV, V.S., insh.

Strain in walls of an electric power plant. Stroi. prom. 36 no.1:
44-46 Ja '58.   (MIRA 11:1)
                    (Walls) (Strains and stresses)

L 10413-67   EWT(m)   WE

ACC NR: AP6029975   (A,N)   SOURCE CODE: UR/0413/66/000/015/0177/0177

INVENTOR: Minakov, V. S.   20

ORG: none

TITLE: A container for storing petroleum and petroleum products. Class 81, No.184721

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 177

TOPIC TAGS: storage device, petroleum, petroleum product

ABSTRACT: This Author Certificate presents a container for storing petroleum and petroleum products under water. The container is made of a soft membrane and is held under water by cables, columns, and similar construction elements (see Fig. 1).

Fig. 1. A tent with
edges bent down
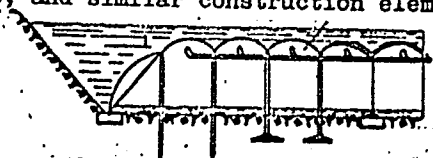
To lessen the amount of materials used, the container is made in the form of a tent with its edges bent downward. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 31Mar62

Card 1/1   UDC: 621.642.5:665.5

Minakova, Anna Grigor'yevna,

BREBNINA, Varvara Vasil'yevna; MINAKOVA, Anna Grigor'yevna; YAS'KOVA,
Nadezhda Tikhonovna; SVERDLOVA,I.S., redaktor; GUSEV,L.A.,
redaktor; KHELEMSKAYA,L.M., tekhnicheskiy redaktor

[Our work practice with Baudot apparatus] Nash opyt raboty na
apparate Bodo. Moskva, Gos.izd-vo lit-ry po voprosam sviasi i
radio, 1955. 30 p.

(Telegraph)   (MLRA 9:3)

MINAKOVA, G.D.

Effect of temperature on the selectivity of the hydrogenation of cottonseed oil. Izv.vys.ucheb.zav.; pishch.tekh. no.5:81-87 '59.

(MIRA 13:4)

1. Krasnodarskiy institut pishchevoy promyshlennosti, kafedra zhiropererabotki.

(Cottonseed oil)   (Hydrogenation)

KOLESNIKOV, G.I.; MINAKOVA, G.D.

Effect of the hydrogenation conditions on physical properties of the hydrogenated fat from cottonseed oil. Izv.vys.ucheb.zav.; pishch. tekh. no.6:44-48 '61.   (MIRA 15:2)

1. Krasnodarskiy institut pishchevoy promyshlennosti, kafedra plasticheskikh mass.
                (Cottonseed oil)(Hydrogenation)

KOLESNIKOV, G.I.; MINAKOVA, G.D.

Studying the hydrogenation of cottonseed oil in the foamy state.
Izv.vys.ucheb.zav.; pishch.tekh. no.4:77-83 '62.   (MIRA 15:11)

1. Krasnodarskiy institut pishchevoy promyshlennosti, kafedra
tekhnologii plastmass.
                (Cottonseed oil) (Hydrogenation)

MINAKOVA, I. I.

MINAKOVA, I. I. -- "Synchronization of Self-Excited Oscillating Sys-
tems Described by Second-Order Equations." Sub 21 May 52, Moscow Order of
Lenin State U imeni M. V. Lomonosov. (Dissertation for the Degree of
Candidate in Physicomathematical Sciences).

SO: Vechernaya Moskva January-December 1952

MINAKOVA, I. I.
    USSR/Physics - Self-excited nonlinear oscillations   FD-673

Card 1/1   : Pub. 129 - 8/25

Author   : Minakova, I. I.

Title   : Theory of synchronization on harmonics of self-excited oscillations

Periodical   : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, Vol. 9, No. 3,
                     61-64, May 1954

Abstract   : Investigates experimentally the relation between (a) the frequency
                     of synchronized self-excited oscillation and (b) the variations
                     in its spectral composition that arise when the self-excited
                     oscillatory system is acted upon by an external periodic force
                     whose frequency is close to the frequency of one of the harmonics
                     of self-excited oscillations. Notes that the mechanisms of
                     synchronization on harmonics of self-excited oscillations, a
                     phenomenon essentially nonlinear, has been insufficiently studied
                     and that, as far as is known, the literature contains nothing
                     on the variation in the spectral composition of synchronized
                     oscillations and its relation to frequency. Utilizes K. F.
                     Teodorchik's energy method (Avtokolebatel'nyye sistemy, GTTI, 1952)
                     to study $x'' + f(x)x' + w_0^2 x = P.\sin(kpt+a)$.

Institution   : - -

Submitted   : July 14, 1953

MINAKOVA, I. I.

USSR/Physics Self-excited oscillations

FD-1232

Card 1/1   Pub. 153-16/22

Author   : Minakova, I. I.

Title   : Study of dependence of the frequency of self-excited oscillations on spectral composition

Periodical : Zhur. tekh. fiz., 24, 1677-1686, Sep 1954

Abstract   : Drives and analyzes a formula expressing the frequency of self-excited oscillations in a stationary nonharmonic circuit. Indebted to Prof. K. F. Teodorchik. Five references including one foreign.
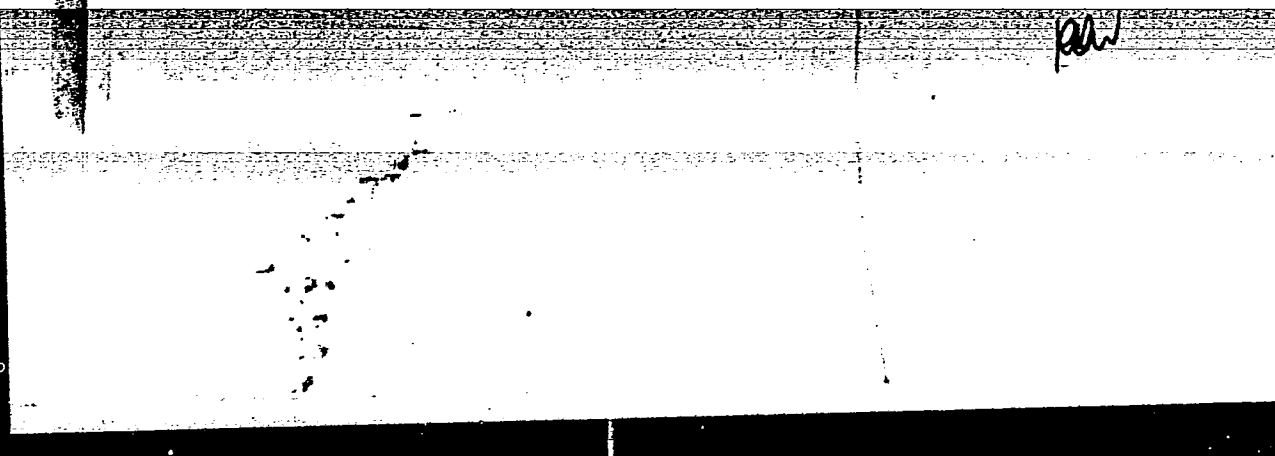
Institution :

Submitted   : June 15, 1953

MIMAKOVA, I.I.; TEODORCHIK, K.F.

Theory of synchronizing nonsinusoidal self-oscillating systems. Radio-
tekh. i.elektron. l.no.1:1317-1324 O '56.   (MIRA 10:1)
                (Oscillators, Electron-tube)

MINAKOVA, I.I.

BRAGINSKIY, V.B.; MINAKOVA, I.I.

Experimental investigation of the mutual sync' ionization of two
klystron generators. Vest.Mosk.un. Ser.mat., ;kh.,astron.,fiz.,
khim. 11 no.1:157-164 '56.   (MIRA 10:12)

1. Kafedra teorii kolebaniy Moskovskogo universiteta.
                    (Oscillators, Electron-tube)

The frequency $\omega = p/n$ ($n = 2,3,\ldots k$) of the harmonic exterior force is near the
frequency of one of the sub-harmonics of the eigenoscillations of the generator,
but the eigenfrequency of the generator is $\omega_0 \sim p$. The present investigation con-
siders the soft and the hard mode of operation of the generator. If the system
produces quasisinusoidal eigenoscillations in the case of a lacking exterior emf,
periodic synchronous-like modes of operation of the generator are possible if an
exterior emf (with $p \sim \omega_0$) exists. On this occasion oscillations enforced in the
generator are produced with a frequency of the exterior force, and its own eigen
oscillations are synchronized, i.e. its frequency then amounts to $\omega = p$. The
amplitudes of the synchronized eigenoscillations depend in a very complicated
manner on the amplitude of the exterior force, but each term of the corresponding
formulae can be interpreted physically. The character of the modification of the
amplitude and the phase in the case of synchronous-like operation depends essen-
tially on the coefficients to be found in the equations with cos φ, sin φ,
cos 2 φ and sin 2 φ. In the general case investigation is carried out graphically.
It was proved in theory that phase- and amplitude-jumps are possible. These
jumps may occur according to the direction of the modification of the "detuning"

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at various points of the synchronization domain. If there are jumps, phases may
change by more than π within the domain of synchronization. Furthermore, there
exists a domain with stationary phase values. The theoretical investigation of
a concrete generator scheme (n = 2 and n = 3) confirms the conclusions derived
here. On the occasion of a thorough investigation of the case n = 2 the existence
of a "threshold value" of a certain parameter was furthermore found, in the case
of which further jumps are possible.
The block scheme of the experimental order is given; in the cathode repeater it
contains a circuit which is tuned in to the frequency of the eigenoscillations of
the generator to be synchronized. It is thereby possible, in the spectrum of the
exterior force, to suppress the harmonics with a frequency that is near the eigen-
frequency of the generator. Synchronization was carried out at frequencies of the
exterior force ω_e = p/n (n = 2,3,4,5; p $\sim$ ω_o, ω_o - frequency of the generator,

and showed that synchronization takes place on the subharmonic at arbitrarily
small amplitudes of the exterior force. If the amplitude of the exterior force is
increased, the breadth of the synchronization band increases non-linearly.

INSTITUTION:

Mina Kova, I I

USSR/Radiophysics - General Problems, I-1

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35233

Author: Minakova, I. I., Teodorchik, K. F.

Institution: Moscow State University, USSR

Title: On the Theory of Synchronization of Self-Oscillations of Arbitrary Form

Original
Periodical: Dokl. AN SSSR, 1956, 106, No 4, 658-660

Abstract: Analysis of the case of synchronization of self-oscillations of a system, the state of which is intermediate between harmonic and sharply relaxational. A solution is found for a soft self-oscillating system under the effect of a harmonic external force:
$$\ddot{x} - 2(\delta_0 - \delta_2 x)\dot{x} + w_0^2 x = P \cos(3pt - \varphi).$$
Here all the coefficients are positive, $p \approx w_0$, $P = E_0 w_0^2$, and E_0 is the amplitude of the external force. The solution is sought in the form of a Fourier series. A system of algebraic equations is obtained relating the system parameters, the external force, and

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Abstract: the spectrum of the synchronous self-oscillations. On the basis of the analysis of the results obtained, a generalized equation is proposed in the form

$$p^2 = w\left\{\sum_1^n A_m^2 \Big/ \sum_1^n m^2 A_m^2 + \sum_1^n E_m A_m \sin(\varphi_m - \beta_m)\Big/ \sum_1^n m^2 A_m^2\right\},$$

which takes into account n harmonics of the synchronizing oscillation with an external periodic force that also contains n harmonics. Here the values of A_m are determined in terms of the system parameters and the Fourier coefficients, and β_n is the angle between the fundamental frequency of the synchronized self-oscillation and the m'th harmonic. The first term of the equation takes into account the indirect effect of the external force of the frequency, resulting from the change in the spectrum of the free oscillation. The second term takes into account the direct effect of the external force on the conservative parameters of the self-oscillating system, determining the frequency. The above equation leads to many known self-excited phenomena.

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