"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, M.I.

Studying photosynthesis in cells with experimentally increased resistance. Bot. zhur. 43 no.2:283-287 F '58. (MIRA 11:5)

1. Botanicheskiy institut im. V.L. Komarova Akademii nauk SSSR, Leningrad.
(Photosynthesis) (Plants, Effect of temperature on)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ALEKSANDROV, V.Ya.; LYUTOVA, M.I.; FEL'DMAN, N.L.

Seasonal variations in the resistance of plant cells to the action of different agents. TSitologiia 1 no.6:672-691 N-D '59. (MIRA 13:4)

1. Botanicheskiy institut im V.L. Komarova AN SSSR i Institut tsitologiia AN SSSR, Leningrad.
(PLANT CELLS AND TISSUES) (PLANTS--HARDINESS)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, M.I.; FEL'DMAN, N.L.

Investigating the ability of temperature adaptation in some marine algae. TSitologiia 2 no.6:699-709 N-D '60. (MIRA 13:12)

1. Botanicheskiy institut AN SSSR i Institut tsitologii AN SSSR, Leningrad.
(ALGAE) (PLANTS, EFFECT OF TEMPERATURE ON)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, M.I.

Reversibility of the thermal suppression of photosynthesis and protoplasmic movement in isolated leaves. Tsitologiia 4 no.2:210-213 Mr-Ap '62. (MIRA 15:8)

1. Laboratoriya tsitofiziologii i tsitoekologii Botanicheskogo instituta AN SSSR, Leningrad.
(PHOTOSYNTHESIS) (PROTOPLASM)
(PLANTS, EFFECT OF TEMPERATURE ON)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

FEL'DMAN, N.L.; LYUTOVA, M.I.

Investigation of the thermostability of cells of some sea grasses. Bot.zhur. 47 no.4:542-546 Ap '62. (MIRA 15:3)

1. Institut tsitologii AN SSSR i Botanicheskiy institut imeni Komarova AN SSSR, Leningrad.
(Seaweed) (Plants, Effect of temperature on)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, M.I.

Effect of heat hardening on the photosynthesis and respiration of leaves. Bot. zhur. 47 no.12:1761-1774 D '62. (MIRA 16:6)
(Plants, Effect of temperature on)
(Photosynthesis)
(Plants—Respiration)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, M. I.

"Temperature adaptation of cells of marine and fresh water algae."

UNESCO - International Symposium on the Role of Cell Reactions in Adaptations of Metazoa to Environmental Temperature.

Leningrad, USSR, 31 May - 5 June 1963

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, M.I.

Effect of temperature on the photosynthesis of heat-hardy leaves of Tradescantia. Bot. zhur. 48 no.6:890-893 Je '63. (MIRA 17:1)

1. Botanicheskiy institut imeni V.L. Komarova AN SSSR, Leningrad.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 16992-63 BDS RML

S/020/63/149/005/018/018

49
48

AUTHOR: Lyutova, M. I.

[redacted]

TITLE: Strength of the bond between chlorophyll and protein in plants with a high heat resistance

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, , no. 5, 1963, 1206-1208

TEXT: The cells of the higher plants react to superoptimal temperatures by a nonspecific increase in resistance, termed heat-tempering, assumed to lead to a stabilization of the plant proteins. To find whether this stabilization extends to the proteins of chloroplasts, the author investigated the effect of heat tempering on the strength of the bond between chlorophyll and protein in the green plastics of freshly cut leaves of Tradescantia fluminensis Vell and Taraxacum officinale S. L. exposed to high temperatures. The chlorophyll subsequently extracted from these leaves by means of petroleum ester was examined by the colorimetry method on the FEK-M photoelectrocolorimeter. For both species of plants investigated, in the heat-tempered leaves following their thermal injury the extraction of chlorophyll in petroleum ester was much smaller in volume. Therefore, heat tempering leads to an increase in the thermal stability of the bond between chlorophyll and protein. The strengthening of this bond, in all likelihood, is due to the increased resistance of the proteins of the complex to the denaturing effect of heating. These results

Card 1/2

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L 16992-63

S/020/63/149/005/018/018

Strength of the bond between chlorophyll....

furnish additional proof that heat tempering leads to the stabilization of proteins. The fact that this was found to apply also to the proteins of chloroplasts attests to the general stabilization of the cell, extending to different cell systems. There are 1 figure and 1 table.

ASSOCIATION: Botanicheskiy institut im. V. L. Komarova Akademii nauk SSSR (Botanic Institute imeni V. L. Komarov, Academy of Sciences USSR)

SUBMITTED: September 26, 1962

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVA, Yu.A.

Dosage forms for recta preparations. Med.prom. 12 no.4:37-38 Ap '58. (MIRA 11:5)
(RECTUM, MEDICATION BY)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVICH, A.S.

USMANOV, Kh.U.; LYUTOVICH, A.S.

Heat of wetting and the thermodynamic properties of silk and synthetic polyamide fiber. Dokl. AN Uz. SSR no.7:27-31 '57. (MIRA 11:5)

1. Institut khimii rastitel'nogo syr'ya i khlopka AN UzSSR.
2. Chlen-korrespondent AN UzSSR (for Usmanov).
(Silk) (Textile fibers, Synthetic) (Heat of wetting)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

24(3) [illegible] 59 1-3/11

AUTHOR: Zvyagin, V.I., and Lyutovich, A.F.

TITLE: On the Measurement of the Capacity [illegible] on the Boundary With an Electrolyte [illegible] poluprovodnika na granitse [illegible]

PERIODICAL: Izvestiya Akademii nauk [illegible] matematicheskikh nauk, [illegible]

ABSTRACT: The paper starts with the statement that the agreement (obtained by Bohnenkampf and Engell [Ref. [illegible]]) between the calculated differential capacity of the limit phase germanium - electrolyte and the capacity measured experimentally is only a seeming one, since it bases on an incorrect interpretation of the process. By etching of the surface of the germanium or silicon there appears a thin oxide film while in the preceding layer there is either an electron diminution or an enlargement of the holes. With regard to these phenomena the authors propose methods for the measurement of the capacity of a semiconductor-electrolyte-system. As an equivalent scheme the authors recommend a combination of paralleled RC-chains. A measuring device basing on this principle is described shortly. The measurements carried out with this device are represented graphically. There result

Card 1/2

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

On the Measurement of the Capacity of a Semiconductor SOV/[illegible] on the Boundary With an Electrolyte

intersections of the capacity curves which correspond to different etching processes; this phenomenon is not explained. There are 6 figures, and 4 references, 3 of which are American and 1 German.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN Uz SSR (Physico-Technical Institute AS Uz SSR)

SUBMITTED: October 2, 1958

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

S/0000/63/000/000/0256/0264

ACCESSION NR: AT4028541

AUTHOR: Ivanova, T. K.; Lyutovich. A. S.

TITLE: On electrolytic polishing of silicon in solutions of hydrofluoric acid

SOURCE: AN UzSSR. Otdeleniye khimicheskikh nauk. Nekotory*ye voprosy* khimicheskoy tekhnologii i fiziko-khimicheskogo analiza neorganicheskikh sistem (some problems in chemical technology and physical chemical analysis of inorganic systems). Tashkent, Izd-vo AN UzSSR, 1963, 256-264

TOPIC TAGS: electrolytic polishing, silicon, hydrofluoric acid, electrolytic etching, semiconductor

ABSTRACT: By means of the microstructure method, the authors have investigated the effect of prolonged polishing of silicon anodes on the change of their intermediate structure and on the quality of the obtained surfaces. By use of this method it is impossible to establish quantitative regularities; however, as opposed to other methods, it enables a more complete and convincing appearance of the polishing mechanism to be shown. The authors have conducted the experiments in polyethylene electrolytic cell located in a thermostat. A silicon sample was used as an anode, and a platinum foil as a cathode; the electrolyte was not stirred. Microscopic

Card 1/2

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACCESSION NR: AT4028541

observations and microphotographs were made with the aid of a vertical metallographic microscope of the type MIM-7. These results are shown in microphotographs. The authors drew the following conclusions: 1) the monocrystallinity of silicon leads to a substantial decrease in the speed of the electrolytic process and an increase in the quality of the polished surface obtained; 2) with an increase in the specific resistance of silicon of 20 times (from 1 to 20 ohm cm) the general pattern of the electrolytic polishing did not change fundamentally; 3) two stages are characteristic for the electrolytic process of silicon; structure etching and its polishing are obviously associated with the phenomena of anode passivation; 4) the introduction of organic additives into the electrolyte enabled the polishing time, the current density, and the stage of the structural etching to be shortened, as well as improving the quality of the surfaces obtained; and 5) as a result of the authors' research, optimum conditions were established for polishing some types of mono- and polycrystalline silicon. Orig. art. has: 3 figures containing microphotographs.

ASSOCIATION: Otdeleniye khimicheskikh nauk, AN UzSSR (Department of Chemistry, AN UzSSR)

SUBMITTED: 28May63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

S/0166/63/000/005/0090/0094

ACCESSION NR: AP4002547

AUTHORS: Lyutovich, A. S.; Sinyukov, V. A.; Mamanov, O. A.; Suvorov, A. N.; Gudoshnikov, A. V.

TITLE: Investigation of purity and structural perfection of monocrystalline silicon by measuring Hall effect in whole ingots

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matem. nauk, no. 5, 1963, 90-94

TOPIC TAGS: silicon, monocrystalline silicon, silicon purity measurement, Hall effect

ABSTRACT: The crystal purity in single crystal silicon has been investigated by measuring the Hall effect in whole ingots. The study is based on the expression for the mobility $\mu$ of the charge carriers as a function of the Hall emf $V_x$, thus

$$\mu = \frac{V_x S}{HIpd},$$

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ACCESSION NR: AP4002547

where H - magnetic field, $\rho$ - resistivity, d - ingot diameter, S - cross-section area, I - current in ma. The experiment was performed with bars 3-25 cm long and 1-2.5 cm in diameter. After Hall emf measurements on the complete specimen were completed several smaller specimens were cut out and the measurements repeated. The results show the possibility of Hall measurements directly on the whole specimen, without any need for cutouts or incisions (which in turn show the expected relationship between p, n and $\mu$). The dislocation distribution shows large dislocation densities at the start of the ingot, close to the nucleus, gradually decreasing toward the end. Orig. art. has: 3 formulas and 3 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physical-Technical Institute AN UzSSR)

SUBMITTED: 30Jul63 DATE ACQ: 07Jan64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

STARODUBTSEV, S.V.; LYUTOVICH, A.S.; PRUTKIN, V.P.

Phosphorus diffusion in high-purity polycrystalline silicon.
Izv. AN Uz. SSR. Ser. fiz.-mat. nauk 8 no.1:77-81 '64.
(MIRA 17:6)

1. Fiziko-tekhnicheskiy institut AN UzSSR.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACCESSION NR: AP4044797 S/0166/64/000/003/0074/0075

AUTHOR: Lyutovich, A. S., Sinyukov, V. A., Mamanov, O. A., Suvorov, A. N., Gudoshnikov, A. V.

TITLE: Controlling the quality of polycrystalline silicon by measuring its electrophysical parameters

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 3, 1964, 74-75

TOPIC TAGS: polycrystal, monocrystal, electrophysical parameter, conductivity, charge carrier, resistivity, silicon, polycrystalline silicon

ABSTRACT: The paper describes the quality control of polycrystalline silicon by measurement of electrophysical parameters such as the type of conductivity, specific resistance, concentration of charge carriers and their mobility. The method described for polycrystals is, in principle, the same as the analogous control technique for monocrystals. Studies have shown, however, that the specific resistance of polycrystals should be measured at higher current densities than with monocrystals. Figure 1 in the Enclosure shows some of the experimental results. Orig. art. has: 2 figures.

Card 1/3

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACCESSION NR: AP4044797

ASSOCIATION: Fiziko-tekhnicheskiy Institut AN UzSSR(Institute of Physics and Technology, AN Uz SSR)

SUBMITTED: 04Dec63 ENCL: 01

SUB CODE: IC NO REF SOV: 002 OTHER: 001

Card 2/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOVICH, A.S.; SINYUKOV, V.A.; MAMANOV, O.A.; SUVOROV, A.N.; GUDOSHNIKOV, A.V.

Measuring the specific resistance of high-resistance silicon. Dokl. AN Uz.SSR. 21 no.3:14-17 '64. (MIRA 17:5)

1. Fiziko-tekhnicheskiy institut AN UzSSR. Submitted July 31, 1963.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 47318-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/WW/JG/GG

ACC NR: AR6025748 SOURCE CODE: UR/0058/66/000/004/A072/A072

AUTHOR: Starodubtsev, S. V.; Sinyukov, V. A.; Karimov, R. Kh., Lyutovich, A. S.

47
B

TITLE: Investigation of the distribution of phosphorus in silicon crystals by the tracer atom method

SOURCE: Ref. zh. Fizika, Abs. 4A608

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 37

TOPIC TAGS: crystal growing, silicon, crystal impurity, tracer analysis, phosphorus, twinning

ABSTRACT: The authors investigate the growing of crystals by the Czochralski method from Si, doped beforehand from the gas phase in the process of reduction of its chloride. The electrophysical parameters of the grown crystals are studied. The procedure for analyzing the distribution of P in the volume of the crystal by the radioactive tracer method is described. The question of the uneven distribution of the impurities in the volume of the crystal and the formation of so-called "canals" is discussed. The distribution of P on the twinning boundary is investigated. [Translation of abstract]

SUB CODE: 20

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 02354-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/GG

ACC NR: AR6025735 SOURCE CODE: UR/0058/66/000/004/A069/A069

58

AUTHOR: Starodubtsev, S. V.; Kharchenko, V. V.; Lyutovich, A. S.; Prutkin, V. P. B

TITLE: Study of the character of the distribution of the dopant in epitaxial silicon films

SOURCE: Ref. zh. Fizika, Abs. 4A583

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 37-38

TOPIC TAGS: silicon, epitaxial growing, semiconducting film, tracer study, neutron irradiation, thermal neutron/ B-2 single channel analyzer

ABSTRACT: A radioactive tracer method was used to investigate the distribution of P in epitaxial films obtained by hydrogen reduction of silicon tetrachloride on Si substrates. A stable isotope of P, introduced in the initial tetrachloride in the form of $PCl_3$, was reduced with hydrogen and carried together with the Si into the epitaxial layer. The films were irradiated by a flux of thermal neutrons with density $10^9$ $cm^{-2}$. The stable isotope of P then went over into the radioactive isotope ($P^{32}$), whose distribution in the body of the film was investigated by the removal-of-layers method, using a single-channel B-2 analyzer. The character of the distribution curves obtained by this method is discussed. [Translation of abstract]

SUB CODE: 20

Card 1/1

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

Infectious Diseases

BULGARIA

MANOILOV, G., Lieutenant Colonel of the Medical Service, ILIEV, T., Colonel of the Medical Service, LYUTSKANOV, K., Captain of the Medical Service, VASILEV, V., Major of the Medical Service, and GROZEV, G., Senior Lieutenant of the Medical Service

"Occurrence of Q-Fever in the N Detachment in the City of Stara Zagora"

Sofia, Voenno Meditsinsko Delo, Vol 21, No 5, Oct 66, pp 38-43

Abstract: In March 1965 there were 24 cases of Q-fever among members of the N detachment, which was in field training in the vicinity of Stara Zagora. Eight of the cases were severe and 20 were accompanied by pneumonia. An investigation showed that the focus of infection was a sheep breeding farm at which 64 members of the detachment slept. Twenty of those who slept at the farm caught the disease. A number of sheep at the farm were affected by mastitis, and bortions or were sterile. A serological investigation indicated that 62.5% of these sheep had antibodies against R. burnetti in their blood. Fourteen of the persons infected had a raised temperature for periods up to 45

1/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACC NR: AP7004640 SOURCE CODE: UR/0288/66/000/003/0104/0105

AUTHOR: Umarov, G. Ya.; Lyutovich, A. S.; Yermatov, S. Ye.; Karimov, F. R.

ORG: Physico-technical Institute, AN UzSSR, Tashkent (Fiziko-tekhnicheskiy institut AN UzSSR)

TITLE: The possibility of obtaining semiconductor and difficultly fusible materials with the aid of a jet discharge

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1966, 104-105

TOPIC TAGS: thermal reactor, oxidation reduction reaction, gas discharge, high frequency discharge, metal oxide, water cooled nuclear reactor

ABSTRACT: A gas discharge setup (see Fig. 1) is described for deoxidizing such materials as silicon oxide and metallic oxides. The discharge in this water-cooled quartz reactor is maintained by 10-kw, 25-Mc, rf energy source and the raw materials are $SiCl_4$ and $M_0O_3$. The reactor is 75 cm long and 20 cm in diameter. When molybdenum oxide is being reduced cooling is not necessary. The discharge is started at silicon electrode progressing to the surrounding mixture of hydrogen and silicon tetrachloride. When molybdenum oxide is being reduced the electrode is made of molybdenum. Under normal conditions to reduce molybdenum trioxide to dioxide state

UDC: 621.315.592+669.018.45+669.094.1

Card 1/2

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACC NR: AP7004640

at 700C it is necessary to maintain the discharge for 2--3 hr. In this setup, however, after 5--7 min of deoxidation the oxygen content is reduced by 25%. Silicon powder is collected on the walls of the quartz tube during discharge. When hydrogen flow is 20 liter/min and that silicon tetrachloride is 200 ml/hr, 40% of applied silicon is collected on the tube walls. Orig. art. has: 1 figure and 1 table.

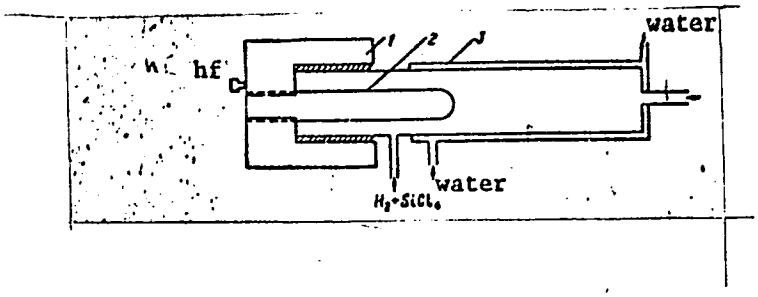


Fig. 1. Quartz reactor
1 - base, 2 - electrode, 3 - quartz reactor

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

SOURCE: Uzbekskiy khimicheskiy zhurnal, no. 1, 1965, 52-57

TOPIC TAGS: electrolytic polishing, thin film, silicon anode

ABSTRACT: An electrolytic polishing method of low resistance perforated silicon in an electrolyte containing hydrofluoric acid is described. The experimental procedure was that of T. K. Ivanova and A. S. Lyutovich ("Issledovaniye protsessa elektroliticheskogo polirovaniya kremniya v rastvorakh ftoristovodorodnoy kisloty," v sb. "Nekotoryye voprosy khimii, khimicheskoy tekhnologii i fiziko-khimicheskogo analiza," Tashkent, Izd-vo AN UzSSR, 1963). The experimental results as determined by optical and electron microscopy are shown in Fig. 1 on the Enclosure. The experimental results are interpreted in terms of a thin polishing film on the surface of the silicon, similar to that proposed by P. V. Shchigolev (Elektroliticheskoye i khimicheskoye polirovaniye metallov, M. Izd-vo AN SSSR, str. 16-23, 1959) for electrolytic polishing of metals. Orig. art. has: 1 graph and 1 photograph.



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Card 2/3

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 55014-65

ACCESSION NR: AP5010259

ENCLOSURE: 01

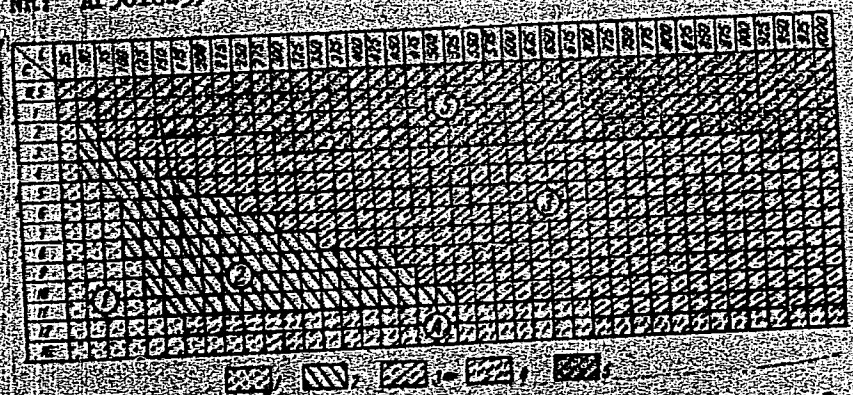

Fig. 1. Diagram of the distribution of anodic processes for low resistance perforated silicon. Fields: 1- formation of loose oxide layer; 2- pit-etching; 3- polishing; 4- step-etching; 5- formation of dense oxide film. "c"- concentration of hydrofluoric acid %; "i" anode current density ma/cm$^2$

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 29974-65 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EEC(t)/T/EWP(t)/EWP(b) Pz-6/Pr-4/Pu-4
IJP(c) JD/GG/AT S/0181/65/007/002/0502/0505

ACCESSION NR: AP5005291

AUTHOR: Vavilov, V. S.; Vintovkin, S. I.; Lyutovich, A. S.; Plotnikov, A. F.; Sokolova, A. A.

TITLE: Radiation structure defects in very pure monocrystals of silicon

SOURCE: Fizika tverdogo tela, v. 7, no. 2, 1965, 502-505

TOPIC TAGS: silicon, photoconductivity, defect, radiation effect, electron bombardment

ABSTRACT: The photoconductivity spectrum of very pure monocrystals of p-type silicon was investigated prior to and after irradiation with 1-Mev electrons. The samples were prepared by crucible-free zone melting of very pure silicon. The resistivity of the samples was 20 ohm·cm, the lifetime of the minority carriers 100—1000 msec, and the hole mobility 200—350 $cm^2/v \cdot sec$. The crystals had $\sim 5 \cdot 10^{11}$ donors/$cm^3$ and $5 \cdot 10^{12}$ acceptors/$cm^3$. The 12 x 2.5 x 0.4 mm samples were irradiated at room temperature and at the temperature of liquid nitrogen with a flux of $5 \cdot 10^{15}$ electrons/$cm^2$. The photoconducticity of samples with a resistivity of 1030 ohm·cm containing $\sim 3 \cdot 10^{16}$ atoms of oxygen per $cm^3$ was also investigated. The experiments showed that the main impurity present in the crystal samples was

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L 29974-65

ACCESSION NR: AP5005291

boron, the concentration of which was $5-10 \cdot 10^{12}$ atoms/cm$^3$. Electron bombardment at 80K resulted in the appearance of a continuous distribution of allowed states in the forbidden gap probably associated with point radiation defects. After heating of the samples to room temperature, only one discrete level, the $E_v + 0.45$ ev level, was found in the forbidden gap when the concentration of oxygen atoms was small; however, three levels ($E_c - 0.16$, $E_v + 0.30$, and $E_v + 0.45$ ev) were found in samples with a large concentration of oxygen atoms. The density of other electrically active impurities was lower by 1.5—2 orders of magnitude. Electron irradiation at room temperature did not change the resistivity of the samples. Bombardment at 80K increased the resistivity of samples quite sharply, although it then leveled off to a constant value. Resistivity decreased and returned practically to its initial value after irradiation was ceased. Considerable fluctuation of photoconductivity (noise) was observed in extremely pure crystals irradiated at 80K. Bombardment of the not very pure samples gradually decreased the lifetime of charge carriers; however, room-temperature irradiation of very pure crystals with fluxes up to $5 \cdot 10^{16}$ electrons/cm$^2$ hardly affected the lifetimes. Bombardment of very pure crystals at 80K decreased the lifetimes by 3—4 orders of magnitude. Initial lifetimes were restored almost completely after irradiation was stopped. [CS]

Orig. art. has: 2 figures.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 29974-65

ACCESSION NR: AP5005291

ASSOCIATION: Fizicheskiy institut imeni Lebedev AN SSSR, Moscow (Physics Institute, AN SSSR); Fiziko-tekhnicheskiy institut AN UzSSR, Tashkent (Physicotechnical Institute, AN UzSSR)

SUBMITTED: 29Jul64 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 007 OTHER: 000 ATD PRESS: 3196

Card 3/3

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACC NR: AR6030485 SOURCE CODE: UR/0275/66/000/006/B009/B009

AUTHOR: Starodubtsev, S. V.; Kharchenko, V. V.; Lyutovich, A. S.; Prutkin, V. P.

TITLE: Investigation of distribution of doping impurity in epitaxial silicon films

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 6B59

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dok. Novosibirsk, 1965, 37-38

TOPIC TAGS: epitaxial ~~silicon~~ film, silicon semiconductor, ~~silicon~~ metal film

ABSTRACT: Epitaxial films produced by hydrogen reduction of silicon tetrachloride on silicon backing were studied. A stable phosphorus isotope introduced in the source tetrachloride as $PCl_3$ was reduced by hydrogen and, along with the silicon, passed to the epitaxial layer. The resulting doped epitaxial films were irradiated with thermal neutrons of $10^9$ per $cm^2$ density in a reactor channel. The stable phosphorus isotope was turned into radioactive $P^{32}$ whose distribution in the film was studied in a single-channel B-2 analyzer by the method of taking off the layers. The nature of the resulting distribution curves is discussed. From the author's abstract. [Translation of abstract]

SUB CODE: 09, 11

Card 1/1 UDC: 621.315.592:548.552:546.28:548.28

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOY, N.F.

The ZPR-100 universal mounted grain carrier. Biul.tekh.ekon. inform. no.2:60-62 '60. (MIRA 13:6)
(Grain-handling machinery)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTOYEV, S.

New design for a room heater. Sel'.stroi. 10 no.3:24 Mr '55.
(Heating) (MIRA 8:6)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

1. LYUTREVICH, E. M., LAPKIN, I. FV.

2. USSR (600)

4. Russian Platform-Geology, Stratigraphic

7. Lower Triassic deposits of the Russian plateau, Dokl, AN SSSR, 88 No. 1 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

CA

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

**Preparation of stable arsenical insecticidal suspensions slightly soluble in water.** A. N. Krestovnikov and G. F. Lyutringshauzen. *Mineralnoe Suir'e i Tsvetnie Metallui* 6, 431-7(1929).—$3Cu(AsO_2)_2 \cdot Cu(CH_3COO)_2$ and $Ca(AsO_2)_2$ suspensions, slightly sol. in $H_2O$, are used as insecticidal sprays. They are prepd. by passing through a colloidal mill 1-5 g. of the suspension in 1 l. of $H_2O$ and 1% starch or 10% kaolin.

M. A. Jernakoff

COMMON ELEMENTS

COMMON VARIABLES INDEX

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2ND LETTER

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

6

Calcium metaarsenite. A. N. Krestovnikov and G. F. Lyutringshauzen. *Mineral. Suir'e* 3, 870-2(1930).—The interaction of $As_2O_3$, finely divided $Ca(OH)_2$ and water is effected at 100° with vigorous stirring. The product is amorphous, soly in $H_2O$ at 15°, 0.04-0.05%. B. C. A.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

The rapid determination of the total phosphorus in the gases from the phosphorus distillation furnace. T. A. Kryukova and G. F. Lyutringgauzer. *J. Chem. Ind.* (U. S. S. R.) 14, 1404-7(1937).—P and $PH_3$ are oxidized by moist air to a mixt. of $H_3PO_4$, $H_3PO_3$ and $H_3PO_2$. The fog of these acids is pptd. in an electrofilter and the soln. thus obtained is titrated with NaOH in the presence of methyl orange. $NaH_2PO_4$, $NaH_2PO_3$ and $NaH_2PO_2$ are formed. App. for the detn. is described in detail.

H. M. Leicester

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

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CA

**Apparatus for continuous measurement and recording of the density of pulps.** G. F. Lyutringshauzer. *J. Chem. Ind.* (U. S. S. R.) 16, No. 12, 46–9(1939).—A pneumatic method is described. H. M. Leicester

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

1ST AND 2ND LETTER

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

5(1), 25(5)

AUTHORS: Lyutrinsgauzer, G. F., Tabachnik, Ye. B. SOV/64-58-7-13/18

TITLE: Automatic Control of the Concentration of a Bichromate Solution in a Two-Unit Evaporating Apparatus (Avtomaticheskoye regulirovaniye kontsentratsii bikhromatnogo rastvora v dvukhkorpusnoy vyparnoy batareye)

PERIODICAL: Khimicheskaya promyshlennost', 1958, Nr 7, pp 438 - 440 (USSR)

ABSTRACT: At the end of 1956 the Sverdlovskiy filial NIIkhimmash (Sverdlovsk Branch of the NIIkhimmash) devised, in cooperation with S. I. Golub, V. M. Sekirazh, N. D. Isakov, N. M. Kushov, P. S. Tagil'tsev and Z. Akhmetov, an automatic control of the concentration of sodium bichromate solutions. The scientists worked with a separation of sodium sulfate crystals in a two-unit counterflow evaporating apparatus with forced circulation. The heating surface was 110 $m^2$, the concentration of the solution increased from 430 to 740 g/l. The diagram shows a control scheme consisting of a measuring device, an isostatic regulation of the type IR-150, an operational mechanism of the type IM2/120 and a control valve. According to a proposal by N. A. Ushatinskiy the

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

Automatic Control of the Concentration of a Bichromate Solution in a Two-Unit Evaporating Apparatus

SOV/64-58-7-13/18

concentration of the $Na_2Cr_2O_7$ in the finished product was determined according to the temperature depression. The boiling-point of the solution is definitely to a high degree dependent on its concentration. Two thermometers are used for the measurements, one in the circulation tube and the other in the vapor tube. Besides, a somehow modified automatic electron bridge ЕМР-120 was used for the direct determination of the temperature difference between the two thermometers. The rheostat cell of the bridge is connected to the rheostat cell of the operational mechanism by way of the control ЦР-130 . The industrial experiments demonstrated that the accuracy was increased to the 6-fold by changing over to the automatic control. There are 5 figures and 3 references, 2 of which are Soviet.

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTROVNIK, B.V.

FEOFILOVA, U.V.; LYUTROVNIK, B.V.

Clinico-diagnostic importance of urine reaction to pregnandiol. Akush.gin. no.2:22-24 Mr-Ap '50. (CLML 19:2)

1. Of the Polyclinic and Hospital of the Therapeutic-Medical Administration of the Kremlin (Head Obstetrician-Gynecologist -- Prof. V.P.Mikhaylov; Head of Laboratories -- Prof. P.P.Aver'yanov).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

YEGOROVA, L.I., LYSTROVNIK, B.V.

Observations on the therapeutic use of pelentan in cardiovascular diseases. Sovet. med. 17 no.10:16-18 Oct. 1953. (CIML 25:5)

1. Candidate Medical Sciences for Yegorova. 2. Moscow.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

MARGOLINA, L.T., LYUTROVNIK, B.V. (Moskva)

Determining prothrombin in diluted blood. Lab.delo. 6 [i.e.4] no.4:15-18 Jl-Ag '58 (MIRA 11:9)
(PROTHROMBIN)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

KUSEVITSKIY, I.A., prof., RODIONOV, S.I., LYUTROVNIK, L.L.

Case of myelosclerosis in tuberculous spondylitis [with summary in French]. Probl.tub. 36 no.5:115-116 '58 (MIRA 11:8)

1. Iz sanatoriya "Krasnaya Roza" Mosoblzdravotdela (glavnyy vrach L.V. Anisimov).
(TUBERCULOSIS, SPINAL, compl.
myelosclerosis (Rus))

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTROVNIK, L.Ya.; SHIRYAYEV, G.V., mostovoy master

Drainage construction machine in the division. Put' i put.khoz. 8 no.12:34 '64. (MIRA 18:1)

1. Nachal'nik Orekhovskoy distantsii puti Moskovskoy dorogi (for Lyutrovnik). 2. Orekhovskaya distantsiya puti Moskovskoy dorogi (for Shiryayev).

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

Doc Tech Sci

LYUTS, A. F.

Dissertation: "Fundamental Aspects of Laying Out Large Structures." 26/5/50

Moscow Inst of Engineers of Geodesy, Aerial Photography and Cartography

SO Vecheryaya Moskva
Sum 71

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTS, Aleksandr Fedorovich, prof.; SOROKIN, Vasiliy Pavlovich, dots.; FINKOVSKAYA, Tamara Semenovna, dots.; KOKOVIKHIN, Mikhail Fedorovich, inzh.; KIRILENKO, Vasiliy Sergeyevich, kand. tekhn. nauk; BELIKOV, Ye.F., dots., retsenzent; KHVOSTIK, I.F., red.; KOMAR'KOVA, L.M., red.izd-va; SUNGUROV, V.S., tekhn. red.

[Surveying in railroad engineering]Geodeziia v zheleznodorozhnom dele; spravochnoe posobie. [By] Liutts, A.F. i dr. Moskva, Geodezizdat, 1962. 342 p. (MIRA 16:1)
(Railroads—Surveying)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTSAREV, S.V.; BRUYEVICH, S.V.

Carbon dioxide in the atmosphere over the Pacific and Indian Oceans and the northern Black Sea region. Trudy Inst. okean. 67:7-40 '64. (MIRA 17:12)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

L 13772-65 EWT(1)/FCC Pa-4 AFETR GW

ACCESSION NR: AT4045850 S/2566/64/067/000/0007/0040

AUTHOR: Lyutsarev, S.V., Bruyevich, S.V.

TITLE: Carbon dioxide in the atmosphere over the Pacific, the Indian Ocean, and the northern coastal region of the Black Sea

SOURCE: AN SSSR. Institut okeanologii. Trudy*, v. 67, 1964. Khimiya vod i osadkov marey i okeanov. (Chemistry of the waters and deposits of the seas and oceans), 7-40

TOPIC TAGS: atmospheric carbon dioxide, climatology

ABSTRACT: In a review of studies on atmospheric carbon dioxide, culminating in the Soviet studies of 1958-61 in the Northern Pacific, the Indian Ocean, and the northern coastal region of the Black Sea, the authors present tables of extensive $CO_2$ content data collected by the expedition ship "Vityaz'" and by a joint expedition of the Institut okeanologii AN SSSR (Institute of Oceanology) and the Radiyevy*y institut AN SSSR (Radium Institute), and discuss the behavior of carbon dioxide in the atmosphere and its role as a climatic factor. Rubber balloons and glass bottles filled with concentrated soldium sulfate solution were used for air sampling (at 4 m above sea level), and assemblies of different types, of which Lyutserov's portable unit proved most suitable, were used for the determination of

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ACCESSION NR: AT4045850

$CO_2$. The unit allowed recirculation of the sampled air through the absorber, thus achieving an accuracy of within 2%. The $CO_2$ values, ranging from 302 to 412 parts per million in volume, indicate: 1. a distinct zonal $CO_2$ distribution in the Pacific, with a $CO_2$ content which is lower in the temperate latitudes, greater in the northern tropical region, and tends to decrease in the equatorial region; 2. greater $CO_2$ content in the northern tropical zone of the Indian Ocean than in the southern tropical zone; and 3. an average $CO_2$ content of 328 ppm in the Black Sea region which roughly coincides with that for 50-60° N latitidue in the Pacific, and that for Scandinavia and Finland. Orig. art. has: 8 tables, 3 maps, 1 figure and 3 formulas.

ASSOCIATION: Institut okeanologii AN SSSR (Institute of Oceanology, AN SSSR).

SUBMITTED: 00 ENCL: 00 SUB CODE: ES

NO REF SOV: 006 OTHER: 015

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTSAREV, S.V.; SMETANIN, D.A.

Obtaining "silica-free" and "phosphate-free" sea water. Trudy Inst. okean. 35:30-32 '59. (MIRA 13:3)
(Saline waters--Demineralization)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

34877
S/081/62/000/003/035/096
B156/B102

17.1150

AUTHOR: Lyutsarev, S. V.

TITLE: An instrument for determining carbon dioxide in air

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1962, 180, abstract 3Ye39 (Tr. In-ta okeanol. AN SSSR, v. 47, 1961, 199-208)

TEXT: A titrimetric gas analyzer is proposed in which the absorption of $CO_2$ by barium hydroxide is made more effective by pumping air samples being investigated through a glass filter for the purpose of dispersion. A system of taps enables samples to be circulated more than once through the absorption apparatus to ensure 100% absorption. At a concentration of ~0.03% $CO_2$, reproducibility of results is 2% relative. The minimum volume of $CO_2$ measured is ~50 $cm^3$. The instrument is simple and convenient for use in the field. [Abstracter's note: Complete translation.]

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

BRUYEVICH, S.V.; LYUTSAREV, S.V.

Concentration of carbon dioxide in the atmosphere over the Pacific and Indian Oceans and in the Black Sea region. Dokl. AN SSSR 136 no.2:405-407 '61. (MIRA 14:1)

1. Institut okeanologii Akademii nauk SSSR. Predstavleno akademikom A.P. Vinogradovym.
(Carbon dioxide) (Ocean)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTSAREVA, L. A.

131-1-6/14

AUTHORS: Volosevich, G. N., Gerasimova, V. D., Lyutsareva, L. A.

TITLE: Ceramic Pyroscopes for Temperature Measurement in a Regenerating Medium (Keramicheskiye piroskopy dlya izmereniya temperatur v vosstanovitel'noy srede)

PERIODICAL: Ogneupory, 1958, 23, Nr 1, pp. 23 - 28 (USSR)

ABSTRACT: A. V. Tereshchenko and I. Ye. Dudavskiy point out that the temperature of the fall of pyroscope depends on a number of factors, such as: dispersion, chemical and mineral composition of the pyroscopes, their shape, dimensions and their manner of installation, as well as the speed of the temperature increase. Various admixtures in the composition of the pyroscope may change the temperature of their fall in both directions, in dependence on the composition of medium in the furnace. According to the data by Vickers the influence of the admixtures $Fe_2O_3$ in different gas mediums is characterized by figures which are recorded in table 1. The pyroscope produced both in this country and abroad consist of clay, kaolin, quartz, feldspar, marble and so on with admixtures. Such pyroscopes are used in furnaces with oxidizing of neutral medium. Furnaces with regenerating medium were recently widely spread. They possess a hydrogen-ammonia medium and others and are used for annealing

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

131-1-6/14

Ceramic Pyroscopes for Temperature Measurement in a Regenerating Medium

and soldering various metals for sintering hard-metal alloys, for burning highly aluminiferous ceramics of pure oxides which require a high temperature and a regenerating medium respectively for burning. In order to be able exactly to measure the temperature in electric furnaces with regenerating medium in the range of from 1500 to 1800°C, tests were performed with various existing devices and pyroscopes. After these tests had yielded a negative result (as may be seen from table 2 and figure 1) pyroscopes of aluminum oxide (alumina) with an admixture of fluxing agents were produced which are destined for use in a regenerating medium (ПКВ). For the purpose of determining the composition of these pyroscopes, tests with synthetic fluxing agents were performed, as is to be seen from table 3. As aluminum oxide the authors used an argillaceous earth of the brand Го burnt at 1640°C in a regenerating medium; its chemical composition is given in table 4. The pyroscope with 30 % admixture of fluxing agents showed fall temperatures which are recorded in table 5. Pyroscopes with admixture of 5 to 50 % of the fluxing agent N 3 behaved as may be seen from table 6. The pyroscopes were installed on corundum bases according to GOST 4069-48. The comparison of the operation of these pyroscopes in a nitrogen-hydrogen medium and in krypton furnace is shown in

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Ceramic Pyroscopes for Temperature Measurement in a Regenerating Medium

table 7. Figure 2 shows a photograph of the pyroscopes ПКН 163, 167 and 169, and of the new pyroscope ПКВ - 149 which are placed in the electric furnace with nitrogen-hydrogen medium at 1480°C. There are 2 figures, 7 tables, and 5 references, 4 of which are Slavic, **and 1 English.**

ASSOCIATION: **Experimental Plant** imeni Dzerzhinskiy (Opytnyy zavod im. Dzerzhinskogo) Lyubertsy Silicate Brick Pl im. F.E. Dzerzhinskiy (near Moscow)

AVAILABLE: Library of Congress

**1. Pyroscopes-Application**

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APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACCESSION NR: AP4037232 S/0153/64/007/001/0106/0110

AUTHOR: Kalliga, G. P.; Lyutsareva, L. A.

TITLE: Some properties of high-purity zirconium dioxide

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 7, no. 1, 1964, 106-110

TOPIC TAGS: refractory oxide, zirconium dioxide, zirconia, zirconia purity, stabilized zirconia, zirconia sinterability, high temperature characteristic, physicomechanical characteristic

ABSTRACT: Sinterability and some high-temperature physicomechanical characteristics of sintered, stabilized, 99.5%-pure zirconium dioxide have been studied by x-ray, dilatometric, and microscopic methods. The high-temperature characteristics of this high-purity zirconia were shown to be far superior to those of materials based on technical grade zirconia. The best characteristics at 1700-1750C were obtained with high-purity zirconia stabilized with 10 mol% calcium or magnesium oxide. However, better sinterability (higher

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

ACCESSION NR: AP4037232

density) at temperatures below 1700C was achieved with magnesium oxide than with the same amount of calcium oxide admixture. Titanium dioxide and alumina admixtures to a high-purity zirconia stabilized with calcium oxide improve sinterability but decrease the refractory properties of the material, especially in the case of alumina admixture. Orig. art. has: 2 tables and 3 figures.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva. Kafedra tekhnologii keramiki i ogneuporov (Department of Technology of Ceramics and Refractories, Moscow Chemico-technological Institute)

SUBMITTED: 04Feb 63 DATE ACQ: 05Jun64 ENCL: 00

SUB CODE: MT, GC NO REF SOV: 007 OTHER: 005

Card 2/2

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTSAREVA, L.A.

S/131/63/000/004/001/001
A006/A101

AUTHORS: Poluboyarinov, D.N., Kalliga, G.P., Lyutsareva, L.A.

TITLE: On the problem of stabilizing and sintering high-purity zirconium dioxide

PERIODICAL: Ogneupory, no. 4, 1963, 175 - 179

TEXT: The material investigated was zirconium oxide containing 99.5% basic oxide, 0.1% $HfO_2$ and 0.4% other admixtures. MgO and CaO were used for stabilization; to reveal the effect of the type of anion, $CaF_2$ was employed. Twelve types of experimental substances were prepared with a gradually increasing content (from 4 to 15 mol%) of the stabilizing agent. Specimens were prepared by semi-dry pressing under 450 kg/cm$^2$ pressure. The moisture of the pressed powders was 6%. The dried specimens were annealed at 1,710°C with 5 h holding and slowly cooled down. The following results are obtained. Under conditions of oxidizing annealing at 1,710°C during 5 h, substances with 10 mol% of stabilizing oxide are fully sintered. Stabilization is sufficient and the material acquires high strength and heat resistance as compared with other investigated substances. If

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the amount of the stabilizing agent is increased to 12 - 15% a well-sintered and fully stabilized product is obtained; however, the density of the material is reduced which appears particularly when CaO is added. Moreover, the strength and heat-resistance are sharply reduced. The relatively low density of an annealed substance with 10 mol% of a stabilizing admixture (for CaO 5.20 and for MgO 5.28 g/cm3), is mainly determined by the presence of pores, both inside and on the boundaries of the material crystals. A rise of the annealing temperature to 2,200°C has only a slight effect on the material density. A higher density of a material with 10 mol% CaO is attained a) by changing the type of anion introduced together with the stabilizer $CO_3''$ to $F'$; the heat-resistance of the material is then strongly impaired; b) by preliminary sintering of the stabilized product; as a result specimens of 5.54 g/cm3 volumetric weight are obtained. There are 3 tables and 5 figures.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva (Chemical and Technological Institute imeni D.I. Mendeleyev)
Moscow Inst. Chemical Technology im. "



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GORELIK, Semen Samuilovich; RASTORGUYEV, Leonid Nikolayevich; SKAKOV, Yuriy Aleksandrovich. Prinimali uchastiye: BELIKOV, A.T.; VISHNYAKOV, Ya.D.; LYUTSAU, V.G., red.; VLADIMIROV, Yu.V., red.izd-va; BEKKER, O.G., tekhn. red.

[X-ray and electron diffraction examination of metals; practical guide to X-ray analysis, electron diffraction examination and electron microscopy] Rentgenograficheskii i elektronograficheskii analiz metallov; prakticheskoe rukovodstvo po rentgenografii, elektronografii i elektronnoi mikroskopii. Moskva, Metallurgizdat, 1963. 256 p.
___[Supplement; calculation data tables and standard X-ray diffraction patterns] Prilozheniia; spravochno-raschetnye tablitsy i tipovye rentgenogrammy. 1963. 92 p.
(MIRA 17:1)

(Metallography) (Electron microscopy)
(Electron diffraction examination)

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

KALLIGA, G.P.; LYUTLAGEVA, L.A.

Effect of additives on the properties of $ZrO_2$ stabilized by calcium oxide and magnesium oxide. Ogneupory 29 no. 7 412-417 '64. (MIRA 17:10)

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

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTTSAU, S.V.

Classification of river terraces. Sov. geol. 7 no.5:98-110 My '64 (MIRA 18:2)

1. Moskovskiy gosudarstvennyy universitet.

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

DENEL', Aleksandr Kirillovich; LYUTSAU, V.G., red.

[Laboratory for the defectoscopy of metals] Laboratoriia defektoskopii metallov. Moskva, Metallurgiia, 1964. 154 p. (MIRA 18:2)

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0"

"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

LYUTSE, I.A., inzh.

High-production automatic lines in the brewing industry. Mekh.i avtom.proizv. 16 no.4:14-16 Ap '62. (MIRA 15:4)
(Brewing industry--Equipment and supplies) (Automation)

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88685

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A006/A001

12 7110

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, pp. 33 - 34, # 1D288

AUTHORS: Lokshin, F.L., Lyutsedarskiy, V.A., Derevyannykh, A.P., Andreyeva, O.I.

TITLE: The Effect of Hydraulic Impacts of Ultrasonic Frequency on the Structure of Quenched Alloys

PERIODICAL: "Tr. Novocherk. politekhn. in-ta", 1959, No. 73, Raboty Kafedry fiz. pp. 81 - 95

X

TEXT: The effect of hydraulic ultrasonic-frequency impacts on the structure was investigated on Д 1 (D1) type alloys (3.8% Cu, 1.4% Mg), and Х 18 Н 9 (Kh18N9) and У 12 (U12) steel by measuring the hardness and by roentgenostructural analysis. A description is made of a device for the excitation of ultrasonic-frequency hydraulic impacts. All the investigations were made at a frequency of 500-600 kilo-cycles. The specimens investigated were after quenching subjected to hydraulic impacts of ultrasonic frequency in a water bath. It was found that as

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A006/A001

The Effect of Hydraulic Impacts of Ultrasonic Frequency on the Structure of Quenched Alloys

a result of hydraulic impacts of ultrasonic frequency, the aging process of duraluminum alloys was considerably accelerated; limit hardness values in time are obtained earlier than during artificial or natural aging. After the effect of hydraulic impacts of ultrasonic frequency on the quenched alloys, processes in the alloys take place which are analogous to processes during tempering. In practice, the use of hydraulic impacts of ultrasonic frequency during heat treatment of steel, reduces the probability of crack formation and assures the formation of tempering structures within a shorter time interval. When subjecting steel to hydraulic impacts of ultrasonic frequency, structural changes of the same nature as in cold treatment, may be expected. There are 26 references.

A. B.

Translator's note: This is the full translation of the original Russian abstract.

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USSR / Physics SOV/5-

Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 3d, Leningrad, 1959.

Steklookhrannoye sostoyaniye, trudy Tretyego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 g. (Vitreous State, Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad, November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 594 p. Errata slip inserted. 3,200 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikat Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barzakovskiy, M.A. Bezborodov, O.K. Botvinkin, V.V.Vargin, A.G. Vlasov, E.S. Yevstropyev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Porai-Koshits, Chairman, N.A. Toropov, V.A. Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Suvorov; Tech. Ed.: V.T. Bochever.

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. They deal with the methods and results of studying the structure of glasses, the relation between the structure and properties of glasses, the nature of the chemical bond and glass structure, and the crystallochemistry of glass. Fused silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glasses are also discussed. A number of the reports deal with the dependence of glass properties on composition, the tinting of glasses and radiation effects, and mechanical, technical, and chemical properties of glasses. Other papers treat glass semiconductors and soda borosilicate glasses. The Conference was attended by more than 500 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were N.V. Solomin, Ye. V. Kuvshinskiy, Yu.A. Gnatev, V.P. Pryanishnikov, Yu. Ye. Gotlib, O.P. Mchedlov-Petrosyan, G.P. Mikhaylov, S.M. Petrov, A.N. Lazarev, D.I. Levin, A.V. Shatilov, N.T. Ploshchinskiy, A.Ya. Kuznetsov, E.V. Deytyareva, G.V. Byurganovskaya, A.A. Kalenov, M.M. Skomyakov, P.Ya. Bokin, E.K. Keller, Ya.A. Kuznetsov, V.P. Pozdnev, R.S. Shevelevich, Z.G. Pinsker, and O.S. Molchanova. The final session of the Conference was addressed by Professor I.I. Kitaygorodskiy, Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskiy institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fizicheskiy institut AN SSSR (Physics Institute AS USSR), Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute AS USSR), Institut fiziki AN BSSR, Minsk (Institute of Physics, Academy of Sciences, Belorusskaya SSR, Minsk), Laboratory of Physical Chemistry of Silicates of the Institut obshchey i neorganicheskoy khimii AN BSSR, Minsk (Institute of General and Inorganic Chemistry, Academy of Sciences, Belorusskaya SSR, Minsk), Institut vysokomolekulyarnykh soyedineniy AN SSSR (Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (State Institute for Glass), Gosudarstvennyy institut steklovolokna (State Institute for Glass Fibers), Gosudarstvennyy institut elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-technicheskiy institut, Tomsk (Siberian Physicotechnical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensoveta), Belorusskiy politekhnicheskiy institut Minsk (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkask Polytechnic Institute), and Sverdlovskiy politekhnicheskiy institut (Sverdlovsk Polytechnic Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.F. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev), and the Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova (State "Order of Lenin" Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to organize a Center for the purpose of coordinating the research on glass, to publish a new periodical under the title "Fizika i khimiya stekla" (Physics and Chemistry of Glass), and to join the International Committee on Glass. The Conference thanks A.A. Lebedev, Academician, Professor, and Chairman of the Organization of Committee; Ye.A. Porai-Koshits, Doctor of Physics and Mathematics, Member of the Organizational Committee, and R.L. Myuller, Doctor of Chemical Sciences, Member of the Organizational Committee. The editorial board thanks S.M. Bartenev, M.V. Volkenshteyn, I.I. Demkina, D.P. Dobychin, S.K. Dmitriev, V.A. Ioffe, and E.T. Kolomiyets. References accompany individual reports.

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A001/A101

15 2120 11112, 3109, 3309

AUTHORS: Azarov, K P, Balandina, V V, Grechanova, S B, Lyutsedarskiy, V A

TITLE: The structure and properties of iron-containing glasses

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 224, abstract 6D271 (V sb "Steklooprazn. sostoyaniye" Moscow-Leningrad, AN SSSR, 1960, 365-368, Discus. 377 - 379)

TEXT: The authors investigated magnetochemical and other properties of boron and boron-free glasses and enamels containing iron. On the basis of data obtained, the authors drew conclusions on the valent and coordination states of $Fe^{2+}$ and $Fe^{3+}$ ions and their position in the structural skeleton of the glass. The conclusion was arrived at that iron in boron glasses and enamels was mainly present in the form of $Fe^{2+}$ cations weakly bound with the glass structure. In boron-free glasses, Fe is present mainly in the trivalent state in the form of $FeO_3$ and $FeO_4$ groups which are parts of the glass structural skeleton and strengthen the latter.

T. Veynberg

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

AZAROV, K.P.; BALANDINA, V.V.; LYUTSEDARSKIY, V.A.

Magnetochemical investigations of iron-containing glasses (enamels). Zhur. prikl. khim. 33 no.8:1900-1901 Ag '60. (MIRA 13:9)

1. Laboratoriya emaley Novocherkasskogo politekhnicheskogo instituta imeni Sergo Ordzhonikidze.
(Glass--Magnetic properties)

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27372

S/194/61/000/003/038/046
D201/D306

1.1730

AUTHORS: Lokshin, F.L., Lyutsedarskiy, V.A., Dyerevyannykh, A.P. and Andreyeva, O.I.

TITLE: The effect of ultrasonic frequency hydraulic shocks on the structure of hardened alloys

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 3, 1961, 19, abstract 3 E134 (Tr. Novocherk. politekhn. in-ta, 1959, 73, Raboty Kafedry fiz., 81-95)

TEXT: Structural changes are investigated in hardened steels and aluminum alloys as resulting from their processing by hydraulic shocks at ultrasonic frequencies (500-600 Kc/s). It is explained that under the effect of hydraulic shocks, processes arise in alloys similar to those in annealing. The duration of these processes is much shorter than that in normal ageing and annealing. It is possible to put into practical use the effect of hydraulic shocks in

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The effect of ultrasonic frequency...

thermal processing of duraluminum (the processing time is shortened and a higher degree of hardness is obtained) and of steel (the possibility of cracks occurring is reduced, the annealed structure is obtained in a shorter time). The schematic of the installation is given. The results of the experiments are presented in the form of a table, graph and X-ray photographs. 14 figures. 26 references. [Abstracter's note: Complete translation]

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27127
S/080/60/033/008/020/022/XX
D213/D305

15 2140

AUTHORS: Azarov, K.P., Balandina, V.V., Lyutsedarskiy, V.A.

TITLE: Magnetochemical investigations of iron-containing glasses (enamels)

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 8, 1960, 1900 - 1901

TEXT: In the present work the authors studied the magnetic properties of boron and boron-free glasses (enamel primers for steel) to establish the relation between the position of iron and the properties of the glass, an important factor in the physical chemistry of enamelling. The glasses examined were heated for 4 hours with 5 % ferric oxide at 500 - 1000°C and quenched in water to fix the position of iron at a given temperature. The powdered glass was sieved through a 10,000 openings/cm$^2$ sieve and its magnetic susceptibility determined by Guy's method. To eliminate the presence of ferro-magnetic admixtures in the enamels (glasses) all the ex-

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periments were conducted in magnetic fields of 250-400 oersteds. The specific susceptibility was then calculated from

$$x_2 = \frac{x_1 \ell_2 m_1}{\Delta p_1 \ell_1 m_2} \quad p_2 \qquad (1)$$

where $x_1$ and $x_2$ - specific magnetic susceptibilities of blank and test samples, $m_1$ and $m_2$ - masses of powder in grams, $\Delta p_1$ and $\Delta p_2$ - change in weight in grams, $\ell_1$ and $\ell_2$ - heights of powders in ampoules in cm. The blank used in the experiments was made up of Mohr's salt. The magnetic moments of iron for boron and boron-free enamels increase at 500-700°C which in the absence of ferromagnetic material is due to the rupture of the crystalline lattice of $Fe_2O_3$ and the gradual introduction of iron into the glass structure. This assumption agrees with the findings of the divergence between Weiss constants for iron-containing enamels (-500°K) and for



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Magnetochemical investigations ...

$Fe_2O_3$ (~2000°K) which indicates a weakening of the bonds between iron atoms. In the 500 - 700°C interval boron-free enamel differs from boron enamel in the magnetic moment value which may be attributed to the relatively high content of $Fe^{3+}$. With a further temperature increase, from 700-1000°C, an alternating increase and decrease of magnetic moments of iron is observed and at 850-950°C a maximum value of 6.05 Bohr magnetons is obtained (theoretical value for $Fe^{3+}$ is 5.92). This fact establishes a similarity in the action of boron and boron-less enamel melts on the position of iron at given temperatures. There are 1 figure and 9 references: 3 Soviet-bloc and 6 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: H. Cole, J. Soc. Glass Techn., 35, 162, 25-40, 1951; J. De Jong, J. Soc. Glass Techn., 38, 181, 57T-83T, 1954; A.E.M. Abou-El-Azm, J. Soc. Glass Techn 38, 181, 101T-145T, 1954; J.M. Stevels, Proceedings Intern. Comm. on glass 1, 71, 1954.

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D213/D305

Magnetochemical investigations ...

ASSOCIATION: Laboratoriya emaley Novocherkasskogo politekhnicheskogo instituta im. Sergo Ordzhonikidze (Enamel Laboratory of Novocherkask, Polytechnic Institute im. Sergei Ordzhonikidze)

SUBMITTED: December 14, 1959

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[illegible]

[illegible]

S 080 61/034/008/016/0[illegible]8
D204 [illegible]

AUTHOR: Novalenko [illegible] V., Tyutsedarskiy [illegible] and Ryshkina, [illegible]

TITLE: Investigating semiconductor thermoresistances with [illegible] $Mn_3O_4$ [illegible]

SOURCE: Zhurnal prikladnoy khimii, v. [illegible] 1961, 1880-1883

TEXT: The purpose of this investigation was to establish the phase composition of the roasted cupro manganese mixture used in thermoresistances. The authors prepared $Mn_3O_4$ by prolonged heating of $Mn_2O_3$ at 950 - 1000°, the correspondence of the obtained compound to the formula and the absence of other oxide phases being verified by a method of [illegible] ray analysis [illegible] cell, [illegible]-55 equipment with an iron anticathode and a [illegible] exposure at 2[illegible] kV and 15 mA, type [illegible] film, specimen diameter [illegible] mm. The interplane distances d are calculated by correcting for the diameter of the specimen, and the intensity I is estimated by eye according to the 5-mark scale. Com-

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nvestigating semiconductor

parison of the interplane distances and line intensities of the studied sample with the standard values given by Mikheyev (Ref. 7) Rentgenometricheskiy opredelitel mineralov (X-ray detector of minerals) Gosgeoltekhizdat, Moscow 1957 and A. Litavgorodskiy (Ref. 6) Rentgenostrukturnyy analiz melkokristallicheskikh i amorfnykh tel (Roentgeno-structural analysis of finely crystalline and amorphous bodies), Gostekhizdat, Moscow and Leningrad, 1952 and others indicate that the prepared compound completely corresponds to $Mn_3O_4$. The value of the magnetic susceptibility of the studied specimen also closely agrees with that cited in published handbooks. As regards cuprous oxide, B. Gulida (Ref. 9) Tr. Tomskogo Gos. Univ. im. Kuybysheva, 145, 148, 195[illegible] notes the instability of the $CuO$ $Cu_2O$ equilibrium on heating. According to Ormont, cuprous ions occur in tetrahedral positions, the coordination of the cupric ions being almost tetragonal. In order to ascertain the changes in the phase composition of a cupro-manganese mixture with variation in temperature, X-ray analyses were made of specimens with the composition 66% $Cu_2O$ - 34% $Mn_3O_4$ that were heated to a constant weight at temperatures of 400, 500, 600, 700, 800 and 900°. The experimental

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results suggest the existence of two phases: $CuMn_2O_4$ and CuO. The relative content of these phases varies with temperature; CuO shows a minimum at 500° and then smoothly increases to reach a maximum at 900°. The appearance of CuO may be connected with the oxidation of $Cu_2O$. The increase in the weight of samples on heating, which proceeds at the expense of the $Cu_2O$ oxidation reaction, would seem to confirm this phenomenon. This increase in the relative concentration of CuO may be due to the greater rate of diffusion of oxygen ions into $Cu_2O$ in comparison with that of copper ions into $Mn_3O_4$. The most probable form for the reaction taking place during sintering is: $12\ Cu_2O + 4\ Mn_3O_4 + 7\ O_2 = 6\ CuMn_2O_4 + 18\ CuO$. Thus, CuO and a solid solution of $Mn_3O_4$ in $CuMn_2O_4$ will be present as a result of interaction in the specimens brought to constant weight. The authors assert that this last conclusion agrees with the observations of Rode regarding the formation by manganese of a number of oxygen compounds with a variable composition, a phenomenon also noted by B. Kolomiyets (Ref. 11: Zhurnal tekhnicheskoy fiziki, 27, 1, 51, 1957) and Ye. V. Kurlina et al. (Ref. 12: Dokl. Akad. Nauk



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25232

S/080/61/034/008/016/018
D204/D305

Investigating semiconductor

SSSR, 86 2 305, 1952 when studying reciprocal solid solutions between spinels in the system CuO - $Mn_3O_4$ - $O_2$ There are 3 figures, 1 table and 12 references 8 Soviet-bloc and 4 non-Soviet-bloc. The references to the English language publications read as follows: K inha and A Sinha, J Phys Chem , 61 6, 758 1957; Cumulative Alphabetical and grouped numerical index of X-ray diffraction data American society for testing materials 1916 Race Street, Philadelphia 3 Pa 1953); Handbook of Chemistry and Physics, 37th edition, 2 Cleveland, 1955-1956 K inha et al J Phys Chem., 62, 2, 1958

SUBMITTED May 6 1960

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"APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031220020-0

30202

S/080/61/034/011/015/020
D228/D301

15 2510

AUTHORS: Azarov, K.P., Balandina, V.V., and Lyutsedarskiy, V.A.

TITLE: Magneto-chemical investigations of glasses of the system $Na_2O$ - $P_2O_5$ - $V_2O_5$

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 11, 1961, 2560 - 2562

TEXT: The authors studied the magneto-chemical properties of $Na_2O$ - $P_2O_5$ - $V_2O_5$ glasses with the aim of tentatively assessing the state of V in such a system. Research into the properties of glasses of the systems $V_2O_5$ - $P_2O_5$, $V_2O_5$ - $P_2O_5$ - BaO, and $V_2O_5$ $P_2O_5$ - $Na_2O$ - BaO suggests that V plays an analogous role to P in these systems, and that compounds of V with O should be excluded from the number of glass-forming oxides. The glasses were prepared by heating batches of $Na_2CO_3$, $(NH_4)H_2PO_4$, and $V_2O_5$ in corundum crucibles at 900 - 1200°, after which the mixtures were first air-

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cooled and then pulverized. The magnetic susceptibilities of the powders was determined by the Gouy method, the magnetic moment $\mu$ of V in the glasses being computed from the formula:

$$\mu = 2.83\sqrt{\frac{100}{P}\,\varkappa AT}$$

where p is the V content of the glass, $\varkappa$ - the specific magnetic susceptibility, A is the atomic weight of V, and T is the absolute temperature. These values were compared with the theoretical magnitudes for the effective magnetic moment of different V ions calculated from

$$\mu = \sqrt{n(n+2)}$$

where n is the number of uncoupled electrons. For most of the glasses with a $Na_2O$ content of 40 - 55 mol. % the magnetic moment of V lies in the range 3.14 - 5.36 Bohr magnetons which indicates the predominance of ions with a valency of $<5$ ($V^{3+}$ and $V^{4+}$). In sections with a constant $Na_2O$ content the magnetic moment of V decreases - which corresponds to the rise in the relative concentration of $V^{4+}$ ions - as the $V_2O_5$ content increases at the expense of $P_2O_5$.



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D228/D301

Magneto-chemical investigations ...

The authors found that at the highest concentration of $Na_2O$ (50 - 55 mol. %) the experimental values of μ exceed the theoretical values, owing to the presence of crystallization which was discovered in the glasses by microscopic and X-ray techniques. They hence conclude that this method may be used to detect the formation of a crystalline phase in V glasses. There are 3 figures, 1 table, and 12 references: 7 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: K. H. Sun, J. Amer. Ceram. Soc. 30, 9, 277, 1947; E.P. Denton et al, J. Soc. Techn. 40, 194, 252, 1956; P.L. Baurton et al, J. Electrochem. Soc., 104, 4, 237, 1957.

ASSOCIATION: Novocherkasskiy polytekhnicheskiy institut, laboratoriya emaley (Enamels Laboratory, Novocherkassk Polytechnic Institute)

SUBMITTED: January 20, 1961

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