POZNYAK, L.A., kand. tekhn. nauk; ORLOVA, L.M., inzh.; YEVSTRATOVA, V.M., inzh.; SHTEYN, F.S., inzh.; SHKATOV, A.P., inzh.

Microstructure of certain die steels for the cold and hot forming of metals and alloys. [Nauch. trudy] ENIKMASHa no.9:71-127 '64. (MIRA 17:11)

SHKATOV, A.P., inzh.; ZENCHENKO, T.I.; Prinimala uchastiye YEVSTRATOVA, V.M.

Investigating the structure and properties of certain steels for dies used in forging. [Nauch. trudy] ENIKMASHa no.9:15-27 '64. (MIRA 17:11)

IVANOV, B.I.; SHARONOVA, N.F.; YEVSTRATOVA, Z.F.

Chemical losses of butyl acetate in the process of dephenolation of tar waters. Trudy VNIIPS no.5:304-310 '56. (MLRA 10:5)
(Acetic acid) (Tar)

YEVSTRATOVA, Z.F.; LAPIN, V.N.; SEDLIS, V.I.; FEOFILOV, Ye.Ye.

Utilizing some groups of compounds in fuel oil fractions of shale tars as plasticizers. Trudy VNIIPS no.7:226-231 '59. (MIRA 12:9)

(Oil shales) (Plasticizers)

YEVSTRAT'YEVA, Ye.D.; KURYACH'YEV, A.P.; SINITSYN, A.V.

Drying cottage cheese by sublimation. Kons. i ov. prom. 14 no.4:16-18 Ap '59. (MIRA 12:5)

1.Rostovskiy konservnyy zavod "Smychka" (for Yevstrat'yeva, Sinitsyn).
2.Giprorybproyekt (for Kuryach'yev).
(Cottage cheese—Drying)

YEVSTROPOV, A.P.

YEVSTROPOV. A.P., professor.

New method of fixing tendons of leg flexor muscles to the patella. Ortop.travm. i protez. no.3:12-15 My-Je '55. (MLRA 8:10)

1. Iz ortopedicheskogo otdeleniya (zav.prof. A.P.Yevstropov) kliniki gospital'noy khirurgii (zav.prof. A.M.Aminev) Kuybeshevskogo meditsinskogo instituta
(LEG, muscles,
flexor tendons, fixation)

YEVSTROPOV, A.P., prof. (Kuybyshev (obl.), Nekrasovskaya ul., d. 20, kv.114)

Approach to the knee joint in the excision of a torn meniscus. Ortop., travm. i protez. 24 no.12:33-36 D '63. (MIRA 17:7)

1. Iz ortopedicheskogo otdeleniya (zav. - prof. A.P. Yevstropov) kafedry gospital'noy khirurgii (zav. - prof. A.M. Aminev) Kuybyshevskogo meditsinskogo instituta.

ACCESSION NR: AP5017655 UR/0109/65/010/007/1181/1189
621.396.677.71

AUTHOR: Veshnikova, I. Ye.; Yevstropov, O. A.

TITLE: Theory of matched slot radiators

SOURCE: Radiotekhnika i elektronika, v. 10, no. 7, 1965, 1181-1189

TOPIC TAGS: slot radiator, slot antenna

ABSTRACT: Formulas for the conductance of a resonance slot having an arbitrary position in the wider wall of a rectangular waveguide are developed by means of [illegible]. The resonance-slot equivalent [illegible] of a line with a parallel conductance. An equation is set up that describes the slot position required for matching by an inhomogeneity placed in the slot center. Also formulas are derived for the radiated power and the matching reactance. Experimental verification of the formulas on a waveguide with a cross-section of $1.46\lambda \times 0.435\lambda$ is claimed. Orig. art. has: 6 figures and 34 formulas.

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ACCESSION NR: AP5017655

ASSOCIATION: none

SUBM.TTED: 11May64 SUB CODE: EC

Card 2/2

YEVSTROPOV, G.A.; TSARAPKIN, S.A.

Study of waveguide-slot antennas with identical resonant resonators. Radiotekh. i elektron. 10 no.9:1663-1671 S '65.
(MIRA 18:9)

L 10358-66 EWT(1)/T WR

ACC NR: AP6014236 SOURCE CODE: UR/0109/66/011/005/0822/0830

44
41
B

AUTHOR: Yevstropov, G. A.; Tsarapkin, S. A.

ORG: none

25B

TITLE: Calculation of slotted-waveguide antennas with an allowance for dominant-mode radiator interaction

SOURCE: Radiotekhnika i elektronika, v. 11, no. 5, 1966, 822-830

TOPIC TAGS: slot antenna, waveguide antenna, antenna theory

ABSTRACT: As the major-mode interaction of radiators results in a substantial deviation of the aperture phase distribution from linear (and the latter is conventionally assumed in the known methods of antenna calculation), the article offers an improved method of antenna calculation for both specified amplitude and phase distributions. The new method replaces the slotted-waveguide antenna with an equivalent two-conductor line with shunt conductances; the line is broken up into a number of quadripoles. Equations that connect forward and back waves at the quadripole terminals are used in the analysis and synthesis of the equivalent line. These

UDC: 621.396.677.71.001.24

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equations are transformed into recurrent relations, which can be used for calculating either the amplitude-phase distribution in a known-parameter antenna or the equivalent line when the amplitude-phase distribution is specified. The latter case can be physically implemented by inclined offset slots. As a numerical example, the Dolf-Chebyshev amplitude distribution (side-lobe level, -40 db) is calculated and aperture phase distortion is analyzed. "The authors wish to thank L. S. Benenson for his useful remarks, and L. A. V'yushkova and B. A. Malayev for their help in carrying out the calculations and discussing the results." Orig. art. has: 5 figures, 23 formulas, and 2 tables.

SUB CODE: EM, 09 / SUBM DATE: 29Jan65 / ORIG REF: 005 / OTH REF: 002

YEVSTROPOV, I. I.

42209. YEVSTROPOV, I. I. - Materialy po ekologii marokkskoy saranchi i izucheniyu novykh yadov. Izvestiya Akad. nauk Azerbaydzh. SSR, 1948, No. 8, c65-76. -Rezyume na azerbaydzh. yaz.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948

YEVSTROPOV, N.A., student V kursa; YEGIAZARYANI, A.S., student V kursa; PANIN, I.M., nauchnyy rukovoditel', dotsent, kand.tekh.nauk

Some problems in the theory of blasting in rock and the practice of short-delay blasting in breaking ore in stopes. Nauch. rab. stud. GNSO MGI no.7:5-24 1959. (MIRA 14:5)
(Blasting)

YEVSTROPOV, N.A.

Efficient method for the explosion of charges in mountains.
Biul.tekh.-ekon.inform. no.8:7-10 '61. (MIRA 14:8)
(Blasting)

YEVSTROPOV, Nikol[illegible]evich, kand. tekhn. nauk; MAZUROV, V.A., kand. tekhn. nauk, nauchn. red.

[Blasting in construction; the dynamics of blasting in soil and rock] Vzryvnye raboty v stroitel'stve; dinamika vzryva v gruntakh i gornykh porodakh. Moskva, Stroiizdat, 1965. 206 p. (MIRA 18:12)

YEVSTROPOV, Nikolay Alekseyevich; KOMAROVA, L.S., red.; DEMIDOV, Ya.F., tekhn. red.

[Theory and practice of blasting operations in mining and construction]Voprosy teorii i praktiki vzryvnykh rabot v gornoi promyshlennosti i stroitel'stve. Moskva, VNIIST Glavgaza SSSR, Red.-izd.otdel, 1961. 44 p. (MIRA 15:8)
(Blasting)

YEVSTROPOV, Nikolay Alekseyevich; KOLOBOV, Yuriy Vasil'yevich; GRABILIN, Yu.N., otv. red.; PETRAKOVA, Ye.P., red.izd-va; BOLDYREVA, Z.A., tekhn. red.

[Some problems in short-delay blasting]Nekotorye voprosy korotkozamedlennogo vzryvaniia. Moskva, Gosgortekhizdat, 1962. 99 p. (MIRA 16:3)

(Blasting)

L 05625-67 EWT(1)/T IJP(c) AT

ACC NR: AP6024497 SOURCE CODE: UR/0181/66/008/007/2240/2242

48
46
B

AUTHOR: Yevstropov, V. V.; Zibuts, Yu. A.; Paritskiy, L. G.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Occurrence of photo emf in a homogeneous semiconductor on the separation boundary between regions of different degrees of optic ionization of the impurities

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2240-2242

TOPIC TAGS: photo emf, semiconductor impurity, ionization, impurity level

ABSTRACT: Since normally the production of a photo emf calls for the presence of inhomogeneities in the semiconductor, the authors show that under certain conditions it is possible to produce a photo emf in a perfectly homogeneous semiconductor by illuminating it with two beams of light having different pectral compositions. In one region the energy of the light should be sufficient only for ionization of the shallow levels, and in the other, the quantum energy should be sufficient for formation of electron-hole pairs. Occurrence of photo emf is essentially due to an impurity-ionization gradient produced by uneven illumination in the spectral region of impurity absorption. The magnitude of the photo emf is calculated and it is shown that it is of the same order of magnitude as the volume emf, and can reach tens of millivolts under favorable conditions. Measurements on p-type germanium doped with gold, using a beam of infrared light, confirmed the calculations. The authors thank S. M. Ryvkin,

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L 05625-67

ACC NR: AP6024497

2

A. A. Grinberg, and F. M. Berkovskiy for useful discussions. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 25Dec65/ ORIG REF: 002/ OTH REF: 004

Card 2/2 egh

YEVSTROPOVA, S.N.

State of the blood coagulation system in patients with congenital heart defects operated on under artificial blood circulation. Uch. trudy GMI no.19:113-118 '65. (MIRA 18:8)

AUTHORS: Makarov, L. L., Yevstrop'yev, K. K., Vlasov, Yu. G. SOV/76-32-7-25/45

TITLE: The Osmotic and Activity Coefficients of RbCl, CsCl and KJ in Highly Concentrated Aqueous Solutions (Osmoticheskiye koeffitsiyenty i koeffitsiyenty aktivnostey RbCL, CsCl i KJ v vodnykh rastvorakh pri vysokikh kontsentratsiyakh)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 7, pp 1618 - 1621 (USSR)

ABSTRACT: As in publications values of the above-mentioned coefficients are only found up to certain concentrations these values are determined in the present paper for higher concentrations at 25°. Using the equation by Gibbs-Duhem a possibility for the calculation of the magnitude of the mean "practical" ion activity coefficient $\gamma_{\pm}$ is given for the case of the determination of the values of the activity of water for higher concentrations of the electrolytes employing the data already existing in this field. The isopiestic method by Robinson and Sinclair (Ref 1) was employed for the determination of the water activity; Kharned and Ouen (Ref 2) had proved the reliability of this

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The Osmotic and Activity Coefficients of RbCl, CsCl and KJ in Highly Concentrated Aqueous Solutions

SOV/76-32-7-25/45

method. The diagram of the vacuum exsiccator used is given, from which fact may, among other things, be seen that glass and silver vessels were used. The water activity was determined according to calibration curves with NaCl and $CaCl_2$ solutions being used. The activity coefficients and the osmotic coefficients were calculated according to an equation. Besides the KJ-, NaCl- and $CaCl_2$-salts used also the method employed for the production of RbCl and CsCl is described. The investigation of the solubility of the salts was carried out according to the isopiestic method. The obtained values of the solubility at 25°, as well as those of the osmotic and activity coefficients are given in a table. There are 1 figure, 1 table, and 5 references, 1 of which is Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova (Leningrad State University imeni A.A.Zhdanov)

SUBMITTED: March 15, 1957

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The Osmotic and Activity Coefficients of RbCl, CsCl and KJ in Highly Concentrated Aqueous Solutions SOV/76-32-7-25/45

1. Metal chlorides--Chemical properties 2. Aqueous solutions--Chemical properties 3. Rubidium chloride--Production 4. Cesium chloride--Production 5. Metal chlorides--Adsorption

Card 3/3

YEVSTROP'YEV, K.K.

Vsesoyuznaya konferentsiya po fizike dielektrikov. 2d, 1958

Fizika dielektrikov; trudy vtoroy vsesoyuznoy konferentsii (Physics of Dielectrics; Transactions of the 2d All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1960. 532 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fizicheskiy institut imeni P.N. Lebedeva.

Ed. of Publishing House: Ye.L. Starokadomskaya; Tech. Ed.: I.N. Dorokhina; Editorial Board: (Resp. Ed.) G.I. Skanavi, Doctor of Physics and Mathematics (Deceased), and K.T. Filippova, Candidate of Physics and Mathematics.

PURPOSE: This collection of reports is intended for scientists investigating the physics of dielectrics.

COVERAGE: The Second All-Union Conference on the Physics of Dielectrics held in Moscow at the Fizicheskiy institut imeni P.N. Lebedeva (Physics Institute imeni P.N. Lebedev) in November 1958 was attended by representatives of the principal scientific centers of the USSR and of several other countries. This collection contains most of the reports presented at the conference and summaries of the discussions which followed. The reports in this collection deal with dielectric properties, losses, and polarization, and with specific inductive capacitance of various crystals, chemical compounds, and ceramics. Photoelectrets, ferroelectric crystals, and various radiation and irradiation effects on dielectrics are investigated. The volume contains a list of other papers presented at the conference dealing with polarization, losses, and breakdowns of dielectrics, which were published in the journal Izvestiya AN SSSR, seriya fizicheskaya, Nos. 1 and 2, 1960. No personalities are mentioned. References accompany each report.

YEVSTROP'YEV, K.K.

PHASE I BOOK EXPLOITATION SOV/5035

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

Steklobraznoye sostoyaniye; trudy Tret'yego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad on November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 534 p. Errata slip inserted. 3,200 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov 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, K.S. Yevstrop'yev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Poray-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 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were N.V. Solomin, Ye. V. Kuvshinskiy, Yu.A. Gastev, V.P. Pryanishnikov, Yu. Ya. 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. Degtyareva, G.V. Byurganovskaya, A.A. Kalenov, M.N. Skornyakov, 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-tekhnicheskiy 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 Institut imeni Lensovet), Belorusskiy politekhnicheskiy institut Minsk (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute), and Sverdlovskiy politekhnicheskiy institut (Sverdlovsk Polytechnic Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. 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. Poray-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 G.M. Bartenev, M.M. Vol'kenshteyn, L.I. Demkina, D.P. Dobychin, S.K. Dubrovo, V.A. Ioffe, and B.T. Kolomiyets. References accompany individual reports.

Zevstrop'yev, A.A.

AUTHOR: Syritskaya, Z. M.

S/072/60/000/03/021/023
B003/B008

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in Leningrad at the end of 1959. It was organized by the Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). More than 100 reports on the structure of glass, investigation methods of the vitreous state, the mechanism of vitrification and physicochemical and technical properties of glasses were delivered. The Conference was opened by Academician A. A. Lebedev. ... At the 5th meeting, 9 reports dealt with the investigation results of sodium-boron-silicate glasses. A. A. Appen and Gan' Fu-Si, "Boron and Aluminoboron Anomaly of the Properties of Silicate Glasses"; Ye. I. Galant, "On the Coordination Numbers of Aluminum and Boron in Some Glasses"; S. P. Zhdanov reported on structural changes in boron-silicate glasses; Ye. A. Porey-Koshits and S. P. Zhdanov reported on some controversial problems concerning the structure of boron-silicate glasses and their porous products; Ye. A. Poray-Koshits and N. S. Andreyev, "Submicroscopic Inhomogeneities in the Structure of Complex Glasses". The 15 reports at

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the 6th meeting dealt with the electric properties of glasses. L. M. Belyavskaya reported on the structure determination of glass with the aid of an inhomogeneous electric field; N. N. Varshavskiy and V. I. Odelevskiy, "Structure and Properties of Some Oxide Glasses in the Light of the Polymer-theory of the Vitreous State"; R. L. Myuller reported on the agility and the degree of dissociation as functions of the ionic and atomar composition of the glass; V. I. Odelevskiy reported on the nature of dielectric losses in glasslike and crystalline aluminosilicates; V. P. Petrosyan, "Investigation of the Dielectric Polarization and the Losses in Phosphate Glasses"; V. A. Presnov, V. I. Gaman and L. N. Krasil'nikov reported on investigations of the conductivity of glasses in electric high-tension fields, K. K. Yevstrop'yev on the diffusion of Na^{+2} and K^{+2} in some silicate glasses, V. A. Ioffe, I. S. Yanchevskaya and O. I. Khvostenko on electric properties of crystalline and glasslike aluminosilicates. O. V. Mazurin spoke on his studies which were carried out under the supervision of Professor K. K. Yevstrop'yev at the Kafedra stekla LTI imeni Lensoveta (Chair for Glass of the Leningrad Technological Institute imeni Lensovet) in the report: "The Dependence of the Electroconductivity of Glasses on the Chemical Composition". V. A. Khar'yuzov, O. V. Mazurin and M. M. Zykova gave investigation results on the specific electroconductivity of glasses of the system $SiO_2 - B_2O_3 - BaO$ in the temperature range of from 400-1300° and on the influence of additions of aluminum- and zinc oxide on the electric conductivity of these glasses. At the 7th meeting, 6 reports dealt with glasses as semiconductors, 9 with the coloring of glasses and the influence of radiation and 4 reports with technical properties of glasses. V. A. Ioffe and O. I. Khvostenko, "Electric Properties of Some Semiconductor Glasses". B. T. Kolomiyets, N. A. Goryunova and V. P. Shilo reported on methods for the production of chalcogenide glasses, on some of their general properties and on the limits of the vitreous state in the systems $Tl_2Se - As_2Se_3$, $Tl_2Se - Sb_2Se_3$, $Sb_2Se_3 - As_2Se_3$, Tl - As - Se. B. T. Kolomiyets and B. V. Pavlov reported on the optical absorption in a number of binary chalcogenide systems. B. T. Kolomiyets, T. F. Nazarova and O. F. Kazarova reported on the electron conductivity of chalcogenide glasses. A. A. Vaypolin, Ye. A. Poray-Koshits, "Radiographic Investigation of the Structure of Vitreous Arsenic Chalcogenides". V. V. Tarasov and V. A. Romanovskiy reported on the chain structure of the vitreous arsenious sulphide determined by them with calorimetric measurements. K. P. Azarov reported on structure and properties of ferrous boron glasses and

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YEVSTROP'YEV, K.K.; MAZURIN, O.V.; MOLCHANOV, V.S.

Relation between certain physicochemical properties of glasses and their composition. Zhur.VKHO 6 no.1:114-116 '61. (MIRA 14:3)
(Glass)

LEVSTROP'YEV, K.K.; TSEKHOMSKIY, V.A.; Prinimal uchastiye: NAZAROV, V.A., student

Effect of an alkaline oxide on the n-type conductivity of Fe-containing glasses. Fiz.tver.tela 4 no.12:3390-3395 D '62. (MIRA 15:12)

1. Gosudarstvennyy opticheskiy institut im. S.I.Vavilova.
(Sodium oxide--Electric properties)
(Glass)

YEVSTROPYEV, K. K.; PAVLOVSKIY, V. K.

"Diffusion as a new method of studying glass structure."

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

S/076/60/034/009/027/041 XX
B020/B056

AUTHORS: Makarov, L. L., and Yevstrop'yev, K. K.

TITLE: Thermodynamic Study of the System KBr - KI - H_2O at 25°C

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 9, pp. 1967 - 1972

TEXT: The authors wanted to give a definition of the solubility isothermal lines of the system mentioned in the title, to determine the limits of existence of solid solutions of KBr - KI, and to determine the change in the isobaric line potential ΔZ in their formation at 25°C. When evaluating results, the relations suggested by I. Wasastjerna and V. Hovi (Ref. 7), and T. H. Neuman (Ref. 8) were used. The solubility isothermal lines of the system mentioned in the title at 25°C is given in Fig. 1, and the vapor pressure isothermal line of water over solutions saturated with the KBr - KI mixture is given in Fig. 2. The error in determining the activity coefficients is estimated at $\pm$ 1 - 3%, which corresponds to an error of the quantity ΔZ of $\pm$ 4%. For every range of existence of the solid solutions, the constancy of the activity coefficients is characteristic. Table 4 gives

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the values ΔZ calculated from the equation

$$\Delta Z_{p,T} = x_1\Delta\mu_1 + x_2\Delta\mu_2 \qquad (4),$$

where μ denotes the chemical potential. Fig. 3 shows a comparison between the values ΔH and $T\Delta S$ for the formation of solid KBr - KI solutions from pure crystals. Fig. 3 also gives the values of the deformation energy E, calculated from the Neuman relation, on the assumption that disorder prevails in the distribution of the mixing ions, and that the law of the additivity of molecular volumes holds. The activity coefficients f_{KBr} and f_{KI} as well as the mean ion coefficients $\gamma_{\pm KBr}$ and $\gamma_{\pm KI}$ in saturated aqueous solutions at 25°C are given in Table 3. The authors thank Professor A. N. Murin, Professor A. V. Storonkin, and Docent M. M. Shul'ts. There are 3 figures, 4 tables, and 16 references: 5 Soviet, 4 US, 2 German, 2 Italian, and 3 Finnish.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

SUBMITTED: December 16, 1958

S/080/61/034/011/005/020
D227/D301

AUTHORS: Shteynberg, Yu.G., and Yevstropyev, K.K.

TITLE: Investigating the reaction of strontium and lead glazes with a ceramic body. Part II

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 11, 1961, 2413 - 2419

TEXT: The present work is a continuation of earlier investigations and its aim is to explain the differences in properties of glazes of various compositions and also changes occurring within the layer of glaze, supported on a ceramic, during firing. The studies involved measurements of radioactivity, given off by Na^{22} isotope introduced into the glaze, after the firing of samples. It has been assumed that the increase of hardness of the fired surface of colorless lead glaze is caused by evaporation of the alkaline components of the melt and should, therefore, be indicated by the decrease of Na^{22} activity in this zone. It was also necessary to study the process of sodium ion diffusion in both glaze melts and ceramic support

Card 1/4

S/080/61/034/011/005/020
D227/D301

Investigating the reaction of ...

(based on alumina and silica). In the earlier experiments Ca^{45} labelled melts were used and it was shown that calcium ions, due to the absence of natural mobility in the melt, diffuse into the ceramic body but only together with the glaze melt. In the experimental part, the authors used Na^{22} labelled soda which was introduced into the glaze prepared by partial substitution of SiO + MgO in the No. 111 glaze with equimolecular quantities of PbO and B_2O_3. The composition, including 3 % of cobalt oxide for earsier observations of rubbing down uniformity, was melted at 1300°C, crushed and made into a suspension with 6 % Druzhkovsk clay. The ceramic supports were made in the form of circular plates, rubbed down to the uniform thickness which was measured with a micrometer with 2 micron divisions. Glazed plates were fired at 1040 and 1140°C and the thickness of glaze layer measured. The distribution of Na^{22} was determined by measuring the residual β-activity after the successive removal of thin (10 microns) layers of glaze and the support. In the case of lead-free glaze the activity of Na^{22} was found to vary along the thickness of the glass layer. For samples fired at 1140°C the reduction of Na^{22} activity near the surface was found to correspond to

Card 2/4

Investigating the reaction of ...

the increase in hardness in this zone, caused by evaporation of sodium. The relation was, however, found not true for samples fired at 1040°C, as at that temperature evaporation of sodium was less pronounced. The lower concentration of Na^{22} in the middle layer of the glaze indicated that sodium, in contrast to calcium, has a considerable mobility within the alumo-silicate-glaze melt. Within the body of the ceramic and the glaze melt diffusion of sodium occurs either together with the melt or without it, but at a lower rate, and the depth of penetration, determined by removal of successive layers, was 3000 microns respectively for specimens fired at 1040 and 1140°C. In the case of lead glaze the activity of Na^{22} in the uppermost layers remained constant indicating that practically no evaporation of metal occurred. Similarly, this activity was also constant in the intermediate layer and only marked decrease was observed within the ceramic body next to the glaze layer. The adsorbing action of lead ions is pronounced on the border line and prevents dissolution of support in the glaze. Rapid decrease of Na^{22} activity in the contact layer of the ceramic indicates intensive diffusion of the low viscosity lead-boron glaze into that layer and

Investigating the reaction of ...

the depth of penetration corresponded to 130 and 150 microns for specimens fired at 1040 and 1140°C respectively. The low mobility of alkaline earth metals indicates their stronger bonding with the silica-alumina support and also supports the observation that they influence the crystallization of the glazes to a considerable degree. There are 3 figures and 1 table and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: January 20, 1961

Card 4/4

S/020/61/136/001/030/037
B004/B056

24 2100

AUTHORS: Yevstrop'yev, K. K. and Khar'yuzov, V. A.

TITLE: The Nature of Conductivity of Alkali-free Barium Silicate Glasses

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 1, pp. 140-142

TEXT: The problem of the electrical conductivity of alkali-free silicate and borate glasses is discussed as a sub-problem in electric-insulation engineering. In the present paper the nature of carriers is investigated. Einstein's equation which relates conductivity and diffusion was made the starting point: $D = n\kappa kT/N(ze)^2$ (D denoting diffusion coefficient, cm^2/sec; κ = specific conductivity, $ohm^{-1} \cdot cm^{-1}$; n - transfer number of the diffusing ion, N - number of ions per cm^3). Conductivity was measured, the diffusion coefficient was determined by means of tracers, and the conductivity calculated from these data according to Einstein was compared with the experimental result. Barium silicate glass was investigated as it is suited for

88577
S/020/61/136/001/030/037
B004/B056

The Nature of Conductivity of Alkali-free Barium Silicate Glasses

vitrification within a large range. Glass with 30, 40, and 50 % BaO was melted from $BaCO_3$ and sand in quartz crucibles in a h-f furnace at 1550°C. Conductivity was measured in the temperature range of 350 - 650°C by means of an MOM-4 (MOM-4) megohm-meter (Fig. 1). The diffusion coefficient was measured by grinding thin glass layers according to Refs. 12, 13, using Na^{22} and Ba^{140} as indicators. Na content did not exceed 0.02 %. For glass with 50 % BaO, 50 % SiO_2 the following results were obtained:

$D_{Ba} = (2\pm1)\cdot10^{-12}$ cm^2/sec; $D_{Na} = (2\pm1)\cdot10^{-12}$ cm^2/sec; $-\log K_{Ba} = 6\cdot8\pm0.2$; $-\log Na = 10\cdot3\pm0.3$; $-\log K_{exp} = 6\cdot3\pm0.2$. Calculation according to Einstein gave $K_{Ba} = (1.7\pm0.8)\cdot10^{-7}$ $ohm^{-1}\cdot cm^{-1}$; $K_{Na} = (5.8\ 3)\cdot10^{-11}$ $ohm^{-1}\cdot cm^{-1}$. These data show that the conductivity due to Ba^{2+} agrees well with the experimental value within the limits of error, whereas the conductivity of the Na^+ ion differs by nearly four orders of magnitude from the experimental value. Therefore, conductivity in alkali-free barium silicate glass can be traced back to barium ions. In the authors' opinion, this

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The Nature of Conductivity of Alkali-free Barium Silicate Glasses

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S/020/61/136/001/030/037
B004/B056

result may also be applied to other types of alkali-free silicate glass with oxides of divalent metals. The authors thank Ye. V. Podushko for his assistance. There are 1 figure and 12 references: 10 Soviet, 1 US, and 1 German.

PRESENTED: July 4, 1960 by A. N. Terenin, Academician

SUBMITTED: June 24, 1960

Card 3/3

15,2640

S/181/63/005/002/033/051
B102/B186

AUTHORS: Tsekhomskiy, V. A., Mazuria, G. V., and Yevstrop'yev, K. K.

TITLE: Conduction type of alumosilicate glasses

PERIODICAL: Fizika tverdogo tela, v. 5, no. 2, 1963, 586 - 589

TEXT: The influence of the aluminum oxide percentage on the electrical properties of sodium alumosilicate glasses was investigated by measuring the conductivity and diffusion coefficient of 13 $Na_2O \cdot xAl_2O_3 \cdot (67-x)SiO_2$ (in mole%) where $0 \leq x \leq 39$ (I) and of 20 $Na_2O \cdot xAl_2O_3 \cdot (80-x)SiO_2$ where x=0.5; 10, 15, 20, 25. (II) The glasses were produced by fusing the pure components at 1450 - 1750°C in quartz crucibles. σ was measured at 70 - 500°C. For all the 19 different glass samples measured, $\log \sigma = f(1/T)$ were straight lines. The activation energy E obtained from their inclinations varied between 0.55 and 0.71 ev. For the glasses I also the diffusion coefficient D_{Na} was measured with use of Na^{22} tracer at 300 and 415°C. The change in electrical properties is characteristic of the Al_2O_3:Na_2O ratio inasmuch at 1:1 all

Card 1/3

Conduction type of ...

parameters have extremes (cf. Figs.). From the results it may be concluded that the changes in activation energy are induced by purely ionic processes. There are 3 figures and 2 tables.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensovet); Gosudarstvennyy opticheskiy institut im. S. I. Vavilova (State Optical Institute imeni S. I. Vavilov)

SUBMITTED: September 18, 1962

Card 2/3

Conduction type of ...

S/181/63/005/002/033/051
B102/B186

Fig. 1

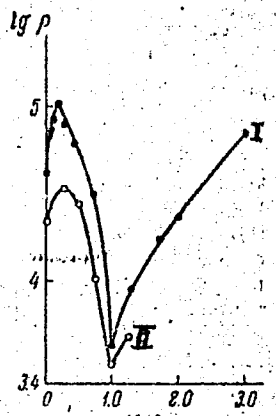


Fig. 2

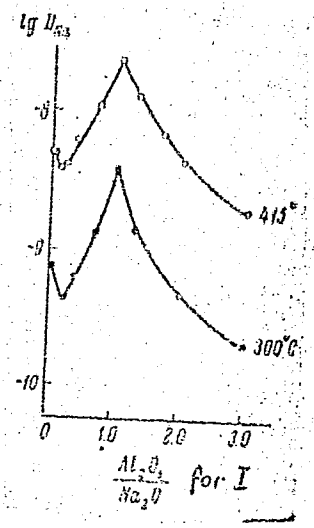
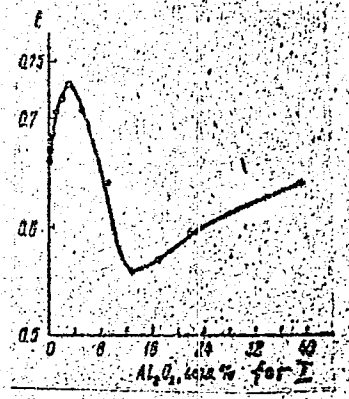


Fig. 3



Card 3/3

(A) L 11207-66 EWP(e)/EWT(m)/EWP(b) WH

INVENTOR: Yevstrop'yev, K.

ORG: none

TITLE: Glass, Class 32, No. 17(055

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24

glass has increased

after treatment

L 12883-66 EWP(e)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/WH

ACC NR: none

TITLE: Microstructure of germanate glasses containing one and two alkalies

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964.

TOPIC TAGS: glass, glass property, electric conductivity, microstructure

ABSTRACT: The authors investigate the temperature dependences of the electrical conductivity

measured in the 300 — 450C range. An investigation of ion diffusion in the Na-germanate glasses and the electrical conductivity of the Pt-germanate glasses confirmed the theoretical concepts concerning the mechanism of electrical conductivity in complex alkali glasses. The migration of alkali ions in one-alkali glasses containing alkali ions of

Card 1/2

L 12883-66

ACC NR. AT6000497

another type (e.g. diffusion of Na^+ in glass $Rb_2O \cdot 3GeO_2$ and vice versa) is accomplished

Card 2/2 HW

L 25720-66 EWP(e)/EWT(m)/EWA(h)/EWA(l) DIAAP WH

ACC NR: AP6002321 SOURCE CODE: UR/0237/60/000/012/0044/0046

AUTHOR: Yevstrop'yev, K. K.

ORG: none

TITLE: Application of radioactive isotopes in the manufacture of glass and during the study of physicochemical properties of glasses and the prospect of their further application

SOURCE: Optiko-mekhanicheskaya promyshlennost', no. 12, 1960, 44-46

TOPIC TAGS: glass property, glass, calcium, neutron absorption, sodium, radio strontium, potassium, radioisotope

ABSTRACT: Based on the results of experimental research, conducted by a number of experts in the field of glass production and reported in 33 papers, the author pro-

Card 1/2

L 25720-66

ACC NR: AP6002821

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Glass containing β- and γ-radiators in the capacity of luminescence exciters in order to obtain luminous glass; the study of diffusion of ions in glass in order to determine the mechanism of their motion and to establish the nature of conductivity of glass before glass; study of the effect of various radiations on the formation of crystallization centers and on the precrystallization period. The author concludes that it is imperative that one of the Soviet research institutions should establish a small laboratory for the study of these and other related problems. There are no figures or formulas included in this paper.

SUB CODE: 11 / SUBM DATE: 28Nov60/ ORIG REF: 019/ OTH REF: 014

Card 2/2

L 05693-67 EWT(l)/EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) WH/JW/JD/JG

ACC NR: AP6024399 SOURCE CODE: UR/0020/66/169/002/0382/0384

AUTHOR: Yevstrop'yev, K. K.; Kondrat'yeva, B. S.; Petrovskiy, G. T.

ORG: none

TITLE: Nature of the conductivity of beryllium fluoride-base glasses

SOURCE: AN SSSR. Doklady, v. 169, no. 2, 1966, 382-384

TOPIC TAGS: glass, beryllium compound, fluoride, cesium compound, electric conduction

ABSTRACT: In order to determine the type of current carriers in glass containing 80 mole % beryllium fluoride and 20 mole % cesium fluoride, a method was used in which the conductivity measured directly was compared to the conductivity calculated by means of Einstein's equation from diffusion coefficients determined with the aid of the radioisotope Cs^{137}. Einstein's equation relating ionic diffusion with electrical conductivity is

$$\chi/D = N(ze)^2/\alpha KT,$$

where χ is the conductivity, D the diffusion coefficient, N the number of ions per cm^3 of glass, z the valence of the moving ion, e the electronic charge, and α a multiplication factor equal to 0.4 ± 0.1. The conductivity provided by Cs^+ ions is

$$\chi_{Cs} = 1.8 \times 10^{-15} N_{Cs} D_{Cs}/0.4\ T.$$

Card 1/2 UDC: 666.11.01:539.219.3

L 05693-67

ACC NR: AP6024399

Comparison of experimental conductivity values with those calculated with the assumption of transfer of electricity by Cs^+ ions in cesium fluoberyllate glasses indicates that the contribution of the cationic component of the conduction is negligibly small (of the order to 1-2%). Comparison of this result with data reported in the literature leads to the conclusion that the conduction in beryllium fluoride-base glasses is anionic in character. The paper was presented by Academician Terenin, A. N., 4 Nov 65. Orig. art. has: 3 figures, 1 table and 2 formulas.

SUB CODE: 11/ SUBM DATE: 28Oct65/ ORIG REF: 011/ OTH REF: 002

Card 2/2

L 38695-66 EWP(e)/EWT(m) WH

ACC NR: AP6008275 (A) SOURCE CODE: UR/0080/66/039/002/0452/0453

AUTHOR: Yevstrop'yev, K. K.; Pavlova, G. A.; Pavlovskiy, V. K.

ORG: State Optics Institute im. S. I. Vavilov (Gosudarstvennyy opticheskiy institut)

TITLE: Nature of the conductivity of nonalkaline pyroceramic cordierite systems

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 2, 1966, 452-453

TOPIC TAGS: electric conductivity, activation energy, magnesium compound, aluminum compound, silicon compound, glass, silicate glass

ABSTRACT: Systems of magnesium-aluminum-silicate glasses containing 0.15% Na_2O were studied to determine the dependence of electrical conductivity on temperature and to measure the diffusion coefficient of Na in the systems. Comparison of experimental data with the Einstein correlation is given as follows:

$$X_{Na^+} = \frac{D \cdot N \cdot (ze)^2}{\alpha kT}$$

where X and D are the electrical conductivity and diffusion coefficients of Na^+; N is the number of Na^+; z is the valence of Na^+; e is the charge on the electron; k is the Boltzmann constant; T is the temperature; and α is the correlated ionic factor. Radioactive Na^{22} was used as a tracer in the measurement of D for Na^+. Electrical conduc-

Card 1/2

L 38695-66

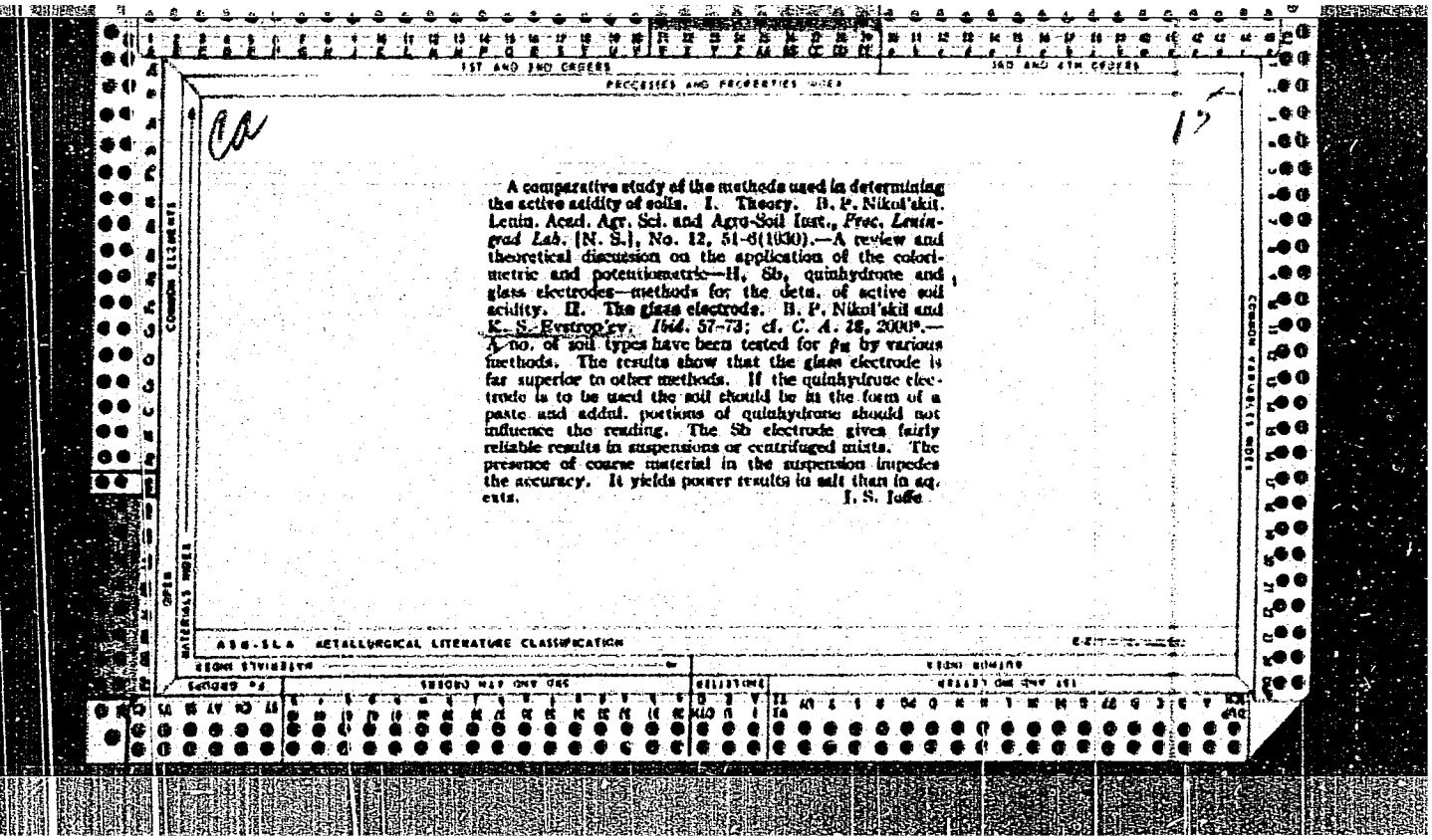
ACC NR: AP6008275

O

tivity was measured by gold or silver deposition at an electrode. A 2-3 order of magnitude increase in X was found when the temperature was increased from 300-770°C. Correspondingly, a decrease in the activation energy and a decrease in the volume of the vitreous phase of the glass were noticed. The measured X compared well with the calculated X based on the Einstein correlation using the measured D. From the experimental data, X due to Mg^{++} diffusion and electron migration was concluded to be 0. The increase in X is therefore due to the diffusion of Na^{+}. The increase in $D_{Na^{+}}$ and subsequently X is attributed to the conversion of MgO and Al_2O_3 to the crystalline phase resulting in the decreased bonding of Na^{+}. This increases the mobility of Na^{+}. Also increasing X is the decrease in the volume of the glassy phase during crystallization resulting in a relative increase in Na_2O concentration. Orig. art. has: 1 table.

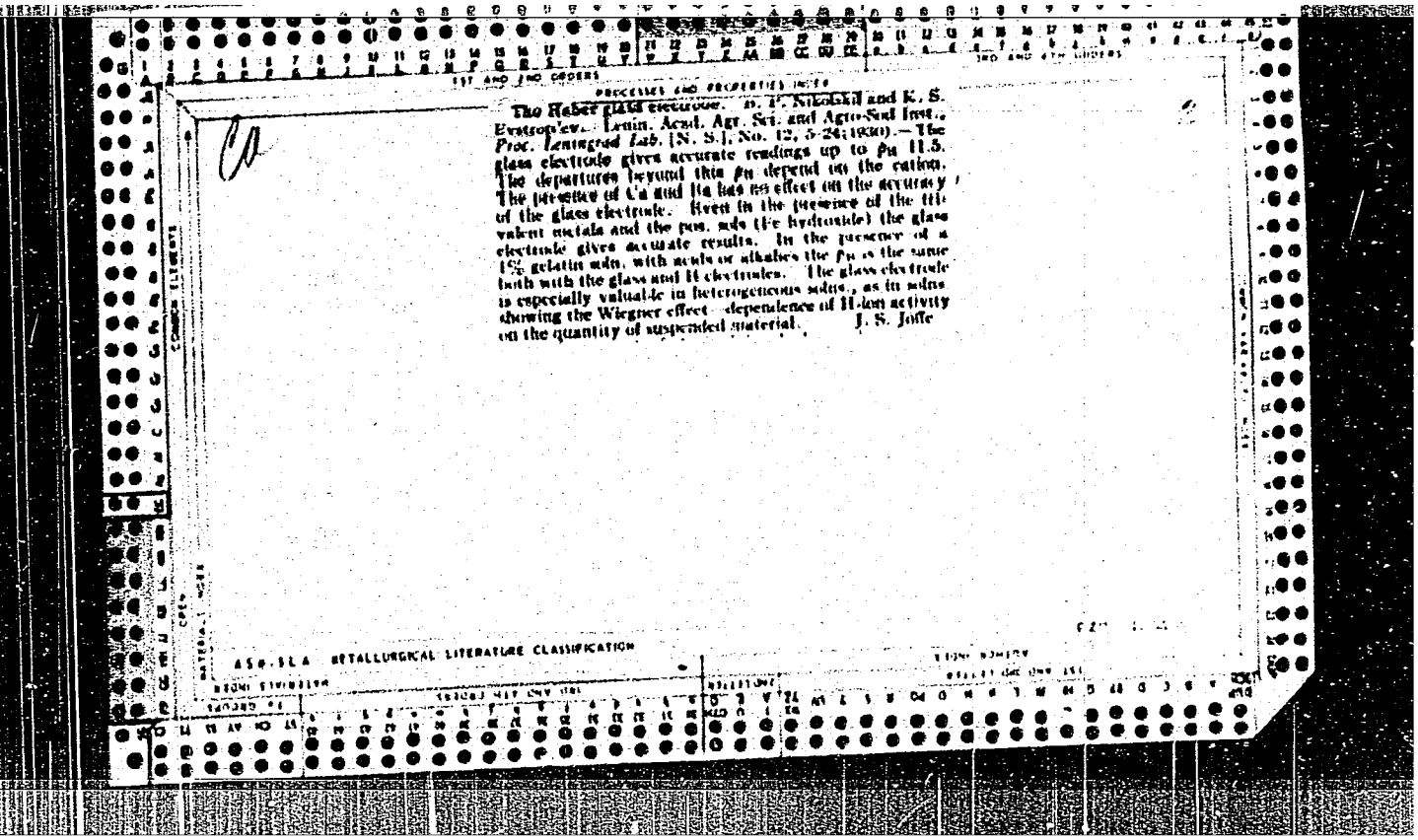
SUB CODE: 11, 20/ SUBM DATE: 01Feb64/ ORIG REF: 004

Card 2/2 LC

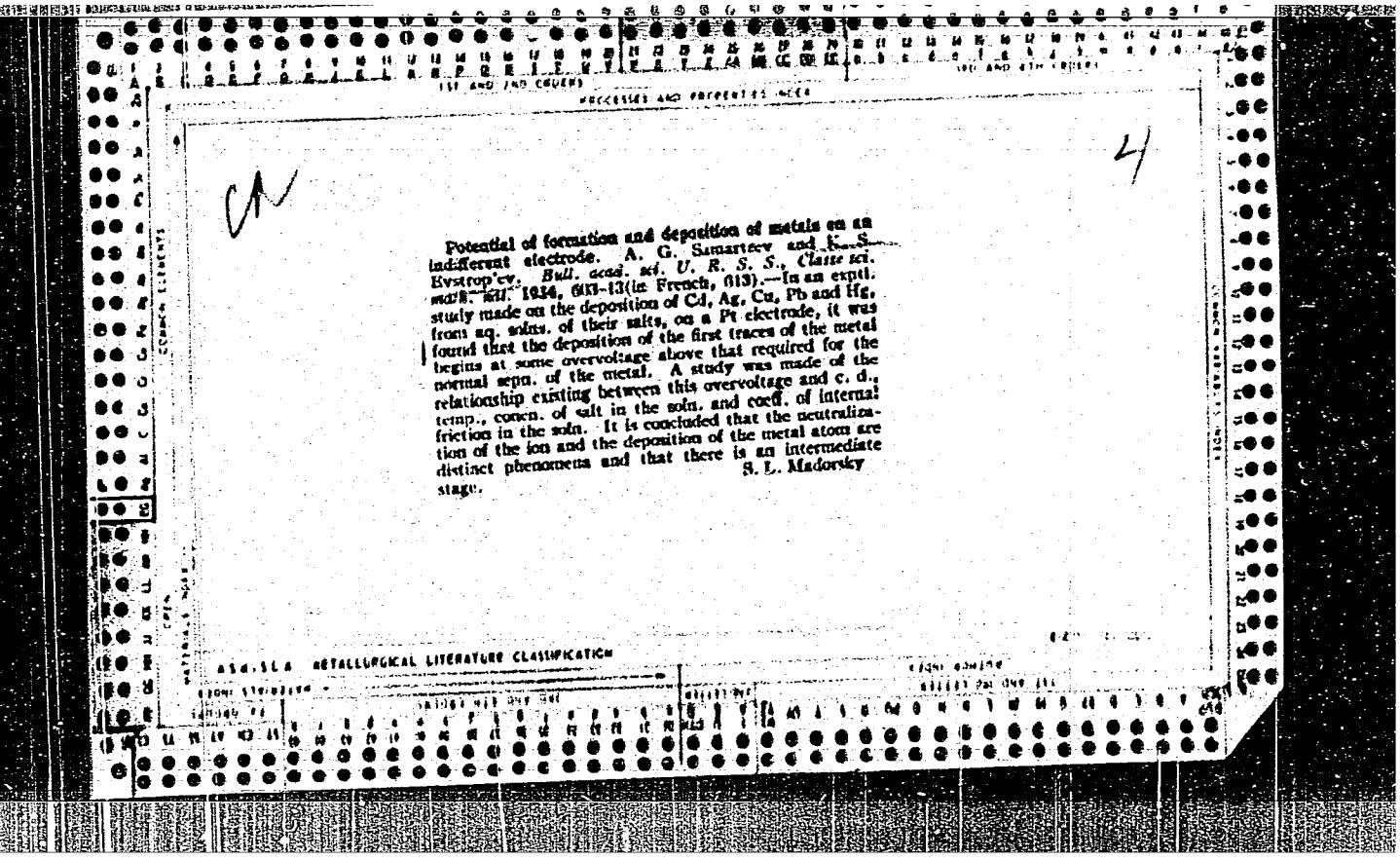


A comparative study of the methods used in determining the active acidity of soils. I. Theory. B. P. Nikol'skii. Lenin. Acad. Agr. Sci. and Agro-Soil Inst., *Proc. Leningrad Lab.* [N. S.], No. 12, 51-6(1939).—A review and theoretical discussion on the application of the colorimetric and potentiometric—H, Sb, quinhydrone and glass electrodes—methods for the detn. of active soil acidity. II. The glass electrode. B. P. Nikol'skii and K. S. Evstrop'ev. *Ibid.* 57-73; cf. *C. A.* 28, 2000⁹.—A no. of soil types have been tested for p_H by various methods. The results show that the glass electrode is far superior to other methods. If the quinhydrone electrode is to be used the soil should be in the form of a paste and addnl. portions of quinhydrone should not influence the reading. The Sb electrode gives fairly reliable results in suspensions or centrifuged mixts. The presence of coarse material in the suspension impedes the accuracy. It yields poorer results in salt than in aq. exts.

I. S. Joffe



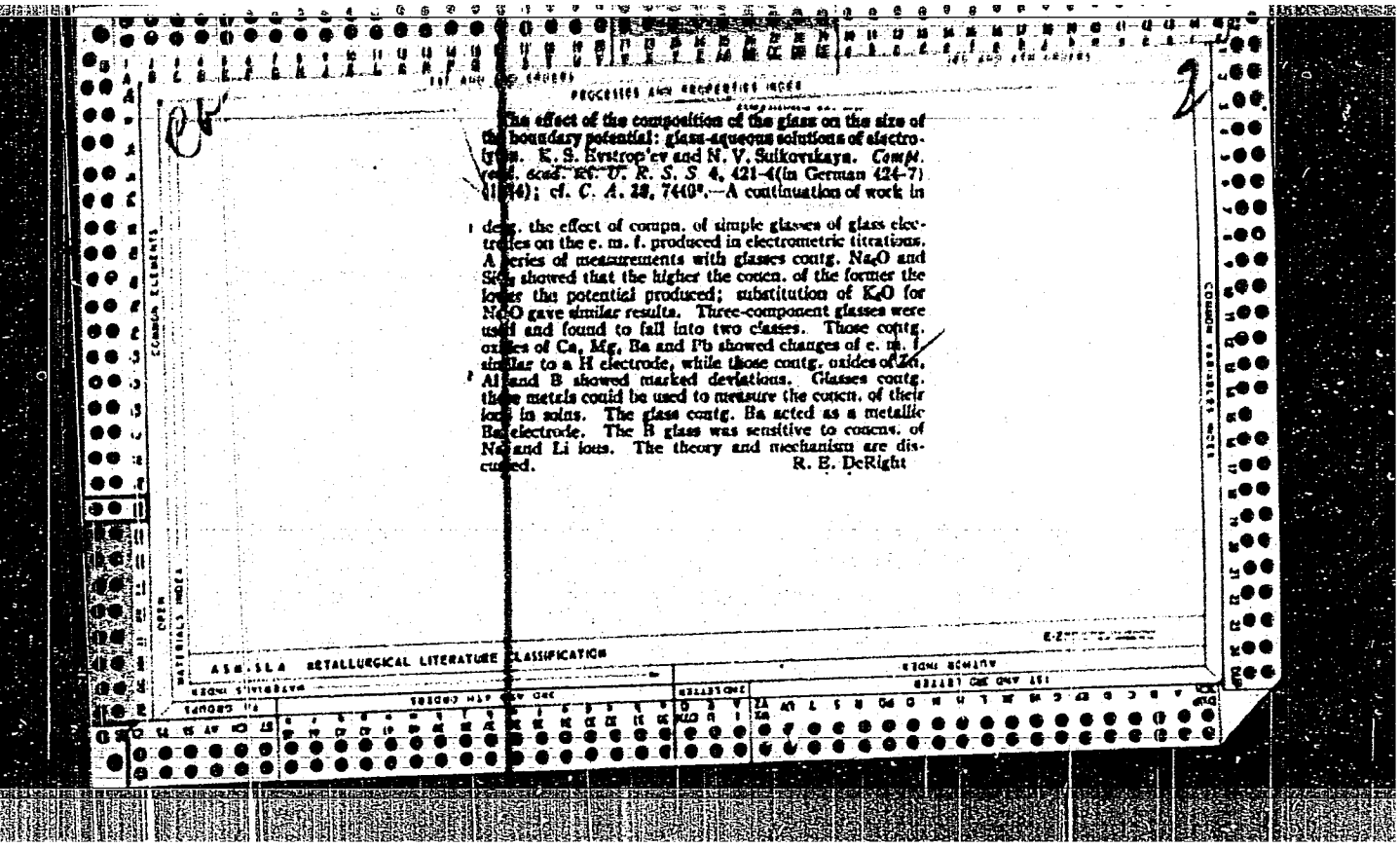
The Haber glass electrode. S. I. Kitaĭskiĭ and K. S. Evstop'ev. Trudy Leningr. Selsk.-Khoz. Akad. Agr. Sci. and Agro-Soil Inst., *Proc. Leningrad Lab.* [N. S.], No. 12, 5-24 (1930).—The glass electrode gives accurate readings up to *p*H 11.5. The departures beyond this *p*H depend on the cation. The presence of Ca and Ba has no effect on the accuracy of the glass electrode. Even in the presence of the trivalent metals and the pyr. acids (Fe hydroxide) the glass electrode gives accurate results. In the presence of a 1% gelatin soln. with acids or alkalies the *p*H is the same both with the glass and H electrodes. The glass electrode is especially valuable in heterogeneous solns., as in solns. showing the Wiegner effect—dependence of H-ion activity on the quantity of suspended material. J. S. Joffe



Potential of formation and deposition of metals on an indifferent electrode. A. G. Samartsev and K. S. Evstrop'ev. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat.* 1934, 603-13(in French, 613).—In an exptl. study made on the deposition of Cd, Ag, Cu, Pb and Hg, from aq. solns. of their salts, on a Pt electrode, it was found that the deposition of the first traces of the metal begins at some overvoltage above that required for the normal sepn. of the metal. A study was made of the relationship existing between this overvoltage and c. d., temp., concn. of salt in the soln. and coeff. of internal friction in the soln. It is concluded that the neutralization of the ion and the deposition of the metal atom are distinct phenomena and that there is an intermediate stage.

S. L. Madorsky

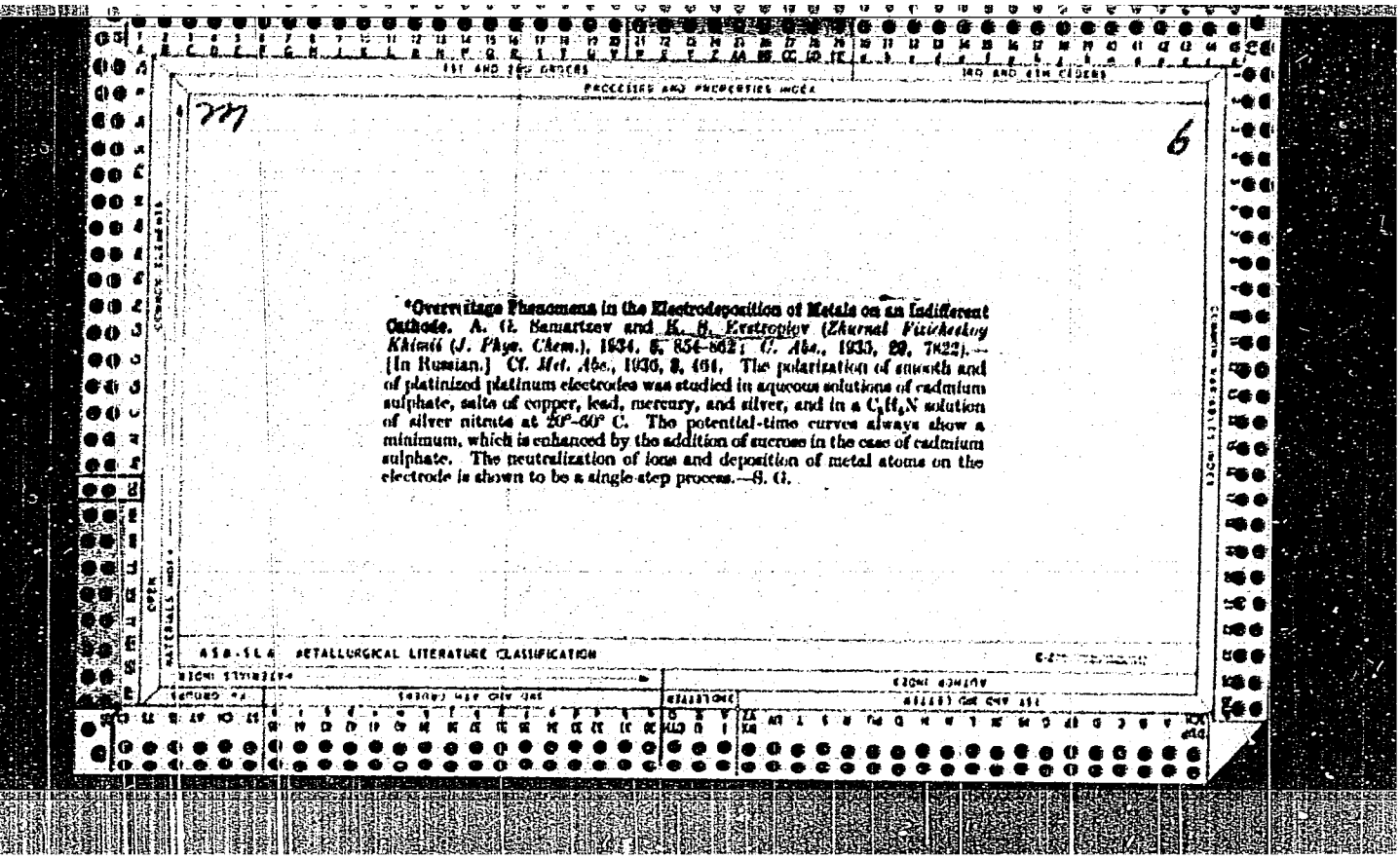
A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

The effect of the composition of the glass on the size of the boundary potential: glass-aqueous solutions of electrolytes. K. S. Evstrop'ev and N. V. Sulkovskaya. *Compt. rend. acad. sci. U. R. S. S.* 4, 421-4 (in German 424-7) (1934); cf. *C. A.* 28, 7440°.—A continuation of work in this field, the effect of compn. of simple glasses of glass electrodes on the e. m. f. produced in electrometric titrations. A series of measurements with glasses contg. Na_2O and SiO_2 showed that the higher the concn. of the former the lower the potential produced; substitution of K_2O for Na_2O gave similar results. Three-component glasses were used and found to fall into two classes. Those contg. oxides of Ca, Mg, Ba and Pb showed changes of e. m. f. similar to a H electrode, while those contg. oxides of Zn, Al and B showed marked deviations. Glasses contg. these metals could be used to measure the concn. of their ions in solns. The glass contg. Ba acted as a metallic Ba electrode. The B glass was sensitive to concns. of Na and Li ions. The theory and mechanism are discussed. R. E. DeRight

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

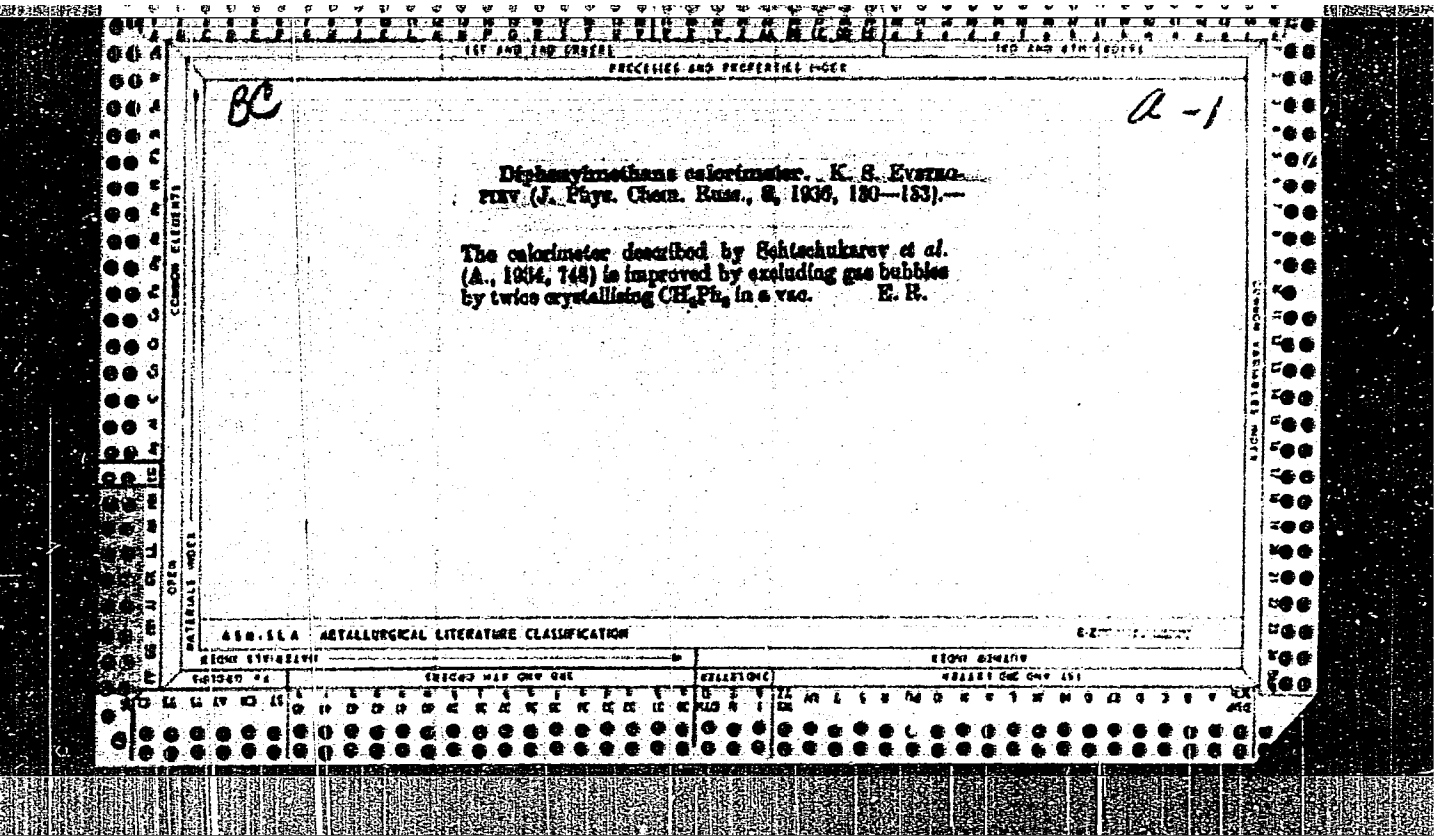


777

6

***Overvoltage Phenomena in the Electrodeposition of Metals on an Indifferent Cathode.** A. G. Samartzev and K. B. Evstropiev (*Zhurnal Fizicheskoy Khimii* (*J. Phys. Chem.*), 1934, **5**, 854–862; *C. Abs.*, 1935, **29**, 7822).—[In Russian.] *Cf. Met. Abs.*, 1930, **2**, 461. The polarization of smooth and of platinized platinum electrodes was studied in aqueous solutions of cadmium sulphate, salts of copper, lead, mercury, and silver, and in a C_5H_5N solution of silver nitrate at 20°–60° C. The potential-time curves always show a minimum, which is enhanced by the addition of sucrose in the case of cadmium sulphate. The neutralization of ions and deposition of metal atoms on the electrode is shown to be a single-step process.—S. G.

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

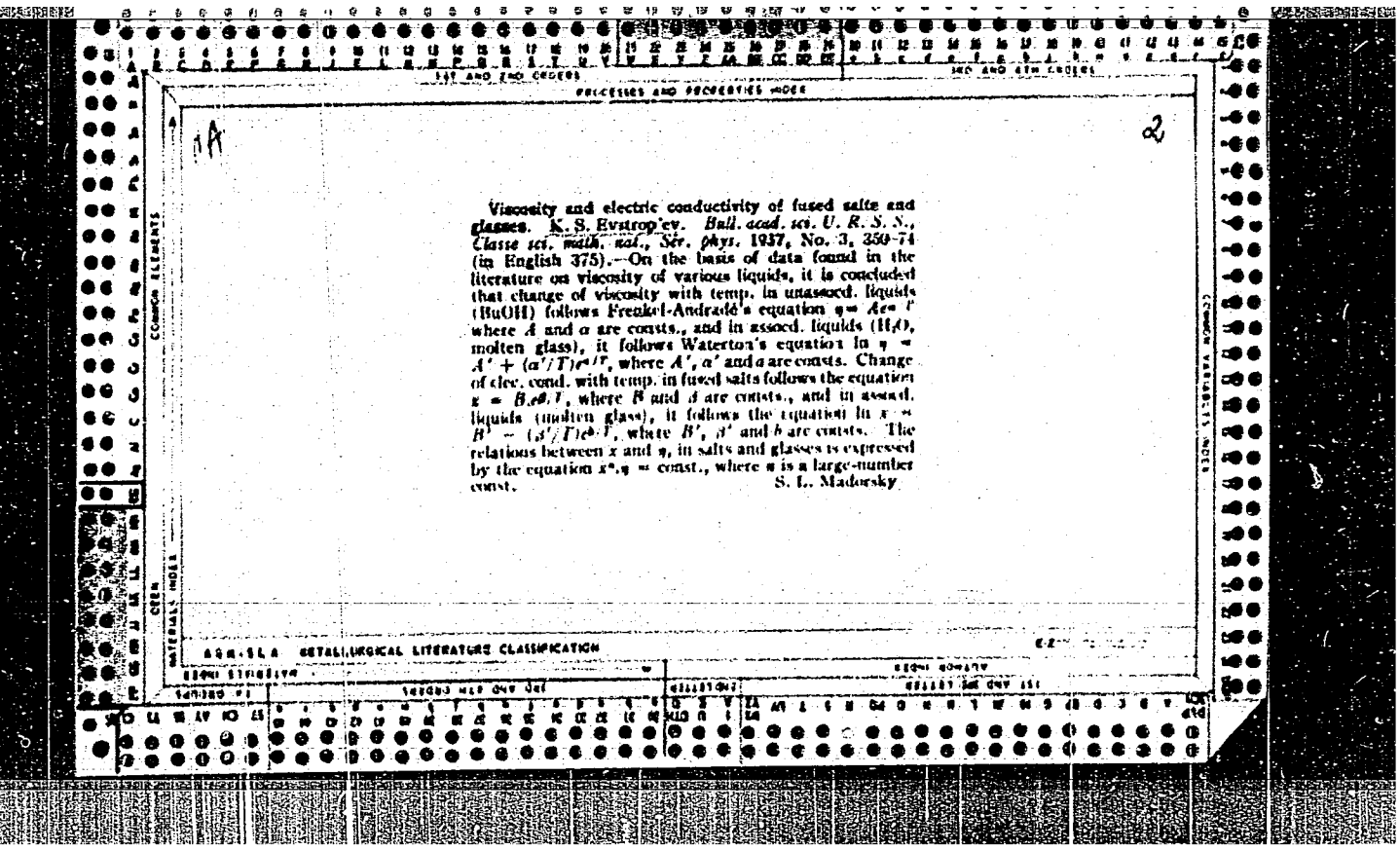


BC

A-1

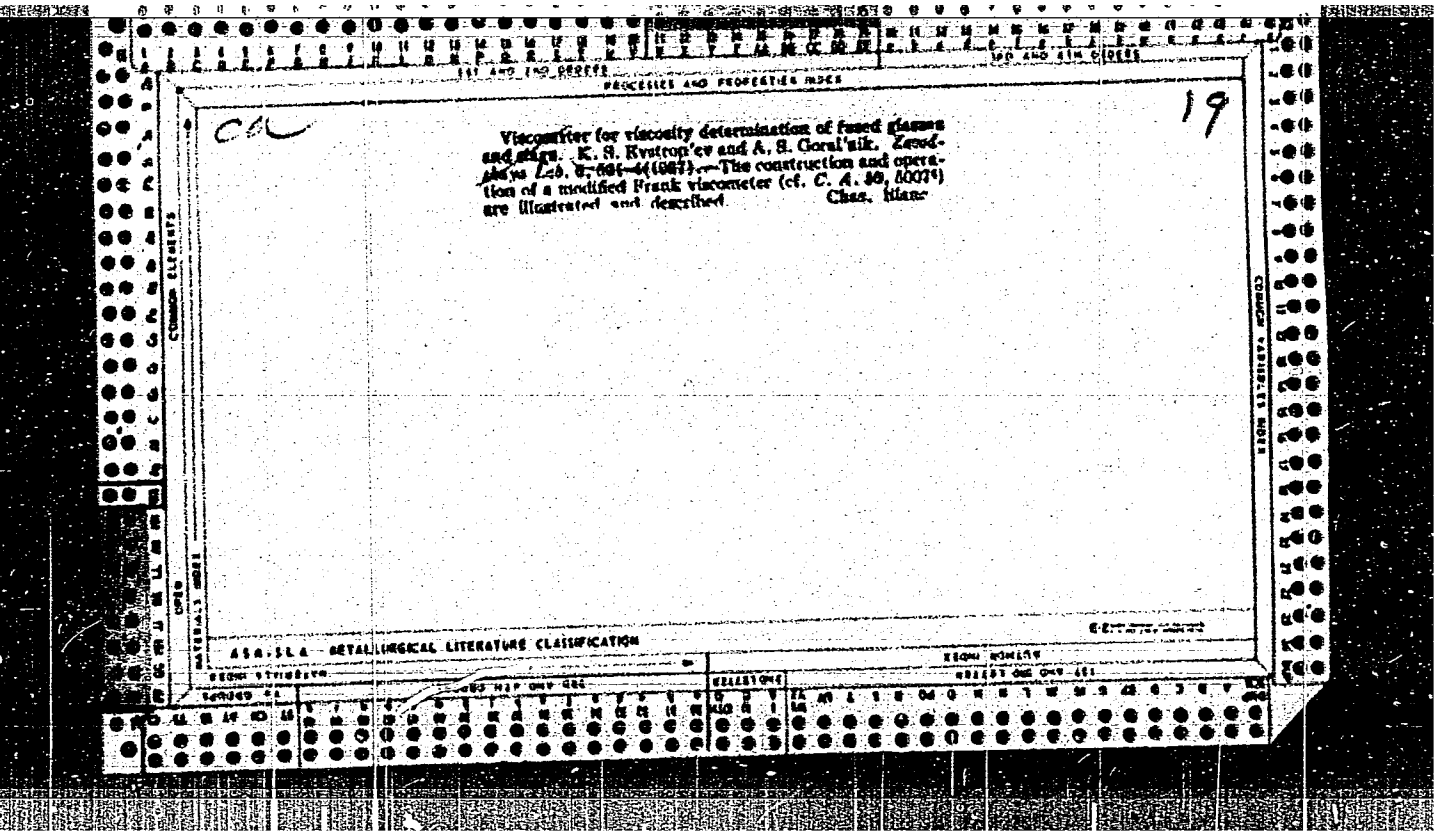
Diphenylmethane calorimeter. K. S. Evstro-pyev (J. Phys. Chem. Russ., 8, 1936, 180—183).—

The calorimeter described by Shtschukarev *et al.* (A., 1934, 748) is improved by excluding gas bubbles by twice crystallising CH_2Ph_2 in a vac. E. R.



Viscosity and electric conductivity of fused salts and glasses. K. S. Evstrop'ev. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. phys.* 1937, No. 3, 359–74 (in English 375).—On the basis of data found in the literature on viscosity of various liquids, it is concluded that change of viscosity with temp. in unassocd. liquids (BuOH) follows Frenkel-Andrade's equation $\eta = Ae^{\alpha/T}$ where A and α are consts., and in assocd. liquids (H_2O), molten glass), it follows Waterton's equation $\ln \eta = A' + (\alpha'/T)e^{\alpha'/T}$, where A', α' and a are consts. Change of elec. cond. with temp. in fused salts follows the equation $\chi = B.e^{\beta/T}$, where B and β are consts., and in assocd. liquids (molten glass), it follows the equation $\ln \chi = B' - (\beta'/T)e^{b/T}$, where B', β' and b are consts. The relations between χ and η, in salts and glasses is expressed by the equation $\chi^n.\eta = \text{const.}$, where n is a large-number const.

S. L. Madorsky



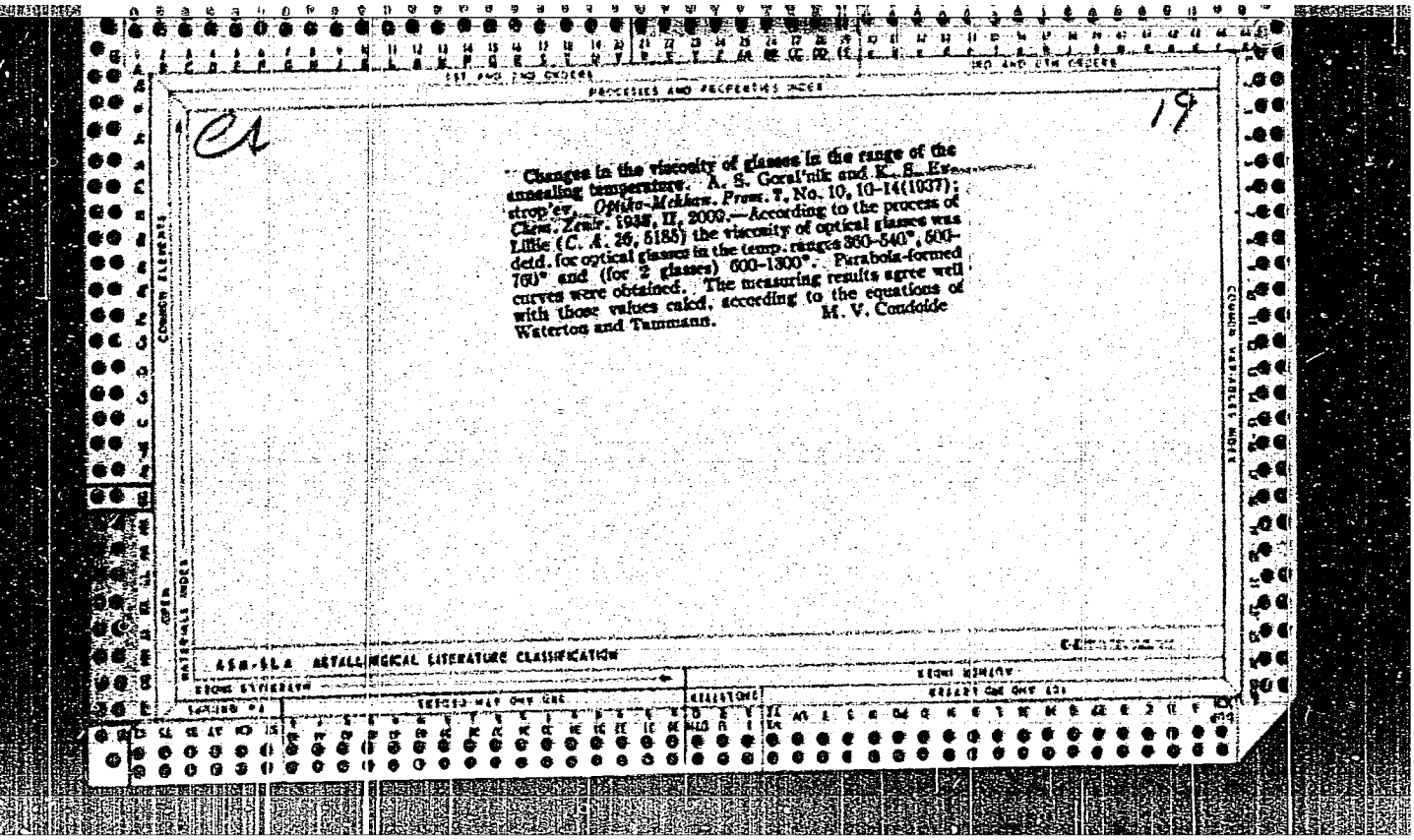
CAL

19

Viscometer for viscosity determination of fused glasses and slags. K. S. Evstrop'ev and A. S. Goral'nik. *Zavodskaya Lab.* 8, 685–6(1967).—The construction and operation of a modified Frank viscometer (cf. *C. A.* 59, 10071^g) are illustrated and described. Chas. Hlavac

PROCESSES AND PROPERTIES INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



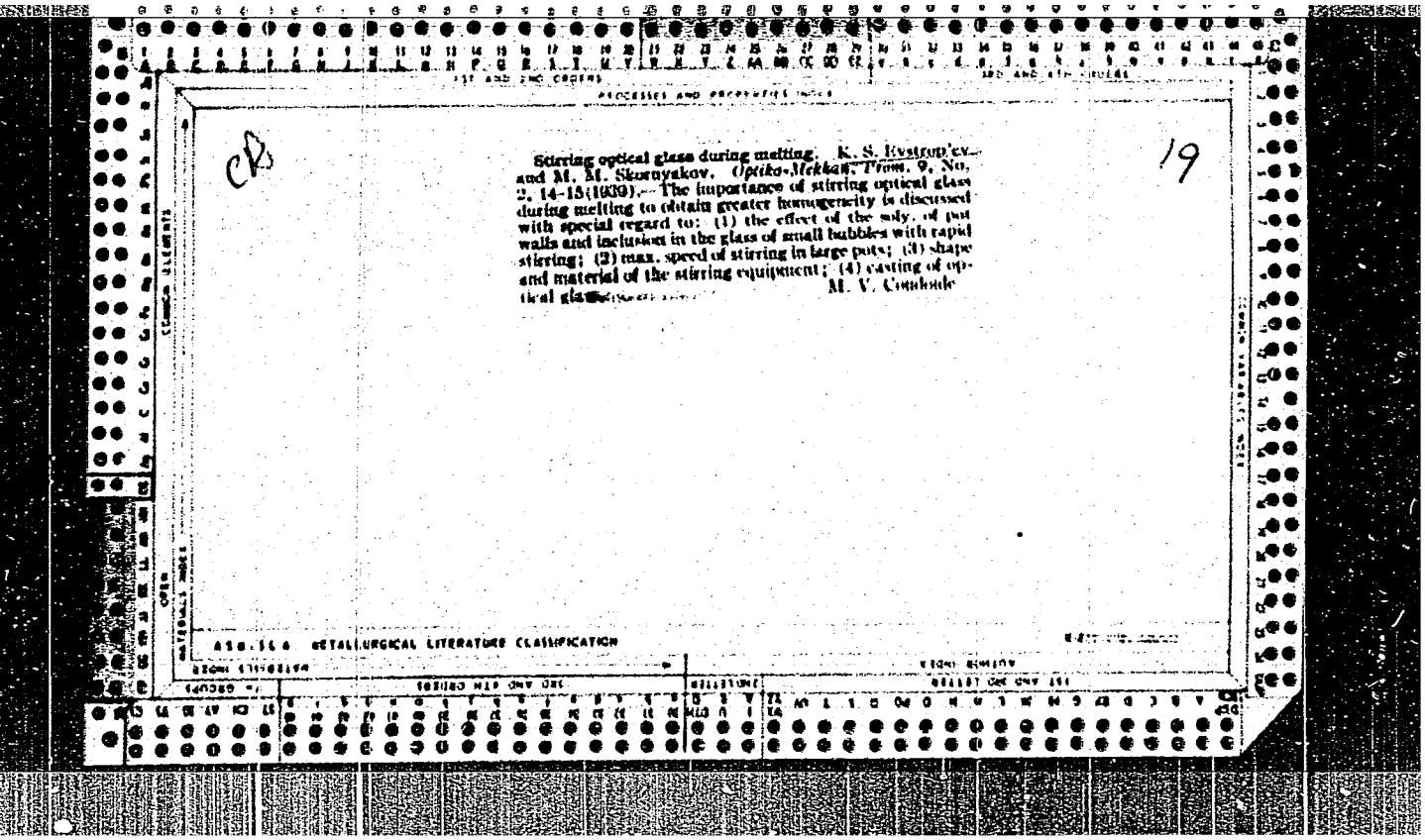
PROCESSES AND PROPERTIES INDEX

C1

19

Changes in the viscosity of glasses in the range of the annealing temperature. A. S. Goral'nik and K. S. Evstrop'ev. *Optiko-Mekhan. Prom.* 7, No. 10, 10–14(1937); *Chem. Zentr.* 1938, II, 2009.—According to the process of Lillie (*C. A.* 26, 5185) the viscosity of optical glasses was detd. for optical glasses in the temp. ranges 360–540°, 600–760° and (for 2 glasses) 600–1300°. Parabola-formed curves were obtained. The measuring results agree well with those values calcd. according to the equations of Waterton and Tammann. M. V. Condoide

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Stirring optical glass during melting. K. S. Evstrop'ev and M. M. Skoroyakov. *Optiko-Mekhan. Prom.* 9, No. 2, 14-15(1939).—The importance of stirring optical glass during melting to obtain greater homogeneity is discussed with special regard to: (1) the effect of the salv. of pot walls and inclusion in the glass of small bubbles with rapid stirring; (2) max. speed of stirring in large pots; (3) shape and material of the stirring equipment; (4) casting of optical glass.

M. V. Condrate

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A58-144 METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

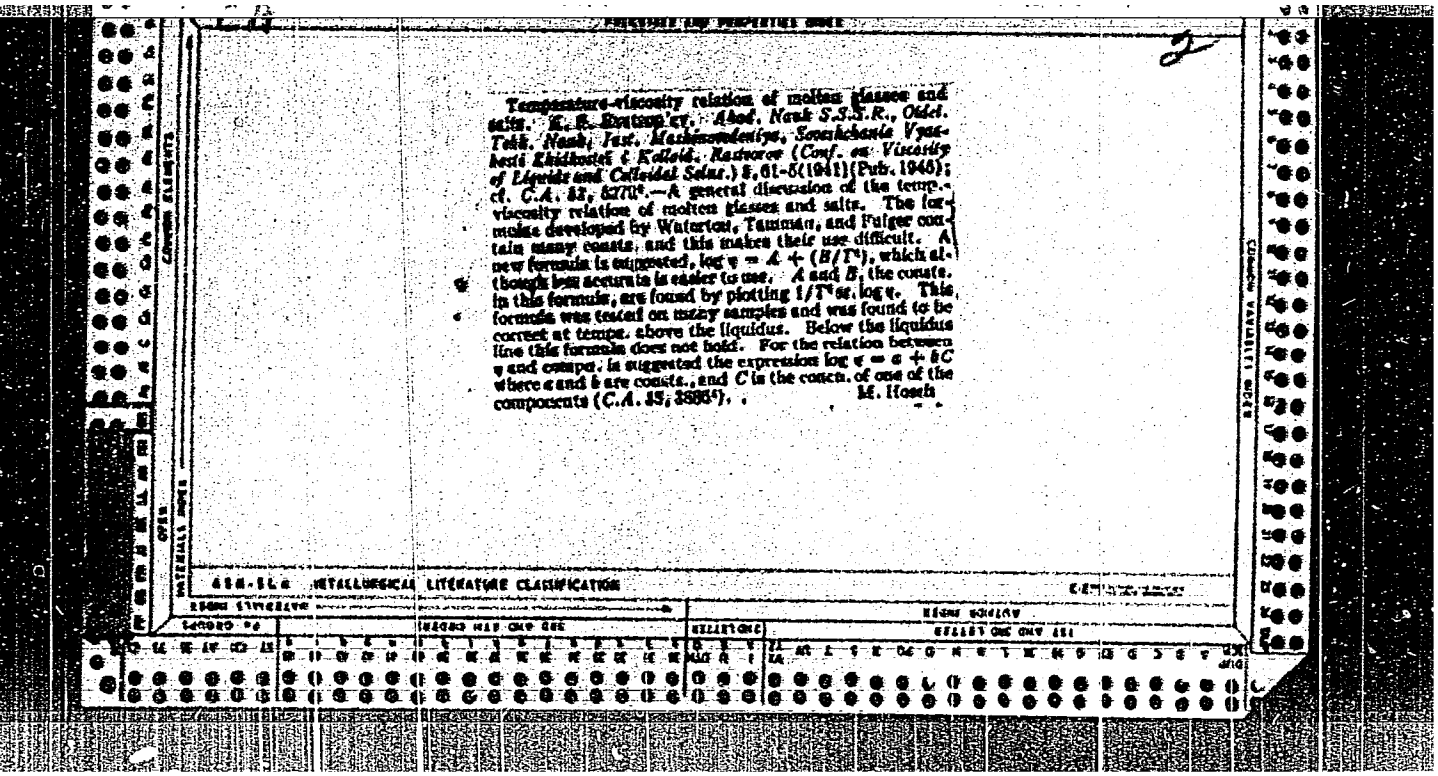
PROCESSES AND PROPERTIES INDEX

CA

2

The structure of glass-like and salt-like liquid binary mixtures according to the data of their viscosity and the electric conductivity. K. S. Evstrop'ev. *Bull. acad. sci. U. R. S. S., Sér. phys.* 4, 616-36 (in English, 631) (1940).—An attempt is made to extend the conceptions of Lebedev-Müller of the microheterogeneous nature of solid, glass-like systems, molten glasses and liquid systems in general. Measurements of the η and elec. cond. of glass-like binary systems showed general regularities in regard to the dependence of these properties on the compn. of glass. When the glass-like melt forms a eutectic during crystn. the dependence of its η on the compn. obeys the exponential law, i. e., if the log of the η of the mixt. is plotted on the x-axis and the compn. in mol. % is plotted on the y-axis, then the dependence is expressed by a straight line. If the initial components form a definite chem. compd. and if there are simple eutectics between this compd. and the pure components, then the changes of the η are expressed by 2 straight lines with a point of intersection corresponding to the chem. compd. The salt-like melts also obey these rules. The change of the η and elec. cond. with the change of the compn. of many binary liquid mixts. obeys the exponential law. It is assumed that a liquid mixt., which yields a eutectic upon crystn., has a microheterogeneous (microemulsoidal) structure in the liquid state. Mixts. that form a continuous series of solid solns. are homogeneous solns. in the liquid state as well. In conformity with this the presence of definite chem. compds. of elements of the mixt. should also be reflected in a corresponding manner in the properties of the liquid mixt. The additivity of the log of the η and elec. cond. with respect to the compn. is considered to be a proof of the microheterogeneous structure of binary glass-like and liquid mixts. Nine references. W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

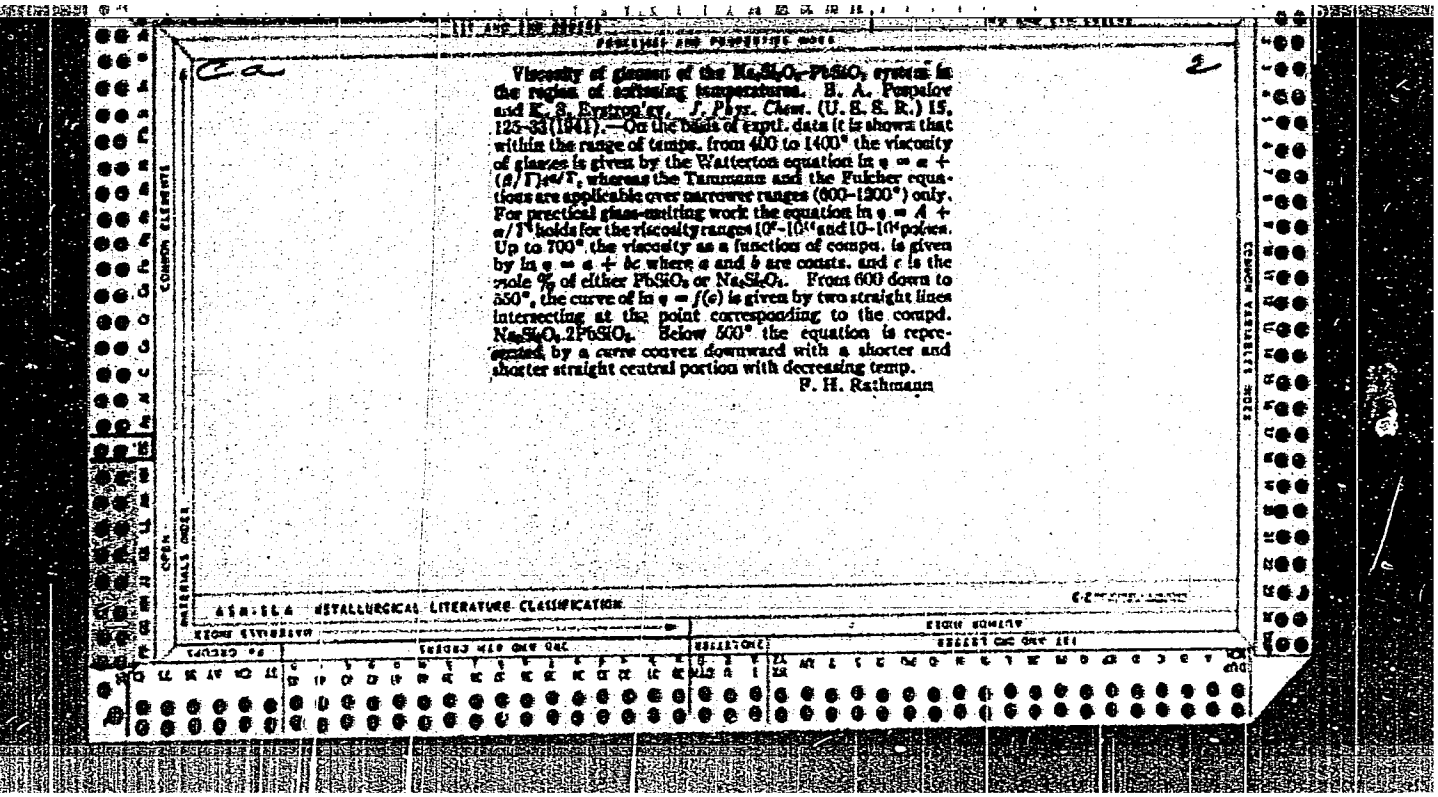


Temperature-viscosity relation of molten glasses and salts. K. S. Evstrop'ev. *Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk, Inst. Mekhanobrabotki, Soveshchanie Vyazkosti Zhidkostei i Kolloid. Rastvorov (Conf. on Viscosity of Liquids and Colloidal Solns.)* 5, 61–5 (1941) (Pub. 1946); cf. *C.A.* 32, 8270⁸.—A general discussion of the temp.-viscosity relation of molten glasses and salts. The formulas developed by Waterton, Tammann, and Fulger contain many consts. and this makes their use difficult. A new formula is suggested, $\log \eta = A + (B/T^2)$, which although less accurate is easier to use. *A* and *B*, the consts. in this formula, are found by plotting $1/T^2$ vs. $\log \eta$. This formula was tested on many samples and was found to be correct at temps. above the liquidus. Below the liquidus line this formula does not hold. For the relation between η and compn. is suggested the expression $\log \eta = a + bC$ where *a* and *b* are consts., and *C* is the concn. of one of the components (*C.A.* 45, 2885⁴). M. Hosch

A.C.S.

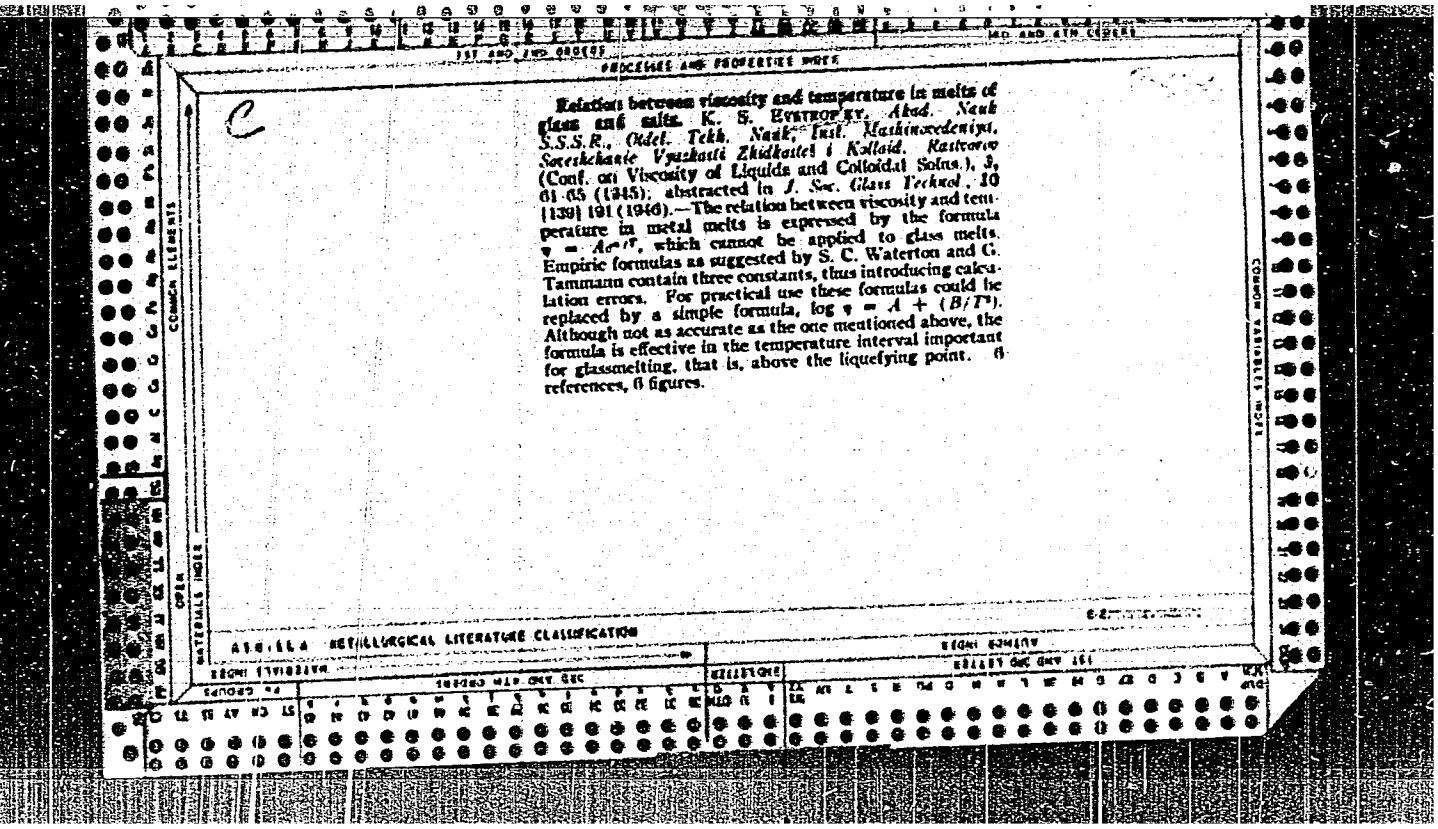
Chemistry & Physics

"Viscosity of the system SiO_2–PbO. A. S. Kongvalov and K. S. Evstropev. *Zhur. Fiz. Khim.*, 15, 109–15 (1941); abstracted in *Physik. Ber.*, 23 [18] 1696–97 (1942).—In an investigation of the viscosity of mine glasses of the system SiO_2–PbO in the temperature range 900° to 1400°C., it was found that the viscosity of lead silicate glasses and of some industrial glasses can be expressed by the empirical term $\log \eta = A + (\alpha/T^\circ)$, where A and α are constants depending on the composition of the glass. The viscosity-composition curve has no particular points in the range of m- and s-lead silicate. The lower the temperature at which the isotherm is selected, the more the viscosity of the melt changes with the composition. The dependence of $\log \eta$ on composition can be considered as a curve composed of three straight lines intersecting at points corresponding to 50 and 66.6 mole % PbO. M.Ha.



Viscosity of glasses of the $Na_2Si_4O_9$–$PbSiO_3$ system in the region of softening temperatures. B. A. Popelov and K. S. Evstrop'ev. *J. Phys. Chem.* (U. S. S. R.) 15, 125–33 (1941).—On the basis of exptl. data it is shown that within the range of temps. from 400 to 1400° the viscosity of glasses is given by the Watterton equation $\ln \eta = a + (b/T)e^{c/T}$, whereas the Tammann and the Fulcher equations are applicable over narrower ranges (600–1200°) only. For practical glass-melting work the equation $\ln \eta = A + B/T$ holds for the viscosity ranges 10^2–10^{14} and 10^{-1}–10^{14} poises. Up to 700° the viscosity as a function of compn. is given by $\ln \eta = a + bc$ where a and b are consts. and c is the mole % of either $PbSiO_3$ or $Na_2Si_4O_9$. From 600 down to 550°, the curve of $\ln \eta = f(c)$ is given by two straight lines intersecting at the point corresponding to the compd. $Na_2Si_4O_9 \cdot 2PbSiO_3$. Below 500° the equation is represented by a curve convex downward with a shorter and shorter straight central portion with decreasing temp.

F. H. Rathmann



Relation between viscosity and temperature in melts of glass and salts. K. S. EVSTROPEV. *Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk, Inst. Mashinovedeniya, Soveshchanie Vyazkosti Zhidkostei i Kolloid. Rastvorov* (Conf. on Viscosity of Liquids and Colloidal Solns.), 3, 61–65 (1945); abstracted in *J. Soc. Glass Technol.*, 30 [139] 191 (1946).—The relation between viscosity and temperature in metal melts is expressed by the formula $\eta = Ae^{B/T}$, which cannot be applied to glass melts. Empiric formulas as suggested by S. C. Waterton and G. Tammann contain three constants, thus introducing calculation errors. For practical use these formulas could be replaced by a simple formula, $\log \eta = A + (B/T^2)$. Although not as accurate as the one mentioned above, the formula is effective in the temperature interval important for glassmelting, that is, above the liquefying point. 6 references, 6 figures.

PA 18T87

EVSTROP'YEV, K. S.

USSR/Refraction
Glass Industry

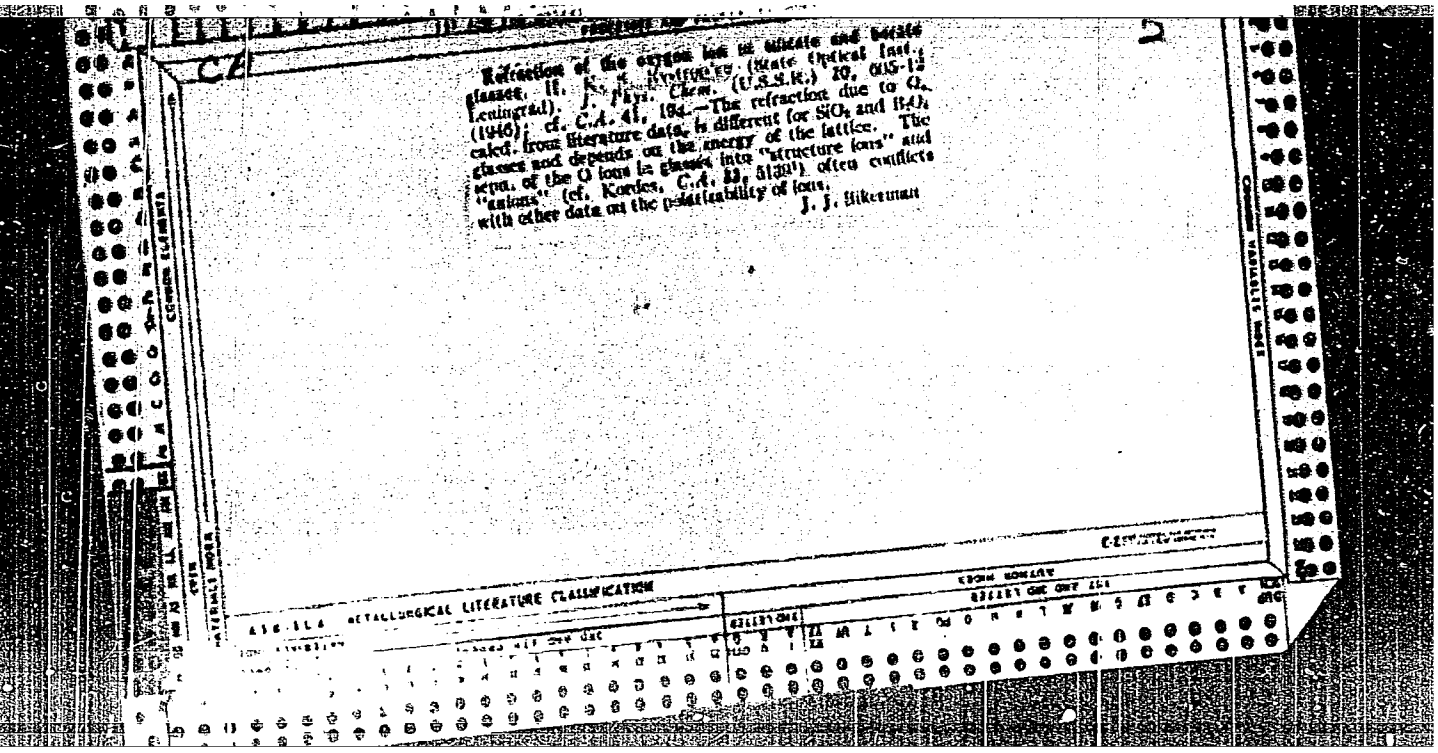
Jun 1946

"The Refraction of the Oxygen Ion in Silicate and Borate Glasses," K. S. Evstrop'yev, 5 pp

"Zhur Fiz Khim" Vol XX, No 6

Discusses process with accompanying graphs and formulae. Notes the discovery of the empyrical dependence of the middle refraction of the oxygen ion of glass on the structural network of the glass.

18T87



Refraction of the oxygen ion in silicate and borate glasses. II. K. S. Evstropiev. (State Optical Inst., Leningrad). *J. Phys. Chem.* (U.S.S.R.) 20, 615-15 (1946); cf. *C.A.* 41, 194.—The refraction due to O_2 calcd. from literature data, is different for SiO_2 and BAl_2 glasses and depends on the energy of the lattice. The refrn. of the O ions in glasses into "structure ions" and "anions" (cf. Kordes, *C.A.* 39, 5130) often conflicts with other data on the polarizability of ions.

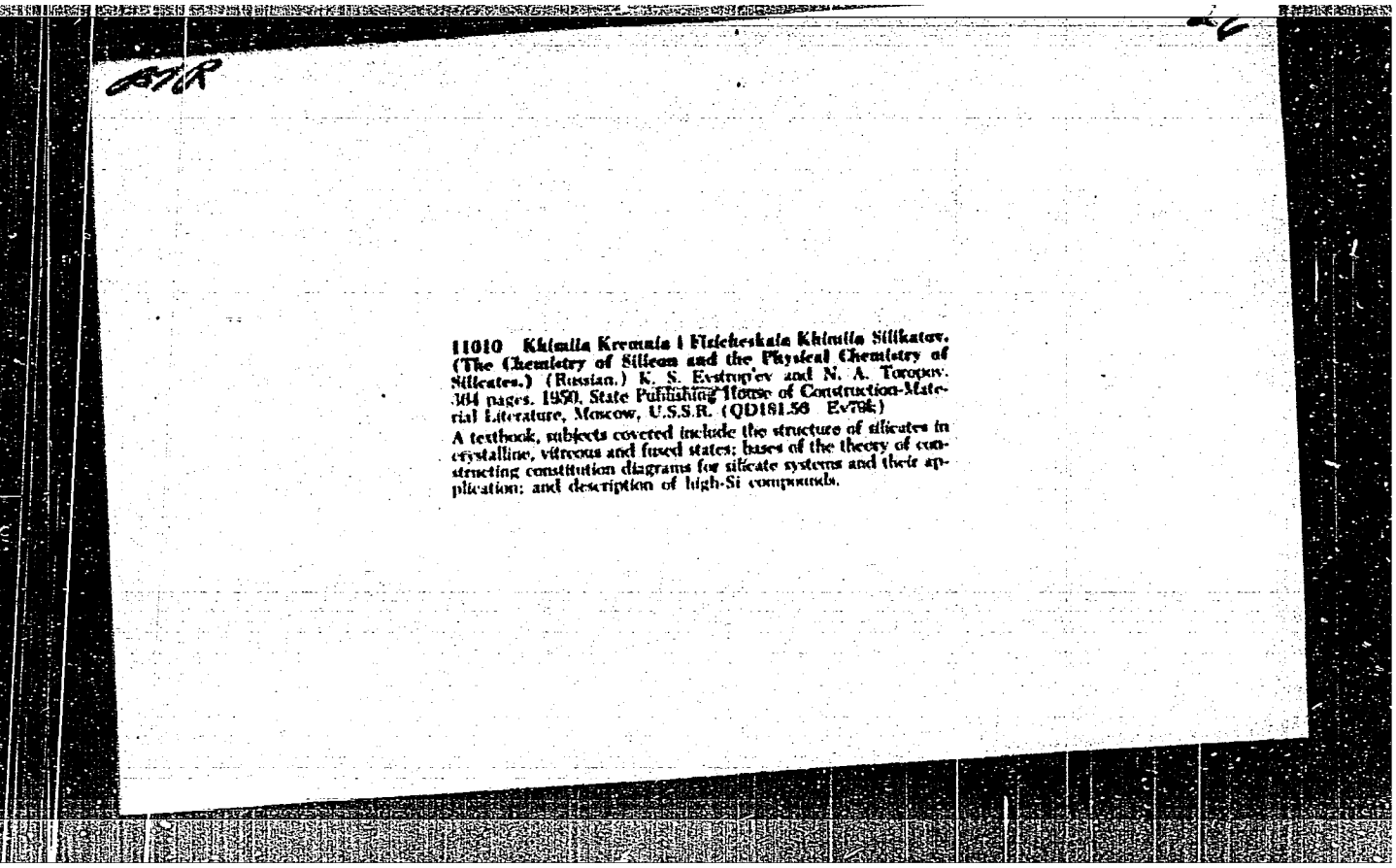
J. J. Bikerman

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001963020008-2"

ANDRONNIKOV, K.S.; BALAKOV, V.V.; BUZHINSKIY, A.N.; BURAGO, A.N.; VENTMAN, L.A.; VISHNEVSKIY, A.A.; VOLOSOV, D.S.; GASSOVSKIY, L.N., professor; GERSHUN, A.A., professor; YEL'YASHEVICH, M.A.; YEVSTROP'YEV, K.S.; GUREVICH, M.M., professor; KOLYADIN, A.I.; KORYAKIN, B.M.; KURITSKIY, A.L.; PAPIYANTS, K.A.; PROKOF'YEV, V.K., professor; PUTSEYKO, Ye.K.; REZUNOV, M.A.; RITYN', N.E., SAVOST'YANOVA, M.V., professor; SEVCHENKO, A.N.; SENNOV, N.I.; STOZHAROV, A.I.; FAYERMAN, G.P., professor; FEOFILOV, P.P.; TSAREVSKIY, Ye.N., professor; CHEKHMATAYEV, D.P.; YUDIN, Ye.F.; KAVRAYSKIY, V.V., professor; VAVILOV, S.I., akademik, redaktor

[Optics in military science] Optika v voennom dele; sbornik statei. Pod red. S.I.Vavilova i M.V.Savost'ianovoi. Izd. 3-e, zanovo perer. i dop. Moskva. Vol.2. 1948. 387 p. (MLRA 9:9)

1. Akademiya nauk SSSR. 2. Sostaviteli - sotrudniki Gosudarstvennogo Opticheskogo instituta (for all except Vavilov and Kavrayskiy) 3. Voyenno-morskaya akademiya (for Kavrayskiy)
(Optics)



11010 **Khimiia Kremnia i Fiziceskaia Khimiia Silikatov.** (The Chemistry of Silicon and the Physical Chemistry of Silicates.) (Russian.) K. S. Evstrop'ev and N. A. Toropov. 384 pages. 1950. State Publishing House of Construction-Material Literature, Moscow, U.S.S.R. (QD181.S8 Ev79k)

A textbook, subjects covered include the structure of silicates in crystalline, vitreous and fused states; bases of the theory of constructing constitution diagrams for silicate systems and their application; and description of high-Si compounds.

Electric conductivity of glasses of the system PbO-SiO$_2$.
K. S. Evstrop'ev, A. Ya. Kamenev, and I. G. Mel'nikova.
Zhur. Fiz. Khim. 21, 1041-11(1961).—The sp. elec. cond. of glasses of the system PbO-SiO$_2$ was measured on plates 35–40 mm. square, 2 mm. (±0.01 mm.) thick, of glasses of the compns. (PbO, SiO$_2$, %) (I) 51.4, 48.6, (II) 66.6, 33.4, (III) 63.2, 36.8, (IV) 60.0, 40.0 (V) 57.1, 42.9, (VI) 53.4, 46.6, (VII) 50.2, 49.8, (VIII) 47.3, 52.7, (IX) 43.1, 56.9, (X) 40.2, 59.8, (XI) 37.1, 62.9, (XII) 33.8, 66.2, with Ag or graphite electrodes. With increasing temp. (approx. 60–70°), a increases, roughly, by a factor of 10 for each 25° temp. increase, i.e. much faster than other silicate glasses. The relation $\log \sigma = a - (b/T)$ holds for all the above glasses, with b varying only between the narrow limits of from 5300 to 5500, i.e. practically independently of the compn., and with no direct relation to it. The activation energy varies between 48 and 53 kcal./mole, i.e. is unusually high, and indicates strong bonding of the Pb^{++} ions in the glass; on the other hand, the activation energy for viscous flow, in the same glasses, is of the order of 150 kcal./mole, i.e. 3 times the activation energy of elec. cond. Further evidence of the exceptionally strong bonding of Pb^{++} is the very slight tendency to crystn. of Pb glasses as compared with Ba or Sr silicate glasses, and their high resistance to H_2O. The sharp difference between Pb and Ba or Sr silicate glasses is not detd. by the cation size, as the diam. of Pb^{++} is intermediate between those of Sr^{++} and Ba^{++}. Rather, the difference is due to the symmetrical ideal-gas electron envelope of the Pb^{++} and Sr^{++}, in contrast to the strong polarization of the Pb^{++} ion in glasses. This is borne out by the x-ray structure analysis of PbO, which shows 4 O atoms at a distance of 4.24 A. from Pb, and 4 O atoms at 2.30 A. The isotherms of log σ as a function of the compn., at 50, 100, 150, 200, and 250°, consist of 2 rectilinear portions, ascending with increasing PbO content and intersecting at a point corresponding to the compn. $PbSiO_3$. Below 50 mole % PbO, the glass consists of $PbO \cdot SiO_2 + SiO_2$, above that point, of $PbO \cdot SiO_2 + 2PbO \cdot SiO_2$. Consequently, the 2 branches of the isotherms have different slopes, specifically, the slope is steeper along the low-PbO branch corresponding to presence of free SiO_2.

USSR/Chemistry - Electrical Conductivity of Glasses Nov 51

"Electrical Conductivity of Glasses of the System $PbO-B_2O_3$," I. G. Mel'nikova, K. S. Yevstrop'yev, K. Ye. Kuznetsov, Leningrad

"Zhur Fiz Khim" Vol XXV, No 11, pp 1318-1327

Investigated spe elec cond of $PbO-B_2O_3$ glasses (PbO content 21.4-69 molar %) for temps 170-400°C. Found formula satisfying dependence of elec cond of glasses on temp. Found that logarithm of elec cond increases with higher PbO content in glasses. Discussed variations

196T16

YEVSTROP 'YEV, K. S.

USSR/Chemistry - Electrical Conductivity of Glasses (Contd) Nov 51

of elec cond in dependence on PbO content. Calcd activation energy of glasses; established that activation energy is high, increasing with higher B_2O_3 content.

196T16

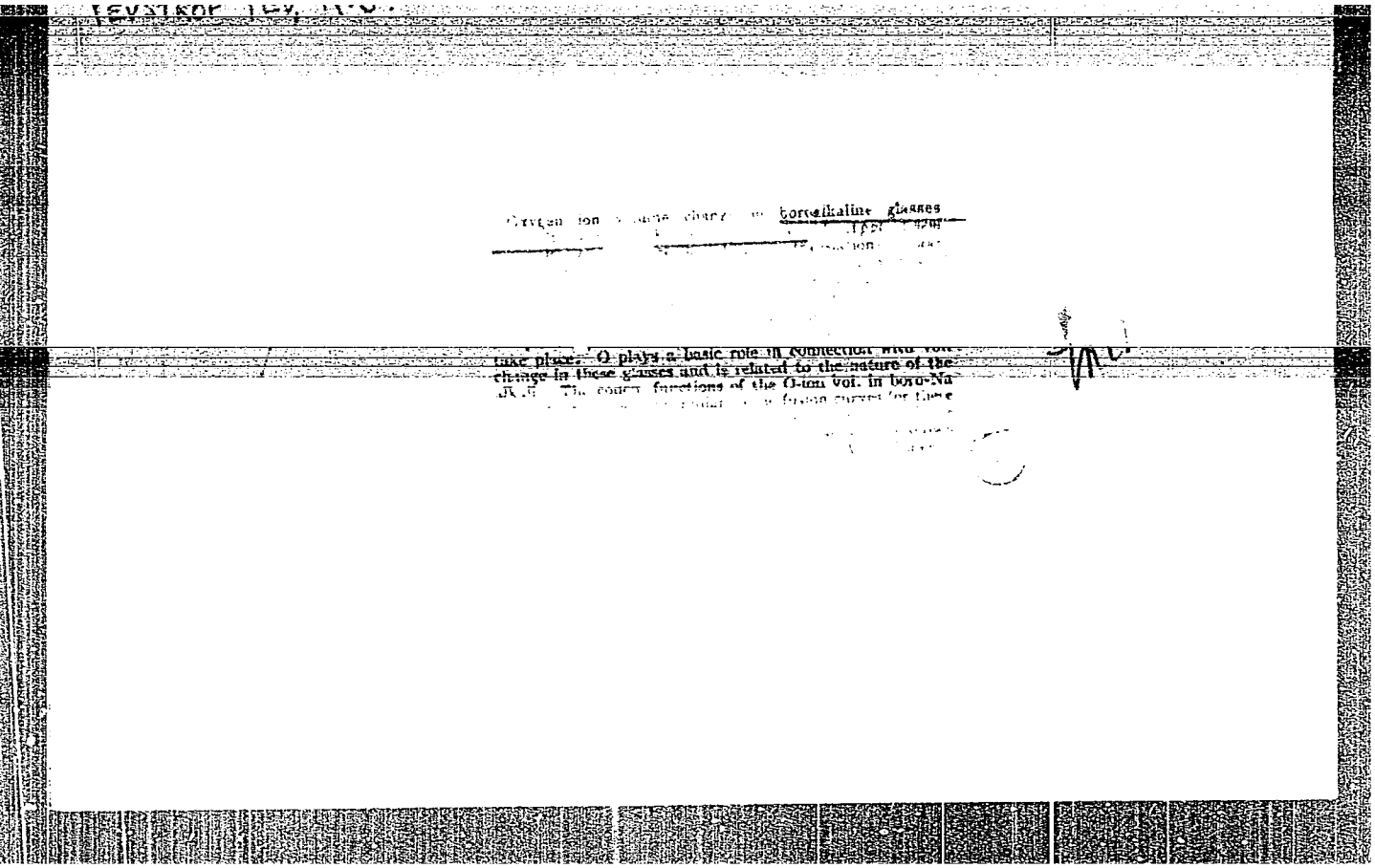
YEVSTROP'YEV, K. S.

USSR/Physics - Electrical Conductivity, Aug 52
Glass

"Surface Electrical Conductivity of Glass in a Humid Atmosphere," N. G. Gutkin, K. S. Yevstrop'yev, A. Ya. Kuznetsov

"Zhur Tekh Fiz" Vol 22, No 8, pp 1318-1324

Measures surface cond of a number of tech glasses in relation to humidity and temp.. Results showed that surface cond in humid atm rises by a factor of 3-5, and at const temp the max rise occurs in a humidity range of 30-80%. With increasing temp the cond rises, the thermal coeff varying from 2 to 4%.
Received 2 Oct 51. 226T98



take place. O plays a basic role in connection with
change in these glasses and is related to the nature of the

YEVSTROP'V, K.S.

Authors : Evstrop'v, K.S.

Title : The history of the development of the hypotheses of the crystallite structure of glass

Periodical : Stek. i ker. 5, 4-7, May 1954

Abstract : The editorial presents abstracts of hypotheses by YA.I. Frenkel', A.A. Lebedev, N.A. Rozzha, N.N. Valenkov and V.A. Florinskaya on the crystallite [illegible] and solid state, and the influence of [illegible] on glass production methods.

YEVSTROP'YEV, K. S.

[illegible], K. S.

USSR/ Chemistry - Glass utensils

Card : 1/1 Pub. 104 - 3/12

Authors : Kachalov, N. N., Yevstrop'ev, K. S. Dubrovo, S. K., Lipkin, V. M. and Borisov, K. I.

Title : Glass for utensils of chemical laboratories

Periodical : [illegible]

Abstract : The article deals with experiments conducted in order to obtain a glass that could be produced in large quantities, be cheap, and still be suit- [illegible] utensils. [illegible] glass is [illegible] [illegible] presence of boric anhydride [illegible] the quality [illegible] from experiment [illegible] and a [illegible] is found [illegible] first [illegible]

Institution : ...

[illegible]

BOTVINKIN, O.K.; YEVSTROP'YEV, K.S., doktor khimicheskikh nauk, professor, retsenzent; TOROPOV, N.A., doktor tekhn.nauk, professor, retsenzent; MAZURIN, O.V., kandidat khim. nauk, retsenzent; KUKOLEV, G.V., doktor tekhnicheskikh nauk, peofessor, retsenzent; ALKIND, I.Ya., kandidat tekhnicheskikh nauk, redaktor; DEMINA, G.A., redaktor; LUDKOVSKAYA, N.I., tekhnicheskiy redaktor.

[Physical chemistry of silicates] Fizicheskaia khimiia silikatov. Izd. 2-oe, perer. i dop. Moskva, Gos.izd-vo lit-ry po stroit. materialam, 1955. 285 p. (MLRA (9:5)

1.Kafedra obshchey tekhnologii silikatov Leningradskogo ordena Trudovogo Krasnogo Znameni Tekhnologicheskogo instituta imeni Lensoveta (for Yevstrop'yev, Toropov, Mazurin).
(Silicates)

YEVSTROP'YEV, K.S.

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

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27610

Author : K.S. Yevstrop'yev.
Inst :
Title : Two Component Parts in Glass Structure.

Orig Pub: vSb Stroyeniye stekla. M.-L., AN SSSR, 1955, 301-302

Abstract: The author points out that the modern theory of crystallites considers the glass structure as a mixed system, in which crystalline, as well as amorphous elements are present. The task of the investigators is to find out the ratio of the volumes of the orderly and the disorderly portions and to give a more exact characteristic. See also RZhKhim., 1957, 1564.

Card : 1/1 -8-

YEVSTROP'YEV, Konstantin Sergeyevich, professor, doktor khimicheskikh nauk; TOROPOV, Nikita Aleksandrovich, professor, doktor tekhnicheskikh nauk; GUREVICH, E.A., redaktor; GLADKIKH, N.N., tekhnicheskiy redaktor

[The chemistry of silicon and the physical chemistry of silicates] Khimiia kremniia i fizicheskaia khimiia silikator. Izd. 2- oe. Moskva, Gos. izd-vo lit-ry po stroit. materialam, 1956. 339 p. (Silicon) (Silicates) (MLRA 10;3)

SLAVYANSKIY, Viktor Timofeyevich; EVSTROP'YEVA, K.S., doktor khimicheskikh nauk, professor, redaktor; FREYBERG, S.I., zasluzhennyy deyatel' nauki i tekhniki, professor, retsenzent; KHOZYAINOV, M.I., inzhener, redaktor; SUVOROVA, I.A., izdatel'skiy redaktor; ROZHIN, V.P., tekhnicheskiy redaktor.

[Gases in glass] Gazy v stekle. Pod.red.K.S. Evstrop'eva. Moskva, Gos.izd-vo obor.promyshl., 1957. 141 p. (MLRA 10:4)
(Glass)

YEVSTROP'YEV, K.S.; PAVLOVA, G.A.

Methods for determining transference numbers in solid glasses containing two different mobile ions. Trudy LTI no.46:49-55 '58. (MIRA 14:4)

(Glass research) (Ions—Migration and velocity)

Yevstrop'yev, K. M.

15(2)

AUTHOR: None Given SOV/72-59-5-1/23

TITLE: Glass Science at the VIII Mendeleyev Congress (Nauka o steklo na VIII Mendeleyevskom s"yezde)

PERIODICAL: Steklo i keramika, 1959, Nr 5, pp 1-4 (USSR)

ABSTRACT: In the beginning a proclamation of the TsK KPSS to the personnel of the building material industries for a qualitative and quantitative increase of production is mentioned. The Congress took place in Moscow in the second half of March of the current year and was devoted to the 125th anniversary of the great scholar's birthday. Outstanding chemists of the Soviet Union and the People's Democracies attended the Congress. The principal problems of the development of chemistry were discussed at the plenary meetings and the meetings of the 18 Congress sections. Professor I. I. Kitaygorodskiy opened the meetings of the sub-section for glass and gave a survey of the stages of development of Soviet glass production as well as of a number of promising tasks in the field of glass technology. Moreover, the following lectures were held: Doctor Koranі (People's Republic of Hungary) investigated the structure of the top-layers of glass;

Card 1/4

A. I. Avgustinnik (LTI imeni Lensovet) discussed the formation of a finely disperse crystalline phase from the glass-like phase; V. V. Vargin and G. O. Karapetyan (GOI) reported on absorption spectra, luminiscence, and photochemical properties of cerium-glass types; A. G. Vlasov (GOI) reported on the quantitative reciprocal relations between ordered and disordered glass phases; Ye. A. Poray-Koshits, Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry of the AS USSR) discussed the reasons for the disagreement on the problem of the structure of glass-like substances; Professor O. K. Botvinkin, N. I. Ananich, and M. L. Mironova, Institut stekla (Glass Institute) reported on the Investigation of the Glass Structure by the Method of Thermal Analysis and Optical Polarisation; Ye. V. Podushko (GOI) discussed the new method of electric glass melting and the melting of silicates by means of high-frequency current; Yu. G. Shteynberg reported on strontium-magnesium glases without lead and boron for faience and majolica which have been developed in the Gosudarstvennyy nauchno-issledovatel'skiy keramicheskiy institut (State Scientific Research Institute of Ceramics); L. S. Yastrebova, and V. S. Molchanov (GOI) discussed the role played by the

Card 2/4

surface protection film in the destruction of silicate glasses; G. I. Veynberg (GOI) discussed the coloring characteristics and the technology of phosphate glasses; O. V. Mazurin (LTI) reported on the mobility of sodium ions in glass types of the system Na_2O-RO-SiO_2; Z. A. Nosova (NII Stroykeramika) discussed the process of subduing the glases by lead oxide and zirconium; L. G. Mel'nichenko, Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnic Institute) reported on silicate formation and sintering processes in the briquetted glass layer; K. N. Yevstrop'yev investigated various types of glass; N. N. Semenov (Glass Institute) reported on the determination of impurities in silica by spectroscopic analysis; G. S. Bogdanova, and Ye. M. Orlova (Glass Institute) reported on types of electrode glass which has been devised by them. Yu. V. Bagoshin (Glass Institute) discussed the kinetics of the formation of crystallization centers in photo-sensitive types of glass; Z. M. Syritskaya (Glass Institute) discussed the results of the investigation of the tendency of phosphatic systems towards glass formation; L. A. Grechanik, N. V. Petrovykh, and V. G. Karpechenko (NIIES) reported on the investigation of types of semiconducting oxide glass on the basis of V_2O_5; N. V. Solovin, L. A. Grechanik, I. V. Shpakova, and Ye. A. Faynberg (NIIES) discussed the production of conductive films on types of glass which contain components easily to be regenerated.

MUKHIN, Yevgeniy Yakovlevich; GUTKINA, Noemi Girshevna; YEVSTROP'YEV, K.S., prof., doktor khim.nauk, red.; IL'IN, R.S., kand.tekhn. nauk, red.; MOROZOVA, P.B., izdat.red.; PUKHLIKOVA, N.A., tekhn. red.

[Glass crystallization and methods of preventing it] Kristallizatsiia stekol i metody ee preduprezhdeniia. Pod red. K.S. Evstrop'eva. Moskva, Gos.izd-vo obor.promyshl., 1960. 125 p. (MIRA 13:4)

(Glass manufacture--Chemistry)

YEVSTROP'YEV, K.S.

PHASE I BOOK EXPLOITATION SOV/5035

Vsesoyuznoye soveshchaniye po steklu. 3d, Leningrad, 1959.

Steklo; trudy Tret'yego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad on November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 534 p. Errata slip inserted. 3,500 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov 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. Barabanshchikov, N.A. Bezborodov, O.K. Botvinkin, V.V. Vargin, A.G. Vinogr, K.S. Yevstrop'yev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Porai-Koshits, Chairman, M.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 ash borosilicate glasses. The Conference was attended by more than 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were K.V. Solonin, Ye. V. Kuvshinskiy, Yu.A. Gutov, V.P. Pryanishnikov, Yu. Ya. Gotlib, O.P. Mchedlov-Petrosyan, G.P. Mikhaylov, S.M. Petrov, A.N. Lazarev, D.I. Lewin, A.V. Shatilov, M.P. Plotnichenko, A.Ya. Kunetsov, E.V. Fedyayeva, G.V. Dyurgerovskaya, A.A. Malenov, M.M. Shemyakin, F.Ya. Bokin, E.K. Keller, Ya.A. Kunetsov, V.P. Poddeyev, R.S. Shevelevich, Z.Z. Finker, 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 elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-tekhnicheskiy 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 Institut imeni Lensoveta), Belorusskiy politekhnicheskiy institut (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.S. Cellit), 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 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 G.M. Fartenov, M.V. Vol'kenshteyn, L.I. Demkina, D.P. Dobychin, S.K. Dubrovo, V.A. Ioffe, and B.T. Kolomiytsev. References accompany individual reports.

15.2120 1142, 3109, 3309

23343 S/058/61/000/006/029/063
A001/A101

AUTHOR: Yevstrop'yev, K.S.

TITLE: General problems of the structure and properties of glass

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 223, abstract 6D65 (V sb. "Steklocbrazn. sostoyaniye", Moscow-Leningrad, AN SSSR, 1960, 39-48, Discus. 98 - 112)

TEXT: The existence of microheterogeneities in glass (structurally ordered formations) is confirmed by changes in physico-chemical properties of glasses, dependent on the structure, when the temperature varies. All studied properties of glass-forming systems are divided, in a first approximation, into simple properties, such as density, dielectric constant, thermal expansion coefficient, refraction index, etc., and complex properties, such as viscosity, diffusion, electric conductivity, dielectric losses. In simple properties, there is an additive correlation between these properties and glass composition, whereas there are many particular deviations from these correlations in complex properties, which disguise the general nature of relations. The complex properties are more sensitive to changes of composition. The dependences of complex properties (viscosity, elec-

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tric conductivity) on composition and temperature of glasses of the following systems: $Na_2Si_2O_5$-$PbSiO_3$, Na_2O-B_2O_3, PbO-B_2O_3, PbO-GeO_2, R'_2O-R''_2O-SiO_2 (where R' and R'' correspond to Li and Na, Li and K, Na and K, in pairs) and several solid and molten salts, were considered using experimental data of various authors. Capacities to glass-formation of various elements of the periodic system are presented, and the conclusion was drawn that this capacity varies according to a periodic law. There are 15 references.

A. Yakhkind

[Abstracter's note: Complete translation]

KITAYGORODSKIY, I.I., doktor tekhn. nauk, prof.; KACHALOV, N.N., prof.; VARGIN, V.V., doktor tekhn. nauk, prof.; YEVSTROP'YEV, K.S., doktor tekhn. nauk, prof.; GINZBURG, D.B., doktor tekhn. nauk, prof.; ASLANOVA, M.S., doktor tekhn. nauk, prof.; GURFINKEL', I.Ye., inzh.; ZAK, A.P., kand. tekhn. nauk; KOTLYAR, A.Ye., inzh.; PAVLUSHKIN, N.M., doktor tekhn. nauk, prof.; SENTYURIN, G.G., kand. tekhn. nauk; SIL'VESTROVICH, S.I., kand. tekhn. nauk, dots.; SOLINOV, F.G., kand. tekhn. nauk; SOLOMIN, N.V., doktor tekhn. nauk, prof.; TEMKIN, B.S., kand. tekhn. nauk; GLADYSHEVA, S.A., red. izd-va; TEMKINA, Ye.L., tekhn. red.

[Glass technology] Tekhnologiia stekla. Izd.3., perer. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 622 p. (MIRA 14:10)

1. Chlen-korrespondent AN SSSR (for Kachalov).
(Glass manufacture)

MAZURIN, O.V.; YEVSTROP'YEV, K.S., prof., red.; SLAVUTINA, N.E., red.; FOMKINA, T.A., tekhn.red.

[Electrical properties of glass; domain of weak fields] Elektricheskie svoistva stekla. Leningrad, 1962, 161 p. (Leningrad. Tekhnologicheskii institut. Trudy, no.62). (MIRA 15:11)

(Glass—Electric properties)
(Electric insulators and insulation)

S/081/62/000/004/053/087
B150/B138

AUTHORS: Yevstrop'yev, K. S., Mazurin, O. V., Khar'yuzov, V. A.

TITLE: Electrical conductivity of oxygen and oxygen-free glasses with N-type conductivity

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 386, abstract 4K280 (Tr. Leningr. tekhnol. in-ta, im. Lensoveta, no. 52, 1961, 16-25)

TEXT: A short survey. As regards their electrical properties, N-type semiconductor glasses occupy a position adjacent to those with ion conductivity. In the transitional range the properties of these groups of glasses overlap: semiconductor glasses exist with a high volume resistivity and ion-conducting ones with high specific conductivity. 13 references. [Abstracter's note: Complete translation.]

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GAYLISH, Ye.A.; DROZDOV, N.G.; YEVSTROP'YEV, K.S.; KAZARNOVSKIY, D.M.; NEYMAN, L.R.; PASYNKOV, V.V.; PRIVEZENTSEV, V.A.; RENNE, V.T.; TAREYEV, B.M.

N.P. Bogoroditskii; on his sixtieth birthday and the thirty-fifth anniversary of his theoretical and educational work. Elektrichestvo no.7:87-88 Jl '62. (MIRA 15:7)
(Bogoroditskii, Nikolai Petrovich, 1902-)

IVANOV, A.O.; YEVSTROP'YEV, K.S.

Structure of simple germanate glass. Dokl.AN SSSR 145 no.4:797-800 Ag '62. (MIRA 15:7)

1. Predstavleno akademikom A.A.Lebedevym.
(Glass) (Germanates)

YEVSTROPYEV, K. S.

"Electrical properties and structure of glasses."

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

PORAY-KOSHITS, Ye.A., otv. red.; YEVSTROP'YEV, K.S., red.; KONDRAT'YEV, Yu.N., red.; LEBEDEV, A.A., red.; MAZURIN, O.V., red.; MOLCHANOV, V.S., red.; PETROVSKIY, G.T., red.; POZUBENKOV, A.F., red.; TOROPOV, N.A., red.; CHEBOTAREVA, T.Ye., red.; YAKHKIND, A.K., red.

[Vitreous state; transactions] Stekloobraznoe sostoianie; trudy. Moskva, Nauka, 1965. 439 p. (MIRA 18:7)

1. Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964.

L 6486-66 EWP(e)/EWT(m)/EWP(l)/EWP(b) W/

ACC NR: AP5028729 SOURCE CODE: UR/0363/65/001/011/1978/1981

AUTHOR: Ievstrop'yev, K. S.; Medvedev, N. M. (Deceased); Khalilev, V. D.

ORG: Institute of Silicate Chemistry im. I. V. Grebenshchikov, Academy of Sciences, [illegible] im. Lensovet (Leningradskiy tekhnologicheskiy institut)

TITLE: The effect of gaseous medium over molten fluoroberyllium glass on the ultraviolet light transmission of the glass

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 11, 1965, 1978-1981

TOPIC TAGS: glass, optical glass, fluoroberyllium glass, glass synthesis, glass property

ABSTRACT: In the earlier studies at Leningrad Technological Institute, a temporary gray opacity was observed in fluoroberyllium glass during the initial melting period. [illegible]

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L 6486-66

ACC NR: AP5028729

glass cr with molten charge of the same composition (BeF_2 54, AlF_3 11, CaF_2 11, and KF 24 mole%). Transmission curves in the [illegible] nm spectral range show that in nitrogen, argon, [illegible] hydrogen fluoride [illegible] transmissibility [illegible]

DRONOVA, G.N., inzh.; YEVSTROP'YEV, K.S., doktor khimich. nauk

Electric properties of SVAM-type glass plastic. Elektrotekhnika 36 no.5:37-39 My '65. (MIRA 18:5)

L 06228-67 EWT(1)/EWP(e)/EWT(m) IJP(c) WH

ACC NR: AP6029415 SOURCE CODE: UR/0426/66/019/005/0325/0329

AUTHOR: Margaryan, A. A.; Yovstrup'yev, K. S.

ORG: Glass Technology Department, LTI im. Lensovet (Kafedra tekhnologii stekla LTI)

TITLE: Infrared spectra of fluoberyllate glasses containing small amounts of cerium-group rare earth fluorides

SOURCE: Armyanskiy khimicheskiy zhurnal, v. 19, no. 5, 1966, 325-329

TOPIC TAGS: fluoberyllate glass, rare earth compound, fluoride, IR spectrum, light transmission, GLASS PROPERTY, FLUORIDE

ABSTRACT: IR light transmission curves of fluoberyllate glasses of alkaline and alkali-free composition were studied in the 2000-4000 cm^{-1} range. In both cases, the presence of rare earth ions in the amount of 0.02 mole % appreciably affected the intensity of the absorption band at 3508-3535 cm^{-1}. No selective influence of various rare earth fluorides (PrF_3, NdF_3, LaF_3) on the light absorption in this range was observed when the fluorides were present in amounts from 0.05 to 1 mole %. PbF_2 and BiF_3 added in amounts of 0.05 and 0.1 mole % decreased the light transmission to 66-72% at 3508-3535 cm^{-1}. It had been shown earlier that the presence of 0.02 mole % of rare earth fluorides causes an increase in the effective ultraviolet transparency; this was also found to be true of the transparency in the infrared. Orig. art. has:

Card 1/2 UDC: 535.34+546.16+546.45