"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M.A.; BUKOVSKA, M.

Results of X-ray structural studies of some ammonium complex compounds of bivalent copper. Zhur.strukt.khim. 3 no.1:38-43 Ja-F '62. (MIRA 15:3)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

(Ammonium compounds) (Copper compounds)
(X rays--Diffraction)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ATOVMYAN, L.O.; ANDRIANOV, V.G.; PORAY-KOSHITS, M.A.

Crystalline structure of potassium tetrahydroxydioxyosmate. Zhur. strukt.khim. 3 no.6:685-690 '62. (MIRA 15:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.
(Osmium compounds) (X-ray crystallography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M.A.; LEVIN, A.A.; SHCHEDRIN, B.M.

Use of high-speed electronic computers for calculations in X-ray diffraction analysis; review. Kristallografiia 7 no.4:648-656 Jl-Ag '62. (MIRA 15:11)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova.
(Electronic digital computers)
(X rays--Diffraction)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

S/048/62/026/003/001/015
B117/B102

AUTHOR: Poray-Koshits, M. A.

TITLE: Computer analysis of crystal structures

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 3, 1962, 322 - 330

TEXT: This paper was presented at the VII Nauchno-tekhnicheskoye soveshchaniye po primeneniyu rentgenovykh luchey k issledovaniyu materialov (7th Scientific-technical Conference on the Use of X-rays for the Examination of Materials) held in Leningrad from June 22 to 29, 1961. It is a report on the present state of mechanization of X-ray structural analysis calculations in the USSR. The first experiments of using universal computers for the mentioned calculations were made from 1953 through 1954 by N. P. Trifonov and the author with a БЭСМ(BESM) computer and after the opening of the computer center of Moskovskiy universitet (Moscow University) (1956) with a "Strela-4" computer. Further work in this field was done at the VTs MGU by a team under the supervision of B. M. Shchedrin, A. A. Levin, and the author (Institut obshchey i neorganicheskoy khimii AN SSSR

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

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B117/B102

Computer analysis of...

(Institute of General and Inorganic Chemistry AS USSR). At present, collaborators of other institutes also contribute to this work. The VTs MGU at which besides "Strela-4" also a desk computer "Setun'" and a rapid computer are used, serves about 10 institutes and laboratories in Moscow, among them the Institut kristallografii (Institute of Crystallography) and IONKh AN SSSR. The principal programming systems set up at the VTs MGU for "Strela-4" for the solution of structural problems served for the programming of similar problems for a larger computer at the computer centers of the Sibirskoye otdeleniye AN SSSR (Siberian Department AS USSR). The Matematicheskiy otdel Instituta khimicheskoy fiziki AN SSSR (Mathematical Division of the Institute of Chemical Physics AS USSR) is the third center intended for systematic calculations of structural analysis at which such calculations are already being made in series. The programs for 2 and 3-dimensional problems developed at this center differ from those in the two computer centers mentioned before in their simple, universal, and adaptable structure. At Rostovskiy universitet (Rostov University) (computer of the type "Ural-1") and at the Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute) the first experiments of programming structural problems are being carried out. Other institutes will probably

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take part in this work, too. The stage of mechanization of calculation work is determined not only by the number of computer centers and computers available but also by the number and the quality of programs. An insight into this problem was obtained through the communications made at the Vtoroye soveshchaniye po primeneniyu vychislitel'nykh mashin v strukturnom analize kristallov (Second Conference on the Application of Computers in Crystal Structural Analysis) held in Moscow in April 1961. A comparison of these papers with the lectures delivered at the international conference held in Glasgow in August 1960 showed that in the mentioned field similar work is being done in the USSR and abroad. Attempts are made to set up general programs or "complexes" that comprise three main problems: summation of Fourier series, calculation of structural amplitudes, precise determination of coordinates. The individual programs of the complex can be used both independently of one another and in arbitrary combinations. Some examples of programming and of identifying structures are given. G. A. Kukina, V. I. Rodin, L. I. Yermolayeva, T. S. Kamenskaya, V. F. Dvoryankin, F. A. Brusentsov, A. I. Kitaygorodskiy, V. I. Burdina, A. F. Skaritskaya, A. B. Tovbis, V. I. Simonov, I. M. Gel'fand and the Noginskiy filial (Noginsk Branch) and the laboratoriya kristallokhimii

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Computer analysis of...

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khimicheskogo fakul'teta MGU (Laboratory of Crystallochemistry of the Chemical Department of MGU) are mentioned. There are 17 references: 6 Soviet and 11 non-Soviet. The four most recent references to English-language publications read as follows: (Ref. 4) Computing Methods and the Phase Problem in X-ray Crystal Analysis. Ed. R. Pepinskiy, J. M. Robertson, J. C. Speakman, Pergamon Press, Oxford, 1961: W. J. Cruickshank, D. E. Pilling, p. 32; V. Vand, A. Niggli, p. 266; A. Niggli, V. Vand, R. Pepinsky, p. 161.

Card 4/4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M. A.

Graphic method of solution of the basic inequalities of Harker-Casper. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e.17], no.6:32-35 N-D '62. (MIRA 16:1)

1. Kafedra fizicheskoy khimii Moskovskogo universiteta.

(Lattice theory)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

MIL'KOVA, L.P.; PORAY-KOSHITS, M.A.

Lattice parameters, symmetry of crystals and main features of the structural pattern of some metafluoberyllates. Izv. AN SSSR. Ser. fiz. 26 no.3:368-377 Mr '62. (MIRA 15:2)
(Fluoberyllates) (Crystallography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ANTSYSHKINA, A.S.; PORAY-KOSHITS, M.A.

Dimer complexes in paramagnetic nickel compounds. Structure of $Nien_2Cl_2$ and $Nien_2Br_2$ crystals. Dokl. AN SSSR 143 no.1:105-108 Mr '62. (MIRA 15:2)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova AN SSSR. Predstavleno akademikom I.I.Chernayevym.

(Ethylenediamine)
(Nickel compounds)
(Crystallography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSKITS, M.A.; ANTSYSHKINA, A.S.

Structure of rhodium acetate complexes. Dokl. AN SSSR 146 no.5: 1102-1105 O '62. (MIRA 15:10)

1. Institut obschey i neorgicheskoy khimii im. N.S.Kurnakova AN SSSR. Predstavleno akademikom I.I.Chernyayevym.
(Rhodium compounds)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

S/192/63/004/001/003/003
D204/D307

AUTHORS: Arutyunyan, E.G. and Poray-Koshchits, M.A.

TITLE: The crystalline structure of some compounds of uranium and thorium

PERIODICAL: Zhurnal strukturnoy khimii, v. 4, no. 1, 1963, 110-111

TEXT: A description is given of an X-ray study, carried out at the IONKh AN SSSR, on a series of U and Th thiocyanate complexes. (1) $Cs_3[UO_2(NCS)_5]$:- space group Pnma = D_{2h}^{16}, lattice parameters a = 13.629 ± 0.004, b = 13.249 ± 0.006, c = 11.556 ± 0.004 A, $d_{expt.}$ = 3.09 g/cm^3, N = 4, B = 5.6. The crystals consist of Cs^+ ions and $[UO_2(NCS)_5]^{3-}$ (in the form of pentagonal bipyramids with O-atoms at the corners). The equatorial plane holds 5 NCS groups bonded to the U via N, forming a corrugated pentagon. The interatomic distances are U-O ~ 1.65, and U-N ~ 2.45 A. The thiocyanate groups are linear, UNC = 165 ÷ 170°. (2) $Cs_4[U(NCS)_8]$.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

The crystalline structure

S/192/63/004/001/003/003
D204/D307

$2H_2O$:- Pnab, a = 13.15, b = 13.20, c = 15.75 A, N = 4. (3) $Cs_4[Th(NCS)_8]\cdot 2H_2O$:- $P2_1/n$, a = 13.520, b = 13.696, c = 16.226 A, $\beta = 90^o$, N = 4. (4) $K_4[Th(SO_4)_4]\cdot 2H_2O$:- $C\bar{1}$, a = 10.0, b = 16.5, c = 9.7 A, $\alpha = 93^o22'$, $\beta = 95^o35'$, $\gamma = 91^o09'$, N = 4.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR (Institute of General and Inorganic Chemistry im. N.S. Kurnakov AS USSR)

SUBMITTED: August 13, 1962

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ARUTYUNYAN, E.G.; PORAY-KOSHITS, M.A.

Crystal structure of K [Th $(SO_4)_4$ $(H_2O)_2$]. Zhur.strukt.khim. 4 no.2:276-277 Mr-Ap '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

(Thorium compounds) (Crystallography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

BOKIY, N.G.; POLYNOVA, T.N.; PORAI-SHITS, M.A.; KIKOT', B.S.; KAZITSYNA, L.A.

Crystal structure of the double diazonium salt of ferric chloride with o-methoxyphenyl diazonium chloride. Zhur.strukt.khim. 4 no.3:453-454 My-Je '63. (MIRA 16:6)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Diazonium compounds) (Crystallography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ZELENTSOV, V.V.; ZORKIY, P.M.; PORAY-KOSHITS, M.A.

Comparison of the structure of crystals of inner-complex compounds of nickel and cobalt group VIII-04. Zhur.strukt.khim. 4 no.3:455-458 My-Je '63. (MIRA 16:6)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Nickel compounds) (Cobalt compounds)
(Crystallography)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M.A.; IONOV, S.P.

Nature of bonding in oxygen compounds of sulfur. Zhur. strukt. khim. 5 no.3:474-481 My-Je '64. (MIRA 18:7)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

IONOV, S.P.; PORAY-KOSHITS, M.A.

Energy and equilibrium distance between nuclei in oxygen-sulfur bonds. Zhur. struk. khim. 6 no.3:479-480 My-Je '65.

(MIRA 18:8)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

TSINTSADZE, G.V.; PORAY-KOSHITS, M.A.; ANTSYSHKINA, A.S.

Parameters of an elementary cell and the space group of potassium diselenocyanatoargentate. Zhur. strukt. khim. 5 no.3:495-496 My-Je '64. (MIRA 18:7)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

IONOV, S.P.; PORAY-KOSHITS, M.A.; TSINTSADZE, G.V.

Electronic structure of sulfur dioxide. Soob. AN Gruz. SSR 35 no.3:559-564 S '64. (MIRA 17:11)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR i Gruzinskiy politekhnicheskiy institut imeni Lenina. Predstavleno chlenom-korrespondentom AN GruzSSR N.A. Landia.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

L 00392-66 EWP(e)/EWT(m)/EWP(i)/EWP(t)/EWP(b) IJP(c) JD/GS/WH

ACCESSION NR: AT5013389 UR/0000/65/000/000/0076/0100

24
B+1

AUTHOR: Aver'yanov, V. I.; Poray-Koshits, Ye. A.

TITLE: Electron-microscopic study of the inhomogeneous structure and initial stages of crystallization of glasses in the lithium oxide - silica system

SOURCE: AN SSSR. Institut khimii silikatov. Strukturnyye prevrashcheniya v steklakh pri povyshennykh temperaturakh (Structural transformations in glass at high temperatures). Moscow, Izd-vo Nauka, 1965, 76-100

TOPIC TAGS: glass crystallization, lithium glass, glass structure, lithium disilicate

ABSTRACT: An attempt was made to determine the dependence of the micro-inhomogeneous structure on the heat treatment and composition, with the Li_2O content ranging from 12 to 35 mole %. The main method used was electron microscopy, with x-ray phase analysis and optical microscopy as auxiliary methods. In all the glasses studied, an inhomogeneous structure was observed. The temperature and time dependences of the inhomogeneities obtained indicate that the inhomogeneous structure in glasses with 29 mole % Li_2O or less arises from metastable liquation, which declines as glass with 33.3 mole % Li_2O is approached. The

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ACCESSION NR: AT5013389

separation occurs into phases close in composition to SiO_2 and $Li_2O \cdot 2SiO_2$ with the ratio of the phase volumes changing as a function of the Li_2O content. In glasses with 33.3 and 35 mole % Li_2O, no liquation is observed, and the inhomogeneous structure is apparently related to the fluctuations in the composition. A structure of this type apparently also arises in glasses with $Li_2O < 33.3$ mole %, but it is masked by inhomogeneities of liquational type. During the crystallization of lithium disilicate, the liquational inhomogeneities do not break down, but their further growth ceases. In the glass compositions studied, the micro-inhomogeneous structure does not limit the crystal size. The lower the Li_2O content, the greater the deceleration of the crystal growth rate in the liquating glasses. It was noted that at relatively low temperatures, lithium disilicate crystallizes in the form of spherulites which change into single crystals at about 950C. Orig. art. has: 10 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 21Dec64 ENCL: 00 SUB CODE: MT

NO REF SOV: 009 OTHER: 012

mlb

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

KHARITONOV, Yu.Ya.; TSINTSADZE, G.V.; PORAY-KOSHITS, M.A.

Approximate theoretical or (semiempirical) analysis of vibrations of SCN coordination groups. Zhur.neorg.khim. 10 no.4:792-801 Ap '65. (MIRA 18:6)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ACC NR: AP6032981 SOURCE CODE: UR/0078/66/011/010/2400/2401

AUTHOR: Butman, L. A.; Aslanov, L. A.; Poray-Koshits, M. A.

ORG: none

TITLE: X-ray structural analysis of lanthanum, europium, and gadolinium benzoylacetonates

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 10, 1966, 2400-2401

TOPIC TAGS: organometallic compound, ~~organo~~europium compound, ~~organo~~lanthanum compound, ~~organo~~gadolinium compound, x ray diffraction analysis, crystal structure analysis, crystal lattice parameter

ABSTRACT: Space groups and lattice parameters of four rare-earth complexes with organic ligands have been determined from x-ray diffraction data. The formula of the complexes studied was $HA^{+}[LnTBA]^{-}$, where HA^{+} is piperidinium (P) or diethylammonium (DEA) radicals, Ln - Eu, La, or Gd, and TBA - four benzoylactonato radicals. The DEA-Eu-TBA complex was found to be isostructural with the DEA-La-TBA complex, while the P-Eu-TBA complex was not isostructural with the P-Gd-TBA complex. This was also confirmed by the difference in cleavage of the crystals of P-Eu-TBA and P-Gd-TBA complexes: the P-Gd-TBA complex crystals do not display any noticeable cleavage. Both P-Eu-TBA and P-Gd-TBA were more resistant to irradiation by x-rays than the DEA com-

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ACC NR: AP6032981

plexes. As the mechanically strongest and the most radiation-resistant of the four complexes, the P-Gd-TBA complex was singled out for further study of the structure of the rare-earth metal tetrabenzoylacetonates. Orig. art. has: 1 table.

SUB CODE: 07, 20/ SUBM DATE: 11Jan66/ OTH REF: 001

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

L 42885-66 EWT(m)/EWP(j) RM

ACC NR: AP6020387 (A) SOURCE CODE: UR/0192/66/007/001/0130/0131

AUTHOR: Belyayeva, K. F.; Poray-Koshits, M. A.; Mitrofanova, N. D.; Martynenko, L. I.

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

51

B

TITLE: X-ray structural study of neodymium nitrilotriacetate trihydrate

SOURCE: Zhurnal strukturnoy khimii, v. 7, no. 1, 1966, 130-131

TOPIC TAGS: neodymium compound, nitrogen compound, acetate, crystal structure analysis, electron density, x ray analysis

ABSTRACT: Data are presented on the lattice parameters of $GdX \cdot 4H_2O$ and $ErX \cdot 4H_2O$ (X = acid residue of nitriloacetic acid $(HOOCCH_2)_3N$), and preliminary data on the structure of one of the two modifications of $NdX \cdot 3H_2O$ (the so-called low-temperature modification, i. e., the trihydrate). $GdX \cdot 4H_2O$ crystals are colorless, well-faceted hexagonal pyramids. The Laue symmetry class is $6/mmm = D_{6h}$, the pycnometric density 2.31 g/cm^3, and the lattice parameters a = 10.3, c > 30 Å. $ErX \cdot 4H_2O$ crystals belong to the rhombic system and are in the form of very fine rhombic prisms. The lattice parameters a = 12.1, b = 21.5, c = 9.0 Å, d_{calc} = 2.40 g/cm^3. Space groups $Pna2_1$ and Pnam are possible, and N = 4. The pale-lilac, well-faceted $NdX \cdot 3H_2O$ crystals belong to the rhombic system: a = 13.21, b = 20.88, c = 8.12 Å, d_{meas} = 2.27, d_{calc} = 2.29 g/cm^3, N = 8. Space group P_{bca}. The atomic coordinates were determined from the

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

SHVELASHVILI, A.Ye.; PORAY-KOSHITS, M.A.; ANTSYSHKINA, A.S.

Cis-octahedral structure of diacyldiethylenediamminonickel of $Nien_2NCSCl$ and $Nien_2NCSBr$. Zhur. strukt. khim. 6 no.1:[illegible]-171 Ja-F '65.

Two modifications of diacyldiethylenediamminonickel of $Nien_2NO_2NCS$. Ibid.:168-170

(MIRA 18:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR. Submitted October 2, 1964.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ROGACHEV, D.L.; ANTSYSHKINA, A.S.; PORAY-KOSHITS, M.A.

Some zirconium sulfates. Zhur.strukt.khim. 6 no.5:791-792 S-O '65. (MIRA 18:12)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova. Submitted April 24, 1965.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

STARIKOVA, Z.A.; PORAY-KOSHITS, M.A.; ZORKIY, P.M.; KHODASHOVA, T.S.

X-ray structural analysis of copper and nickel salicylal-α-phenylethyl iminates. Zhur. strukt. khim. 6 no.2:315-316 Mr-Ap '65. (MIRA 18:7)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

IONOV, S.P.; PORAY-KOSHITS, M.A.

Magnetic susceptibility of sulfur dioxide. Zhur. neorg. khim. 10 no.5:1285-1287 My '65. (MIRA 18:6)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

KHARITONOV, Yu.Ya.; TSINTSADZE, G.V.; PORAI-KOSHITS, M.A.

Nature of the variation of vibration frequencies when coordination bonds are formed by the SCN and SeCN groups. Dokl. AN SSSR 161 no.6: 1351-1354 F '65. (MIRA 18:2)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR. Submitted September 3, 1964.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M.A.; MINACHEVA, L.Kh.

Preliminary X-ray diffraction data on the configuration of the $Nien_2(NO_2)_2$ complex. Zhur. strukt. khim. 5 no.4:643-644 Ag '64. (MIRA 18:3)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

SHVELASHVILI, A. Ye.; PORAY-KOSHITS, M.A.; ANTSYSHKINA, A.S.

Dimeric structure of nickel thio cyanolododiethylediamine.
Zhur. strukt. khim. 5 no.5:787-798 S-O '64 (MIRA 18:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova, AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

IONOV, S.P.; PORAY-KOSHITS, M.A.

Cis-trans isomerism of ammonium tetrachlorodisulfitoiridite.
Zhur. strukt. khim. 5. no.5:791-792 S-O '64 (MIRA 18:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

TSINTSADZE, G.V.; PORAY-KOSHITS, M.A.; ANTSYSHKINA, A.S.

Structure of nickel (II) trans-diselenocyanatotetradimethylformamide and cobalt (II) trans-diselenocyanatotetradimethylformamide. Zhur. strukt. khim. 5 no.5:796 S-O '64 (MIRA 18:1)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

AREF'YEV, V.B.; LEVIN, A.A.; SHCHEDRIN, B.M.; PORAY-KOSHITS, M.A.

Realization of an "algebraic" method for finding symbols by a large computer. Zhur. strukt. khim. 5 no.6:902-905 N-D '64. (MIRA 18:4)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR i Vychislitel'nyy tsentr Moskovskogo gosudarstvennogo universiteta.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

KIVMAN, G.Ya.; PORFIR'YEVA, R.P.

Binding of novobiccin by blood serum proteins and its determination in serum in the free and bound state. Vop. med. khim. 10 no.4:402-407 Jl-Ag '64. (MIRA 18:4)

1. Otdel khimioterapii Instituta farmakologii i khimioterapii AMN SSSR, Moskva.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M.A.; TSINTSADZE, G.V.; IONOV, S.P.

Distribution of electron density in a thiocyanogen ion. Soob. AN Gruz. SSR 32 no. 1:51-57 O '63. (MIRA 17:9)

1. Gruzinskiy politekhnicheskiy institut imeni Lenina i Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR. Predstavleno chlenom-korrespondentom AN GruzSSR D.I. Eristavi.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

BOKIY, Georgiy Borisovich; PORAY-KOSHITS, Mikhail Aleksandrovich; BELOV, N.V., akademik, red.; DOLIVO-DOBROVOL'SKAYA, Ye.M., red.

[X-ray structural analysis] Rentgenostrukturnyi analiz. Moskva, Izd-vo Mosk. univ. Vol.1. Izd.2. 1964. 488 p. (MIRA 17:12)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M. A.

"Cerian computing methods and programs developed in USSR."

Report presented at the 6th International Congress and Symposia, International Union of Crystallography, Rome, Italy, 9-18 Sept. 1963.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, M.A.

Structural motifs of crystals of some thiocyanate compounds of bivalent nickel and copper. Zhur.strukt.khim. 4 no.4:584-593 Jl-Ag '63. (MIRA 16:9)

1. Institut obshchey i neorganicheskey khimii imeni Kurnakova AN SSSR.

(Thiocyanate crystals) (Nickel compounds) (Copper compounds)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Mikhail Aleksandrovich

"Some new-ray structural investigations of complex compounds".

report submitted for the Symposium on the Structure and Properties of Coordination Compounds - Bratislava, Czechoslovakia, 2-4 Sep 64

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY- KOSHITS, V.P., Cand Med Sci -- (diss) "Vaginal ~~removal of the~~ hysterectomy (in the prolapsus uteri) according to the M.S. Aleksandrov method." M0s, 1959. 11 pp (Min of Health RSFSR. Saratov State Med Inst). 200 copies (KL, 40-59, 106)

G2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

CA

All-Union Sci. Res. Inst.
"Giprotsement,"

Solid solutions in the system $CoO-Fe_2O_3$. N. A. Toropov, E. A. Poral-Koshits, and A. I. Borisenko. *Doklady Akad. Nauk S.S.S.R.* 66, 905-8(1949); cf. C. I. 43, 1059b. In an equimol. mixt. of the pptd. by drosides, ferritization is complete on 40 hrs. heating at 1100° of pellets dried at 190° and pressed under 3000 kg./sq. cm. The thermal dissocn. $6Fe_2O_3 \rightarrow 4Fe_3O_4 + O_2$, in mixts. with CoO, is less intense than in mixts. with NiO. In the presence of excess CoO, the product obtained is porous, and contains, on microscopic examn., 2 phases, one dark-gray, the other dark-yellow. The amt. of the former decreases with decreasing CoO. With increasing Fe_2O_3 content, the color of the crystals seen in specimens etched with HNO_3 changes from dark-yellow in the equimol. compn., to yellow for $2CoO + 5Fe_2O_3$. With further increasing excess of Fe_2O_3, a new, light phase appears along with the yellow crystals, attaining 45-50% in $CoO + 8Fe_2O_3$. By x-ray examn., free Fe_2O_3 is present in samples of the compn. $CoO + 3Fe_2O_3$ and with higher Fe_2O_3 contents. The pure spinel structure of $CoO + Fe_2O_3$ persists up to Fe_2O_3 contents corresponding to $2CoO + 5Fe_2O_3$. With excess CoO, from $3CoO + 2Fe_2O_3$ upwards, CoO lines appear along with those of the spinel $CoO.Fe_2O_3$. The latter is, consequently, the only compd. occurring in this system. Fe_2O_3 is sol. in this ferrite to the extent of 1.5 moles/mole ferrite at 1100°. CoO is not sol. in the ferrite. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

USSR/X-rays - Diffusion Mar 1947
Structural analysis

"Diffusion of Roentgen Rays at Small Angles and Submicroscopic Structure," Ye. A. Poray-Koshitz, W. Novatskiy, 12 pp

"Uspekhi Khimii" Vol XVI, No 3

General discussion of subject with formulae. Application of subject to determination of submicroscopic structure. Divided into two sections:

I. Discrete Radiation
   A. Three-dimensional periodicity
   B. Two-dimensional periodicity
   C. One-dimensional periodicity

10T46

USSR/X-rays - Diffusion (contd) Mar 1947
Structural analysis

II. Continuous Radiation
   A. Closely packed systems of sphere-shaped fields
   B. Closely packed systems of rod-shaped fields

10T46

PORAY-KOSHITZ, Ye. A.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

155T54

PORAY-KOSHITS, Ye. A.

USSR/Nuclear Physics - X-Rays Scattering Dec 49

"Diffusion Scattering of X-Rays for Small Angles," Ye. A. Poray-Koshits, 36 pp

"Uspekhi Fiz Nauk" Vol XXXIX, No 4

Discusses general characteristics of X-ray dispersion for small angles, theoretical foundations and methods of study; interpretation of roentgenograms; scattering by "porous" systems of particles; scattering in alloys of Al with 5% Cu, in the hemoglobin of horses, in densely packed systems of particles, etc.

155T54

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

SA
Sect A

X-Ray

537.531 : 535.43 : 532.7

5026. The application of Fourier analysis in the interpretation of X-ray diffraction photographs of liquids and vitreous substances. M. I. PETRASHEN AND E. A. PORAI-KOSHITS. *Zh. Eksper. Teor. Fiz.*, 21, 887-93 (No. 8, 1951) *In Russian.*

Analysis of the fundamental formula of the theory of the scattering of X-rays by liquids and glasses, which relates the intensity of the scattering to the atomic distribution function, demonstrates that even for one kind of atom the results of the formula are based on the assumption of a disordered atomic distribution. Application of the formula to poly-atomic substances, its transformation by means of Fourier's theorem, and also its use in the theory of small-angle scattering introduce further averages and simplifications which lessen the value of conclusions reached by Fourier analysis as to the structure of liquids and glasses. Hence the results of Warren (1937) apparently confirming the disordered lattice and quasicrystalline hypothesis do not follow as unique conclusions of a strict mathematical analysis but are only one possibility obtained on the basis of qualitative crystal-chemical considerations.

A. L. MACKAY

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

M

X-Ray Investigation of the Structure of the Liquid State. E. E. Vainstein and E. A. Poray-Koshits (*Uspekhi Khim.*, 1943, 12, (6), 400-437). [In Russian.] A review of the quasi-crystalline and cybotaxis theories of the liquid state. Discussion of the theoretical basis of both and the interpretation of the distribution function is supplemented by experimental results. 105 references are given.—V. K.

COMMON ELEMENTS

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

C

Structure of vitreous substances. E. A. Porai-Koshits. *Compt. rend. acad. sci. U.R.S.S.*, **36**, 267-69 (1942) (in English); *Chem. Abstracts*, **37**, 3801 (1943). The author investigated a so-called "French molybdenum" glass (SiO_2 63.3, B_2O_3 26.55, Na_2O 7, and As_2O_3 1.15% by weight) and found that it loses the $Na_2O \cdot B_2O_3$ constituent on treatment with acid; this leaves a macrofilm retaining the properties of glass. X-ray diffraction studies showed a definite additivity of the structures of vitreous silica (macrofilm) and of the $Na_2O \cdot B_2O_3$ constituent which forms the initial complex glass. Heating the initial glass at 600°C. for 4 hr. with subsequent quenching shows opalescence which can be ascribed to the growth of the $Na_2O \cdot B_2O_3$ crystallites. This is substantiated by heating initially to 700° for 30 min. and then quenching; lines are produced which do not all correspond to quartz, tridymite, or cristobalite but are characteristic of all $Na_2O \cdot B_2O_3$ compounds in the crystal and in the vitreous state. Further treatment of this glass with acid gives the macrofilm lines. The second conclusion is that of an independent growth of the orderliness of crystallites of one structure within another; this supports the crystallite hypothesis of the structure of glasses.

All-Union Optical Inst.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C

X-ray analysis of sodium borosilicate glass, giving a macroform. E. A. PORAI-KOSHITS. *Zhur. Obshchei Khim.*, 12, 196-205 (1942); *Chem. Abs.*, 37, 2895 (1943).—The so-called "French molybdenum" glass (65.3 SiO_2, 26.55 B_2O_3, 7 Na_2O, and 1.15% Al_2O_3) was subjected to X-ray analysis by using a monochromatic beam (at 1.539 a.u.), with the glass being either pulled into threads from softened glass or in powdered form and placed in a thin-walled celluloid tube. Both gave identical results for interpretation. This glass was found to have two additive structures: that of glass (like silica) and that of the Na-B components (probably tri- or tetraborate of Na). Heating under 750° leads to better orientation of the latter component; further heating leads to a less-oriented condition of both structures. This appears to support the crystalline hypothesis of the structure of glasses and shows the possibility of determining chemical compounds in complex glasses.

Lab. Physico-Chem. Equilibrium, Leningrad State Optical Inst.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAL-KOSHITS E. A.

CA

Chemical compounds in the system lead oxide silica in the crystalline state. N. N. Valenkov and E. A. Poral-Koshits. *J. Phys. Chem.* (U. S. S. R.) 6, 757-61(1935).—X-ray studies indicate the formation of Pb_2SiO_4 and $PbSiO_3$ but give no evidence for Pb_3SiO_5 or $Pb_4Si_2O_7$, all mixts. up to 40 mols. % SiO_2 of such compns. consisting of the orthosilicate and free PbO or of the ortho- and metasilicates. F. H. Rathmann

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAI-KOSHITS E. A.

Author: Porai-Koshits, N. A.

Title: X-ray Investigation of the Structure of Potassium Tetranitropallite, 105 pp., illus.

Date: 1948. Moscow

Subject: 1. Crystallography. 2. Atoms. 3. X-rays. 4. Potassium Compounds.

Available: Library of Congress, Call No: QD945.P67

Source: Lib. of Cong. Subj. Cat., 1950

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3

CA

X-ray study of the structure of glass-like substances. E. A. Poral-Koshits. *Uspekhi Khimii* 13, 115-43(1944).

In the x-ray study of glasses, neither the use of the Fourier series nor the formulas of Bragg and Scherrer in the analysis of radiograms give a true picture of the structure of a glass. The Fourier series denies the existence of definite chem. compds. (in the form of mols. or in the form of various crystallites) in a compound glass and the use of the Bragg and Scherrer formulas requires the presence of a cryst. phase. The author advocates the use of the "addition method," in which the curve of scattering of x-rays by a compound glass is reduced to the sum of curves of the individual components. Thus the curve of glass-like Na_2SiO_3 has a max. $\sin \theta/\lambda = 0.175$, that of glass-like SiO_2 has its max. $\sin \theta/\lambda = 0.122$. Glasses between these 2 limits in compn. will have both maxima. The scattering curve of such glasses can be obtained by summarizing the curves of the 2 components. The use of this method is illustrated on several glasses. 91 references.

M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

19

Ca

The structure of complex glasses. E. A. Porai-Koshits. *Compt. rend. acad. sci. U. R. S. S.* 40, 346-9 (1943) (in English); cf. *C. A.* 37, 2895[5], 2891[9].—The additivity method for analyzing the x-ray scattering curves of complex mixts. was used to investigate scattering curves valid. in abs. units from exptl. data obtained (cf. *C. A.* 32, 8080[7]; 33, 6540[9]) by x-ray investigation of various vitreous systems. The curves for the system SiO_2-B_2O_3 indicate absence of chem. compd. formation; the scattering curves can be regarded as the sum of the curves for vitreous SiO_2 and B_2O_3. The curves for 5 glasses consisting of 19.0-34.6% Na_2O and 81.0-65.4% SiO_2 indicate the presence of SiO_2 and Na_2SiO_3. Glass is regarded as nonhomogeneous in detail and as contg. areas with a relatively better regulated atom arrangement (crystallites). It is in these areas that chemically heterogeneous elements of independent structures occur in complex glasses.

J. W. Perry

Inst. Gen. Inorg. Chem., AS USSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PA 163T82

USSR/Physics - X-Ray Analysis Jun 50

"New Method for Studying Dispersion of Materials," Ye. A. Poray-Koshits, Inst of Chem of Silicates, Acad Sci USSR

"Zavod Lab" Vol XVI, No 6, pp 687-690

Gives general characteristic of method of small angles in X-ray analysis and outlines possibilities and some fields of application. Method may be used for measuring objects too large for investigation by ordinary methods of X-ray analysis and too small for microscopic study. Unlike electron microscope, application of this method

163T82

[redacted]

USSR/Physics - X-Ray Analysis (Contd) Jun 50

to materials with high electric resistance involves no difficulties and does not require any specimen preparation which might cause disruption of submicroscopic structure.

PORAY-KOSHITS, Ye. A.

[redacted]

163T82

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

USSR/Physics - X-ray Analysis Mar/Apr 51

"Investigating the Dispersive Materials With the Aid of the Scattering of X-Rays Under Small Angles," Ye. A. Poray-Koshits, Inst of Chem of Silicates, Acad Sci USSR

PA 187T93

"Iz Ak Nauk SSSR, Ser Fiz" Vol XV, No 2, pp 195-201

Gives microphotometric curves of intensity of scattering of 5 samples of microporose glasses of various compn; graph showing the dependence of the logarithm of intensity of scattering upon the square of the distance to the center of the roentgenogram, which permits one to det from the rectilinear portion the

LC 187T93

USSR/Physics - X-ray Analysis (Contd) Mar/Apr 51

min radius of the particle. Submitted at 3d All-Union Conference on Use of X-rays in Study of Materials held 19 - 24 Jun 50 in Leningrad.

PORAY-KOSHITS, YE. A.

LC 187T93

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

FORNY, KOSHITS, [illegible]

X-ray investigation of the structure of highly dispersed substances (small-angle-scattering method). [illegible] Koshits. *Metod. Issledovaniya Struktury Vysokodispersnykh i Poristykh Tel, Akad. Nauk S.S.S.R., Trud, Sovetchaniya* 1951, 5-3[illegible] (1953).—A survey comprising a description of an exptl. installation, formulas for a dense and a loose packing of particles from which the size and shape of the particles can be derived, and exptl. results on proteins, silica gels, microporous glasses, kaolin, clays, alloys, etc. The advantages of this method over adsorption measurements and electron-microscopy are pointed out. [illegible] references (cf. *C.A.* 45, 8875c; 47, 4728i). S. Pakswer

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye. A.

PA 175T84

USSR/Physics - X-Rays 21 May 50

"Diffusion Scattering of X-Rays for Small Angles," Ye. A. Poray-Koshits, Yu. G. Sokolov, Inst Chem of Silicates, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXII, No 3, pp 477-480

Subject scattering (for 1-2°) verifies existence, in scattering substance, of submicroscopic regions of inhomogeneity (fluctuations in electron density), whose dimensions considerably exceed wave length of radiation. New problem of X-ray structural analysis is detn of dimensions, form, and spatial distribution of such regions according to the diffraction picture. Submitted 27 Mar 50 by Acad A. A. Lebedev.

175T84

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, YE. A.

Structure of sodium borosilicate glasses in its relation to the phenomenon of opalescence. III. Comparison of the results of investigations on sodium borosilicate glasses and on porous products obtained from them by leaching. E. A. Poraj-Koshits, S. P. Zhdanov, and D. I. Levin. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1955, 333-8(Engl. translation).—Na borosilicate glasses were leached with HCl soln. Initial SiO_2 skeleton was likewise found in leach glasses. The methods of investigation were by absorption, electron microscope, and by low-angle scattering of x-rays. The cells of these structures were filled with a secondary component contg. B_2O_3, SiO_2, and Na_2O. These micro "two-phase" systems provided the source of light scattering and opalescence. Glasses, 75% SiO_2, became clear when heated to 710-15° while other glasses, 60% SiO_2, became clear at 685-90°. Glass with low-SiO_2 content, 35% SiO_2, yielded spongy gel-like products.

Glenn Dooley

(2)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

Poray-Koshits, Ye. A.

TOLKACHEV, Sergey Sergeyevich; PORAY-KOSHITS, Ye.A., dotsent, redaktor; MEL'NIKOVA, G.G., redaktor; IVANOV, V.V., tekhnicheskiy redaktor.

[Tables of inter-planar spacing] Tablitsy mezhploskostnykh rastoianii. [Leningrad] Izd-vo Leningradskogo univ., 1955. 144 p. (Chrystallochemistry) (MLRA 8:6)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

FORAY-KOSHITS, Ye. A.

USSR/Physics - Solid State Physics Nov 53

"Conference on the Liquid State of Matter, Held 28-30 May 1953 at Kiev by the Academy of Sciences, Ukrainian SSR, and Kiev State University im. T. G. Shevchenko," S. D. Ravikovich, G. F. Roshchina and A. F. Skryshevskiy

Usp Fiz Nauk, Vol 51, No 3, pp 393-405

Summarize reports by the following: V. I. Danilov, on scattering of x-rays in liquids; A. F. Skryshevskiy, on x-ray study of solns of KOH, NaOH, LiOH, LiCl, and H_2SO_4; Ye. A. Foray-Koshits, on integral analysis of intensity curves; E. V. Do-agin, Ye. G. Shvidkovskiy, O. Ya. Samoylov et al. on x-ray studies of liquid structure; A. Z. Golik, on characteristics of molecular structure of liquids; I. V. Radchenko, on modeling of liquids; F. K. Shestakovich, on new liquid models and influence of central and dipole forces on close ordering; A. Z. Golik and his associates S. D. Ravikovich, A. V. Orishchenko, V. F. Solomko, and N. A. Ryndich, on viscosity and density of matter in the liquid state; V. M. Chulanovskiy and D. S. Karenetskaya, on the influence of molecules' size and the intermolecular intensity on viscosity coeff; A. P. Prynza, on thermo-diffusion in binary systems; S. S. Urazovskiy, presence of grouping of identical atoms; A. R. Regel', on relation between electrical properties and structure of liquids; M. F. Vuks, on light-dispersion method for studying liquids' structure.

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FORAY-KORNITS, YE. A.
Solid State Physics

Dissertation: "An Investigation of the Structure of Vitreous Substances by X-Ray Methods." Dr Phys-Math Sci, Inst of the Chemistry of Silicates, Acad Sci USSR, Leningrad, 1953. (Referativnyy Zhurnal -- Fizika Moscow, Mar 54)

SO: SUM 213, 20 Sep 1954

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye. A.

Investigation of the structure of some silica gels by the method of small-angle scattering of x-rays. E. A. Poraj-Koshits, A. M. Kalinina, and V. N. Filipovich. *Doklady Akad. Nauk S.S.S.R.* 86, 985-8(1952); cf. Augul, *et al.*, *C.A.* 45, 4095*f*, 5483*g*.—The small-angle scattering method was applied to 3 samples previously studied by the vapor-adsorption method: (I) homogeneously porous with a mean pore radius of 40 A., (II) homogeneously coarse-porous with a most probable effective pore radius of 100 A., and (III) inhomogeneously porous with the pore radius varying from about 15 to 150 A. The scattering angle φ varied from 6.5′ to 2°30′. Plots of log I (scattered intensity) as a function of φ^2 are linear for I and II, in accord with their monodispersity, and nonlinear for the polydisperse III. Calcn. of the vols. of pores of radius R, by the tangent method (*C.A.* 44, 7648*h*), gave the vol. distributions (%): I, 30 A. (87.5%), 55 (10), 87 (2.5); II, 55 A. (78%), 88 (14), 110 (8); III, 52.5 A. (32%), 126 (27), 240 (41). This gives a mean R, for I 34 A. (as against 40 A. by adsorption), and for II 64 A. (as against 100 A.). The agreement is good for I and acceptable for II. This agreement proves a posteriori that the small-angle scattering method has given the size distribution of the pores and not of the particles, at least in the case of I and III. This conclusion is less certain with respect to II. Numerical estn. of the accuracy of the x-ray detn. of R gives, for the 1st (mir.) R an error of ~ 3 A., i.e. about 5%. N. Thon

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, YE. A.

USSR/Chemical Technology - Chemical Products and Their Applications - Silicates. Glass. Ceramics. Binders. I-10

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8954

Author : ~~Poray-Koshits, Ye. A.~~
Inst : Academy of Sciences USSR
Title : Applications and Results from X-ray Investigations of Vitreous Substances.

Orig Pub : Sb.: Stroyeniye stekla, AN SSR, Moscow and Leningrad, 1955, 30-43

Abstract : The results from the application of x-ray diffraction studies to the analysis of glasses are discussed. The application of the above method to the analysis of the structure of glasses using in one case the formula of Scherrer and in the other, Fourier analysis,

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

USSR/Chemical Technology - Chemical Products and Their Applications - Silicates. Glass. Ceramics. Binders. I-10

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8954

microscopic studies. The author has been able to collect considerably more detailed information on the structure of complex glasses with the aid of correctly designed x-ray diffraction experiments; this points to the presence of local chemical order in complex glasses.* It is shown that further x-ray diffraction analysis of the structure of vitreous substances will have to depend on the development of an improved theory of x-ray scattering which would incorporate all the experimental intensity curve data, and on the further improvement of the accuracy of these data and the combination of the different

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, YE.A

Category : USSR/Optics - X Rays

K-8

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 5287

Author : Poray-Koshits, Ye.A., Filipovich, B.N.
Inst : Institute of Chemistry of Silicates, Academy of Sciences, USSR
Title : Babinet Principle and Scattering of X-rays by Porous Glass at Low Angles.

Orig Pub : Izv. AN SSSR, Otd. khim. n., 1955, No 1, 21-30

Abstract : It is shown, that the scattering of x-ray by two specimens with electron densities that complement each other to a constant value ("reciprocal" structures) differ only in terms corresponding to the "zero scattering." Since the latter lies in the region of experimentally-inaccessible small angles, the experimentally-observed intensity of scattering of the "direct" structure coincides with the intensity of scattering of the "reciprocal" structure. The Babinet principle is therefore applied to x-ray experiments: on the basis of the diffraction pattern it is impossible to select between the two structures, so that to solve the structure problem it is necessary to resort to special experiments. Such a special investigation was

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, YE. A.

USSR/Chemistry - Opalescence of glass

Card 1/1 Pub. 40 - 5-27

Authors : Levin, D. I.; Zhdanov, S. N.; and Poray-Koshits, Ye. A.

Title : Structure of sodium borosilicate glass in connection with the opalescence phenonmenon. Part 1. Study of the opalescence of glass

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 31-39, Jan-Feb 1955

Abstract : The origin of opalescence in sodium borosilicate glass is discussed. A study of relay diffusion in the glass established in close connection between the diffusion intensity and the structure of the glass. Three temperature zones characteristic for opalescence intensity changes are listed. The connection between the ability of sodium borosilicate glass to opalesce and their ability to form porous glass (during lixiviation) is explained. Fourteen references: 10 USSR, 3 USA and 1 German (1939-1953). Graphs.

Institution : Acad. of Sc., USSR, Inst. of Chem. of Silicates

Submitted : April 2, 1954

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

Category : USSR/Optics - Optical media K-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2222

Author : Zhdanov, S.P., Foray-Koshits, Ye.A., Levin, D.I.
Inst : Inst. of Chemistry of Silicates, Acad. of Sciences USSR, Leningrad

Title : On the Structure of Sodium Borosilicate Glass in Connection with the Opalescence Phenomenon. Report #2. Investigation of the Properties of Porous Glass

Orig Pub : Izv. AN SSSR, Otd. khim. nauk, 1955, No 2, 197-207

Abstract : Three independent methods -- adsorption, electron microscopy, and X-ray scattering at low angles -- were used to investigate the structure of porous glass to establish the connection between the degree of opalescence of sodium borosilicate glass processed by the acid method. It was established that porous glass is a combination of two structures -- a deeper structure of the silica skeleton and a finer structure of secondary origin, formed by the highly dispersed silicic acid inside the ducts of the skeleton. The diameter of the ducts (cells) of the silica skeleton of porous glass obtained from opalescent glass may reach 1000 A and more, while the diameters of the ducts of the skeleton of porous glass obtained from non-opalescent (transparent) original glass does not exceed 80-160 A. The differences in the structure of porous glasses, obtained from opalescent and non-opalescent sodium borosilicate glass, is due to the differences in the structure of the latter (for Report #1 see Ref. Zhur. Fiz., 1956, 20889).

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

~~PORAY~~ KOSHITS, YE. A.

PORAY-USSR.

11100* Structure of Sodium-Borosilicate Glasses in Relation to the Phenomenon of Opalescence. O strukture natrievoborosilikatnykh stekol v sviazi s iavleniem opalestsentsii. III. Comparison of Results of the Investigation of Sodium-Borosilicate Glasses and the Porous Products of Their Leaching. Sopostavlenie rezul'tatov issledovaniia natrievoborosilikatnykh stekol i poristykh produktov ikh vyshchelachivaniia. (Russian.) E. A. Poraĭ-Koshits, S. P. Zhdanov, and D. I. Levin. *Izvestiia Akademii Nauk SSSR, Otdelenie Khimicheskikh Nauk*, 1955, no. 3, May-June, p. 395-402.

Includes graphs, 28 ref.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye. A.

X-ray study of solid solutions. Barium titanate-lead zirconate. E. A. Poraf-Koshits, N. Ya. Karasik, and G. O. Gomon. *Zhur. Tekh. Fiz.* 25, 945-6(1955).—Samples of solid solns. with a $PbZrO_3$ content of 10-90% were studied at 5-10% intervals. For better resolution of the doublets at high angles of slide, some samples were subjected to addnl. annealing by keeping at 1360° for two hrs. and cooling slowly. On the basis of the x-ray study the following phase regions of the system $BaTiO_3$-$PbZrO_3$ were established: (1) region of tetragonal solid soln. with a gradual decrease of c/a from 1.0106 to 1 on attainment of 15% $PbZrO_3$; (2) region of cubic solid soln. contg. from 15 to 55% $PbZrO_3$, whereupon the lattice parameter a increased from 4.0178 to 4.0633 A.; (3) region of cubic solid soln. of compn. 35-85% $PbZrO_3$ with increase of a from 4.0667 to 4.1280 A.; (4) region of tetragonal solid soln. that begins from 85% $PbZrO_3$ content to 100%. The wide temp. range of transition from the seignettoelec. state to the non-seignettoelec. state is obviously related to the existence of a heterogeneous mixt. of 2 satd. solid solns. G. S. M.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, YE. A

Category : USSR/Solid State Physics / Structural crystallography

Abs.Jour : Ref Zhur - Fizika, No 1, 1957, No 1059 E-3

Author : Filipovich. V.N., Poray-Koshits, Ye.A.,
Inst : Inst. of Chemistry of Silicates, USSR Academy of Sciences

Title : On the Theory of Scattering of X-rays by Macroscopic Isotropic Bodies

Orig Pub : Dokl. AN SSSR, 1955, 105, No 5, 968-971

Abstract : A new derivation is given for the equations of the Fourier analysis of curves for scattering by macro-isotropic (liquid, amorphous, and polycrystalline) bodies. It is shown that such an analysis gives a structural characteristic of the substance in the form of a function

$$\varphi(r) = \overline{\int_V \rho(r', t)\rho(r'+r, t)\, dv};$$

where ρ (r,t) is the instantaneous distribution of the electron density in the specimen, and the bar indicates averaging over the time of the x-ray exposure. For macro-isotropic bodies, φ (r) depends only on /r/= r and is determined by the equation

$$\varphi(r) = 1/2\pi^{(2)} r \int_0^\infty sI(s)\sin rs\, ds$$

where I(s) is the scatterin intensity (s = $4\pi \sin \theta/\lambda$, 2θ is the scattering

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

Category : USSR/Solid State Physics - Structural crystallography

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1059

E-3

angle). Since I(s) cannot be determined experimentally at $s = 0$ and at $s > 4\pi/\lambda$, the only thing that can be found in practice is the function $\Delta\varphi_1 = \varphi_1(r) - \bar{\varphi}_1(r)$ (Babinet's principle), where

$$r\Delta\varphi_1(r) = 1/\pi \int_{-\infty}^{+\infty} \Delta\varphi(t)\,[\sin s_1(r-t)/(r-t)]\cdot dt,$$

is the average value of (r) ((r) is approximately constant at small values of r). Analogous equations can be obtained if one introduces the atomic factors $f_j(s)$ and correspondingly the function of distribution density of "point" atoms $\rho_{ab}(r)$. This makes it necessary to calculate very accurately the "gas scattering" $I_g(s) = \sum N_j f_j(s)$ (summed over all types of atoms) from I (s), for otherwise the radial-distribution curve (the analogue of (r)) will contain falso details, which may occur in addition also as a result of calculating $\Delta\varphi_1$ (r) rather than $\Delta\varphi$ (r). False maxima apparently occured in the work by Richter and his associates. (Referat. Zhurnal Fizika, 1955, 11557).

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

FORAY-KOSHITS, Ye. A.

Structure of sodium borosilicate glasses, in connexion with opalescence. IV. Dependence of structure of glasses on duration of heating at constant temperature. E. A. Foral-Koshits, D. I. Levin and N. S. Andreev (*Izv. Akad. Nauk SSSR, Otd. Khim. Nauk*, 1956, 287—293).—The transparency of the glass shifts from lower to higher λ with increasing duration of heating at 650°, from 1 to 8 hr.; at a given λ the increase in opacity is greatest from the 3rd to the 6th hr. The effect is ascribed to increase in submicroheterogeneity of the glasses. R. TRUSCOE.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye.A.

AUTHOR: BOYKOVA, A.I., PORAY-KOSHITS, Ye.A. PA - 3570

TITLE: X-Ray Analysis of Calcium Alumferrite Solid Solutions. (Rentgenograficheskoye issledovaniye tverdykh rastvorov alyumoferritov kal'tsiya, Russian)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 5, pp 1125 - 1134 (U.S.S.R.)

ABSTRACT: The experiments were carried out in the ionization plant URS-50-I. A complete indication of all lines of solid solutions in the presence of calcium aluminates was carried out, all distances between surfaces of the line (040) to the line (235) + (1141) were computed with an accuracy of up to ± 0.0037 Å, and the measurements and volumes of the elementary cells of the alumferrites were determined in samples of 12, 14, 16, 20, 32, and 42 weight % R_2O_3. The composition of the sample with a solid boundary solution (with a minimum Fe_2O_3 content) was determined according to the modification of the parameters of the solid solutions. With an increase of ferric oxide in the alumferrite phase by 1 mol %, the parameters increased by about 0.1 %. In this way the result of crystal-optic investigation is confirmed. According to the latter the alumferrites of calcium in the samples with 12 and 14 weight % of ferric oxide have the same parameters

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

KALININA, A.M.; PORAY-KOSHITS, Ye.A.

On the existence of metakaolinite and the nature of the exothermal effects of alumina. Dokl. AN SSSR 114 no.2:365-368 My '57. (MLRA 10:8)

1.Institut khimii silikatov Akademii nauk SSSR. Predstavleno akademikom M.M. Dubininym.
(Kaolinite)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

BEZBORODOV, M.A.; prof., doktor tekhn.nauk, akademik; BOBKOVA, N.M.; BREKHOVSKIKH, S.M.; YERMOLENKO, N.N.; MAZO, E.E.; PORAY-KOSHITS, Ye.A.; KAPRANOVA, N.V., red.; KUZ'MENOK, P.T., tekhred.

[Diagrams of vitreous systems] Diagrammy stekloobraznykh sistem. Minsk, Redaktsionno-izdatel'skii otdel BPI im. I.V.Stalina, 1959. 313 p. (MIRA 13:3)

1. AN BSSR (for Bezborodov).
(Glass manufacture--Chemistry)
(Systems (Chemistry))

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

SOV/81-59-15-53229

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 15, p 138 (USSR)

AUTHORS: Poray-Koshits, Ye.A., Filipovich, V.N.

TITLE: Some New Possibilities of the Method of X-Ray Scattering at Small Angles

PERIODICAL: V sb.: Metody issled. struktury vysokodispersn. i poristykh tel. Moscow, AN SSSR, 1958, pp 7-18

ABSTRACT: A short description of a new experimental work on the method of X-ray scattering under small angles (SSA) of the following devices: a) a frame camera; b) point focusing of a bunch by a monochromator made of a quartz crystal with barrel-shaped curved planes; c) a double crystal-spectrometer with recording by a counter. Some principal aspects of the theory of SSA are considered. The connection of the functions of radial distribution with the intensity of the diffraction picture is shown. The corresponding pictures for six types of submicroscopic structure are given. It has been shown that the Fourier analysis by SSA permits to understand the structure of the scattered non-homogeneities.

M. Umanskiy

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye. A.

~~RADUSHKEVICH, L.V.~~

24(6) 13 PHASE I BOOK EXPLOITATION SOV/1408

Sovashchaniye po metodam issledovaniya struktury vysokodispersnykh i poristykh tel. 2d, Leningrad, 1956.

Metody issledovaniya struktury vysokodispersnykh i poristykh tel; trudy vtorogo soveshchaniya (Methods of Investigating the Structure of Highly Disperse and Porous Bodies; Transactions of the Second Conference) Moscow, Izd-vo AN SSSR, 1958. 294 p. 2,000 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Institut fizicheskoy khimii and Institut khimii silikatov.

Resp. Ed.: Dubinin, M.M., Academician; Ed. of Publishing House: Razumova, L.L.; Tech. Ed.: Markovich, S.M.

PURPOSE: This book is intended for scientists, teachers and advanced students interested in the structural analysis of highly disperse and porous bodies.

COVERAGE: This collection contains reports by members of various Soviet institutions of higher education: Institute of Physical Chemistry, AS UkrSSR; Institute of Chemistry, AS Georgian SSR; Far Eastern Branch, AS USSR; Georgian Scientific Research Institute for Petroleum; State Optical Institute; Leningrad Technological Institute; Moscow and Leningrad State Universities; Far Eastern Polytechnic Institute; "Agrophysical" Institute, and others. Introductory remarks were made by Professor N.A. Toropov, Director of the Institute of Silicate Chemistry. Apart from reports under the four subject divisions (see Table of Contents), the collection includes discussions, considerations and proposals adopted at the close of the conference.

TABLE OF CONTENTS:

Khdanov, S.P., and Ye.A. Poray-Koshits. Comparison of Results Obtained From an Investigation of Porous Glass Structures by Small-angle X-ray Methods 180

Discussion (by contributing authors; N.M. Kamakin and Ya.V. Mirskiy, Groznenskiy neftyanoy nauchno-issledovatel'skiy institut- Groznyy Scientific Research Institute for Petroleum; Yu.A. El'tekov, Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR-Institute of Organic Chemistry imeni N.D. Zelinskiy, AS USSR; and M.P. Repkova, Moskovskiy inzhenerno-fizicheskiy institut-Moscow Physics and Engineering Institut) 190

PART III. METHODS OF DETERMINING THE SPECIFIC AREAS OF HIGHLY DISPERSE BODIES

Deryagin, B.V., N.N. Zakhavayeva, M.V. Talayev, and V.V. Filippovskiy (Institute of Physical Chemistry, AS USSR). A Filtration Method of Determining the Specific Area of Porous Bodies 203

Smirnova, A.M., N.G. Zaytseva, and V.P. Sukhova (Institute of Physical Chemistry, AS USSR). Employing Tagged Atoms to Investigate the Specific Areas of Cementing Materials during the Hydration Process. 214

Card 6/9

Kiselev, A.V., V.M. Luk'yanovich, and Ye.A. Poray-Koshits. Results of a Complex Study of Adsorbent and Catalyst Structures Obtained by Employing Adsorption, Small-angle X-ray and Electron-microscope Methods 161

PORAY-KOSHITS, Ye.A.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

AUTHORS: Andreyev, N. S., Poray-Koshits, Ye. A. 20-118-4-30/61

TITLE: The Chemically Inhomogeneous Structure of Sodium-borosilicate Glass (Khimicheski neodnorodnoye stroyeniye natriyevoborosilikatnykh stekol)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 4, pp. 735-737 (USSR)

ABSTRACT: First the previous works dealing with the same subject are referred to. The determination for chemically inhomogeneous structure of glass by any direct structural method is of fundamental interest. For this purpose the method of the scattering of X-rays through small angles was used and a new vacuum chamber was produced which was based upon the principle of the "frame-chamber", suggested by Kratky (reference 17). By means of this chamber a clear and reproducible scattering through small angles at a glass of the following composition could be obtained (in molecular per cent): Na_2O 7, Ba_2O_3 23, and SiO_2 70. This glass was not subjected to any chemical influence. Because of the insignificant difference between the electron densities

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action of HCl and KOH. A diagram illustrates the intensities of scattering for the various pieces. The existence of a maximum in these curves **indicates** homogeneous dimension of the scattering domains and their relatively dense distribution. The shift of the curves in case of prolongation of the duration of annealing **indicates** an increase of the dimensions of the domains. The curves for porous glass which are contained in the same diagram are quite near the curves of the corresponding original glass. This is a conclusive proof for the similarity of shape and dimensions of the inhomogeneity domains in the original glass and of the pores formed in the process of leaching. Some numerical results are given. In case of application of the method of small angles on non-leached sodiumborosilicate glass, which were heated up to various temperatures for different periods, the same rules as in case of the examination of porous glass were found.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye.A., red.; BARZAKOVSKIY, V.P., red.; YAKHKIND, A.K., red.; TOMARCHENKO, S.L., red.; FOMKINA, T.A., tekhn. red.

[Abstracts of the reports at the All-Union Conference on the Glassy State] Tezisy dokladov Vsesoiuznoe soveshchanie po stekloobraznomu sostoianiiu. Leningrad, Goskhimizdat, 1959. 133 p. (MIRA 16:10)

1. Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 3d. 2. Gosudarstvennyy opticheskiy institut im. Vavilova (for Yakhkind). 3. Institut khimii silikatov AN SSSR (for Poray-Koshits).

(Glass research--Congresses)

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15(2)

AUTHOR: None Given

SOV/72-59-5-1/23

TITLE: Glass Science at the VIII Mendeleyev Congress (Nauka o stekle 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 Korani (People's Republic of Hungary) investigated the structure of the top-layers of glass;

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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 glazes 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

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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. Bosova (NII Stroykeramika) discussed the process of subduing the glazes by lead oxide and zirconium; L. G. Nel'gichenko, Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnic Institute) reported on silicate formation and wintering processes in the briquetted glass layer; K. N. Yevstrop'yev investigated various types of glass; N. N. Sveshnov (Glass Institute) reported on the determination of impurities in silica by spectroscopic analysis; G. S. Bogdanova, and Ye. N. Orlova (Glass Institute) reported on types of electrode glass which has been devised by them. Yu. V. Rogozhin (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. Patrovykh, and V. G. Karpechenko (NIIRS) 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. Veynberg (NIIRS) discussed the production of conductive films on types of glass which contain components easily to be regenerated.

Poray-Koshits, Ye. A.

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5(4)

AUTHORS: Stavitskaya, G. P., Smolin, Yu. I., Toropov, N. A., Poray-Koshits, Ye. A.

SOV/20-126-3-44/69

TITLE: On Problems in the Crystallization of Hillebrandite at Hydrothermal Conditions (K voprosu o kristallizatsii gillebrandita v gidrotermal'nykh usloviyakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 616-618 (USSR)

ABSTRACT: In the introduction to this paper it is pointed out that the phenomenon of the recrystallization of hillebrandite by the solution, as discovered at the laboratory of Academician P. A. Rebinder in the solidification of gypsum, is to be investigated. The samples, which were obtained from a stoichiometric mixture of an amorphous silicic acid and finely dipersed calcium oxide, were investigated by means of an electronic microscope, and the crystals were identified by means of an X-ray phase analysis. In eight pictures made with the electron microscope (Fig 1) the initial mixtures and the products of hydrothermal synthesis within a period of up to thirteen days, and in a diagram the corresponding ionization curves (Fig 2) are shown. The results obtained by the investigations show a crystallization developing in three stages: 1) Rapid precipitation of needle-shaped hillebrandite crystals

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On Problems in the Crystallization of Hillebrandite at Hydrothermal Conditions SOV/20-126-3-44/69

from the oversaturated solution. 2) A solution of thermodynamically fluctuating hillebrandite crystals with distorted structure. 3) Increase of hillebrandite crystals with regular lattice, i.e. recrystallization of hillebrandite by the solution. There are 3 figures and 2 references, 1 of which is Soviet.

ASSOCIATION: Institut Khimii silikatov Akademii nauk SSSR (Institute of the Chemistry of Silicates of the Academy of Sciences, USSR)

PRESENTED: October 16, 1958 by P. A. Rebinder, Academician

SUBMITTED: August 21, 1958

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

PORAY-KOSHITS, Ye.A.

PHASE I BOOK EXPLOITATION SOV/5035

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

Stekloobraznoye 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. Suyorov; Tech. Ed.: V.T. Bochever.

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

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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.M. 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

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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.V. Vol'kenshteyn, L.I. Demkina, D.P. Dobychin, S.K. Dubrovo, V.A. Ioffe, and B.T. Kolomiyets. References accompany individual reports.

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AUTHOR: Poray-Koshits, Ye. A., Doctor of Physical and Mathematical Sciences

S/030/60/000/02/032/40
B008/B008

TITLE: Study of the Glass Structure

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, Nr 2, pp 111-112 (USSR)

ABSTRACT: This is a report on the 3rd All-Union Consultation on the Glass-like Aggregation of Materials, which was held in Leningrad from November 16 to 20, 1959. It was convened by the Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the Academy of Sciences USSR), the Vsesoyuznoye khimicheskoye obshchestvo im. D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and the Gosudarstvennyy opticheskiy institut im. S. I. Vavilova (National Optical Institute imeni S. I. Vavilov). This Consultation, attended by more than 400 scientists and engineers, was opened by A. A. Lebedev. It dealt with the success achieved in past years at the study of the nature of the glasslike aggregation of materials and at the investigation of the properties and the structure of glass with the help of various methods. A. A. Lebedev reported on the possibilities and results of the optical method of structure investigation and the author reported on the diffraction method. K. S. Yevstrop'yev and M. A. Bezborodov investigated the

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correlation between the structure of the glass and its properties. N. V. Belov reported on the glass structure in the aspect of the crystal chemistry of silicates. R. L. Myuller reported on chemical peculiarities of polymeric glass forming materials and on the nature of glass formation. V. V. Tarasov dealt with glass as a polymer. A. G. Vlasova analyzed the natural oscillations of the glass lattice in connection with its structure. It was established that the elaboration of the general hypotheses on the glass structure as well as of the conceptions on the nature of the glass is connected primarily with the physico-chemical phenomena of the development of heterogeneous spheres and with problems of the "visible" and "latent" crystallization in the composite glass. It was noted that the investigations of glass based on elements unusual in classical glass production, have received a strong impetus. It was recommended to investigate new combinations from elements of the periodic system. It was recommended to the Institute of Silicate Chemistry and to the All-Union Chemical Society imeni D. I. Mendeleyev to establish a coordination center for research work in the field of the glasslike aggregation of the materials. This work should also be carried out on a wider basis at the Institute of Silicate Chemistry. It was

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Study of the Glass Structure

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found suitable to establish research stations in individual works which should operate in close contact with scientific institutions. It was considered to publish a new periodical "Fizika i khimiya stekla" for more intensive exchange of experience and a quicker publication of papers on glass. It was decided to convene thematic symposia on experimental-theoretical and scientific-technological problems every 1 1/2 to 2 years. The next Symposium is to be held in the spring of 1961. The lecture by V. Vogel from Eastern Germany on electron microscopic investigations of a number of glass types is mentioned.

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Poray-Koshits, Ye. A.

AUTHOR: Syritskaya, Z. N. 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. [illegible]. 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 Alumoboron 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. Poray-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. N. Belyavskaya reported on the structure determination of glass with the aid of an inhomogeneous electric field; N. M. Vorobyevskiy and V. I. Odelevskiy, "Structure and Properties of Some Oxide Glasses in the Light of the Polymer-theory of the Vitreous State"; E. L. Nyuller 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. Petrovyan, "Investigation of the Dielectric Polarization and the Losses in Phosphate Glasses"; V. A. Fresnov, V. I. Gorin and L. N. Krasil'nikov reported on investigations of the conductivity of glasses in electric high-tension fields, K. K. Yevstropiyev on the diffusion of Na^{22} and K^{42} in some silicate glasses, V. A. Ioffe, L. S. Tonchavskaya and G. 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. S. Yevstropiyev at the Kafedra stekla LTI imeni Lensoveta (Chair for Glass of the Leningrad Technological Institute imeni Lensoveta) in the report: "The Dependence of the Electroconductivity of Glasses on the Chemical Composition". V. A. Khar'yunov, O. V. Mazurin and N. N. Zubkova 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 alumina- 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 G. 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. N. Mamontova and G. P. Nazarova reported on the electron conductivity of chalcogenide glasses. K. A. Vaypolin, Ye. A. Poray-Koshits, "Radiographic Investigation of the Structure of Vitreous Arsenic Chalcogenides". V. V. Tarasov and V. A. Kozmanovskiy 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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B006/B067

15.2120

AUTHORS: Vaypolin, A. A., Poray-Koshits, Ye. A.

TITLE: The Structure of Vitreous Arsenic Chalcogenides

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 7, pp. 1656-1665

TEXT: The authors thoroughly describe X-ray studies of vitreous arsenic sulfides, -selenides, and -tellurides, and some three-component compounds. They succeeded in determining a rule governing the structural changes with changing composition: With increasing atomic number of one of the elements of the VI group of the periodic system introduced in the glass, or with increasing concentration of the heavy atoms in glass, the compactness and the symmetry of the structure increase. A study of the various structural variants showed that the structure of As_2S_3 in the form of chains lying closely together, bands or layers with a minimum "thickness", and a tridimensional structure of the remaining compounds are most probable. The following glasses were studied: As_2S_3, $(2/3)As_2S_3 \cdot (1/3)As_2Se_3$, $(1/3)As_2S_3 \cdot (2/3)As_2Se_3$, As_2Se_3, $(3/4)As_2Se_3 \cdot (1/4)As_2Te_3$,

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The Structure of Vitreous Arsenic Chalcogenides

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$(1/2)As_2Se_3 \cdot (1/2)As_2Te_3$, $(1/4)As_2Se_3 \cdot (3/4)As_2Te_3$, As_2Te_3, and $(3/4)As_2Te_3 \cdot (1/4)As_2S_3$. The samples were made available by the laboratory of Professor B. T. Kolomiyets. The results of investigations are illustrated in numerous diagrams. Numerical results are given in a table; besides the first and second interatomic distances (r_I, r_{II}), this table contains the coordination numbers and the areas below the first and second maximum of the radial distribution curves for the electron density. The calculation of the coordination numbers showed that also in vitreous As_2S_3 each arsenic atom is surrounded by three sulfur atoms, and that each sulfur atom lies between two arsenic atoms. The densely packed chain- or layer structure of As_2S_3 is illustrated in Figs. 9 and 10. According to the experimental results, it appears to be most probable. As_2Se_3, As_2Te_3, and the three-component glasses (Figs. 3-6) have spatial structures. Fig. 8 shows the functions of the radial electron density distributions from which the coordination numbers were calculated.

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The Structure of Vitreous Arsenic Chalcogenides

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Composition of the glass	r_I [A]	r_{II} [A]	Coordination numbers As	S,Se,Te
As_2S_3	2.31	3.52	3.0	2.0
As_2Se_3	2.44	3.66	3.5	2.4
$0.75\ As_2Se_3 \cdot 0.25 As_2Te_3$	2.50	3.72	3.5	2.3
$0.5\ As_2Se_3 \cdot 0.5\ As_2Te_3$	2.66	3.86	3.0	2.0
$0.25\ As_2Se_3 \cdot 0.75\ As_2Te_3$	2.64	3.86	3.2	2.1
As_2Te_3	2.76	3.88	3.9	2.6

Academician A. F. Ioffe is mentioned. There are 10 figures, 1 table, and 12 references: 8 Soviet, 1 US, 1 British, and 2 German.

ASSOCIATION: Institut khimii silikatov AN SSSR Leningrad (Institute of Silicate Chemistry of the AS USSR, Leningrad)

SUBMITTED: December 16, 1959

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001342520003-1

ACCESSION NR: AT4019283 S/0000/63/003/001/0044/0046

AUTHOR: Goganov, D. A.; Poray-Koshits, Ye. A.; Sokolov, Yu. G.

TITLE: Detection and study of very small heterogeneities in glass by means of a new small-angle x-ray apparatus

SOURCE: Simpozium po stekloobraznomu sostoyaniyu. Leningrad, 1962. Stekloobraznoye sostoyaniye, vy*p. 1: Katalizirovannaya kristallizatsiya stekla (Vitreous state, no. 1: Catalyzing crystallization of glass). Trudy* simpoziuma, v. 3, no. 1. Moscow, Izd-vo AN SSSR, 1963, 44-46

TOPIC TAGS: glass, x-ray analysis, lithium glass, borosilicate glass, lithium silicate, light scattering, glass crystallization, glass structure

ABSTRACT: A new apparatus was developed for recording very low intensities during the x-ray study of the submicroscopic structure of glass. The apparatus based on the previously known collimation device, also includes a proportional quantum counter and an amplitude analyzer. The apparatus and its advantages are described. Sodium borosilicate glass, containing 7% Na_2O, 23% B_2O_3 and 70% SiO_2 (mol.%) was used as the test material. When the intensity curves were plotted for three samples heated at different temperatures (600, 530 and 750C) for different lengths of time, the dimensions of the heterogeneous areas were found to be 55A.

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AUTHOR: Andreyev, N. S.; Goganov, D. A.; Poray-Koshits, Ye. A.; Sokolov, Yu. G.

TITLE: The chemically heterogeneous structure of binary sodium and lithium silicate glass

SOURCE: Simpozium po stekloobraznomu sostoyaniyu. Leningrad, 1962. Stekloobraznoye sostoyaniye, vy*p. 1: Katalizirovannaya kristallizatsiya stekla (Vitreous state, no. 1: Catalyzing crystallization of glass). Trudy* simpoziuma, v. 3, no. 1. Moscow, Izd-vo AN SSSR, 1963, 46-53

TOPIC TAGS: crystal heterogeneity, x-ray diffraction, lithium glass, glass silicate, submicroscopic structure, binary system, glass structure

ABSTRACT: The binary systems Na_2O-SiO_2 and Li_2O-SiO_2 were investigated by roentgenographic techniques. In order to improve the characterization of the submicroscopic structure of glass, in addition to the size of the heterogeneous regions, the mean square difference in their electron densities was determined as a measure of the degree of heterogeneity. The mathematical approach to this is described. The composition conditions of thermal treatment and preparation of the test samples are given. Sodium silicate glass containing 11.5-18.5% mol.% Na_2O was used. A characteristic feature of all test samples was their ability to become opalescent after thermal treatment. When the relationship between cloudiness

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