OZEROV, R. P.

USSR/Physics - Antiferromagnetics Jul 52

"Neutronographic Study of the Magnetic Structure of Antiferromagnetics," R. P. Ozerov

"Uspekh Fiz Nauk" Vol XLVII, No 3, pp 445-469

Discusses scattering of neutrons by para-, ferro-, and antiferromagnetics; detn of form factor; magnetic structure of MnO, NiO, CoO and FeO; dependence of distant ordering upon temp; deformation of the structure of antiferromagnetics during their transition to the paramagnetic state; magnetic structure of hemantite (a-Fe_2O_3) and magnetite (Fe_3O_4); expts with magnetized samples.

225T98

OZEROV, R.P.

USSR/Chemistry - Reaction

Card 1/1 Pub. 151 - 4/36

Authors : Boreskov, G. K.; Illarionov, V. V.; Ozerov, R. P.; and Kil'disheva, E. V.

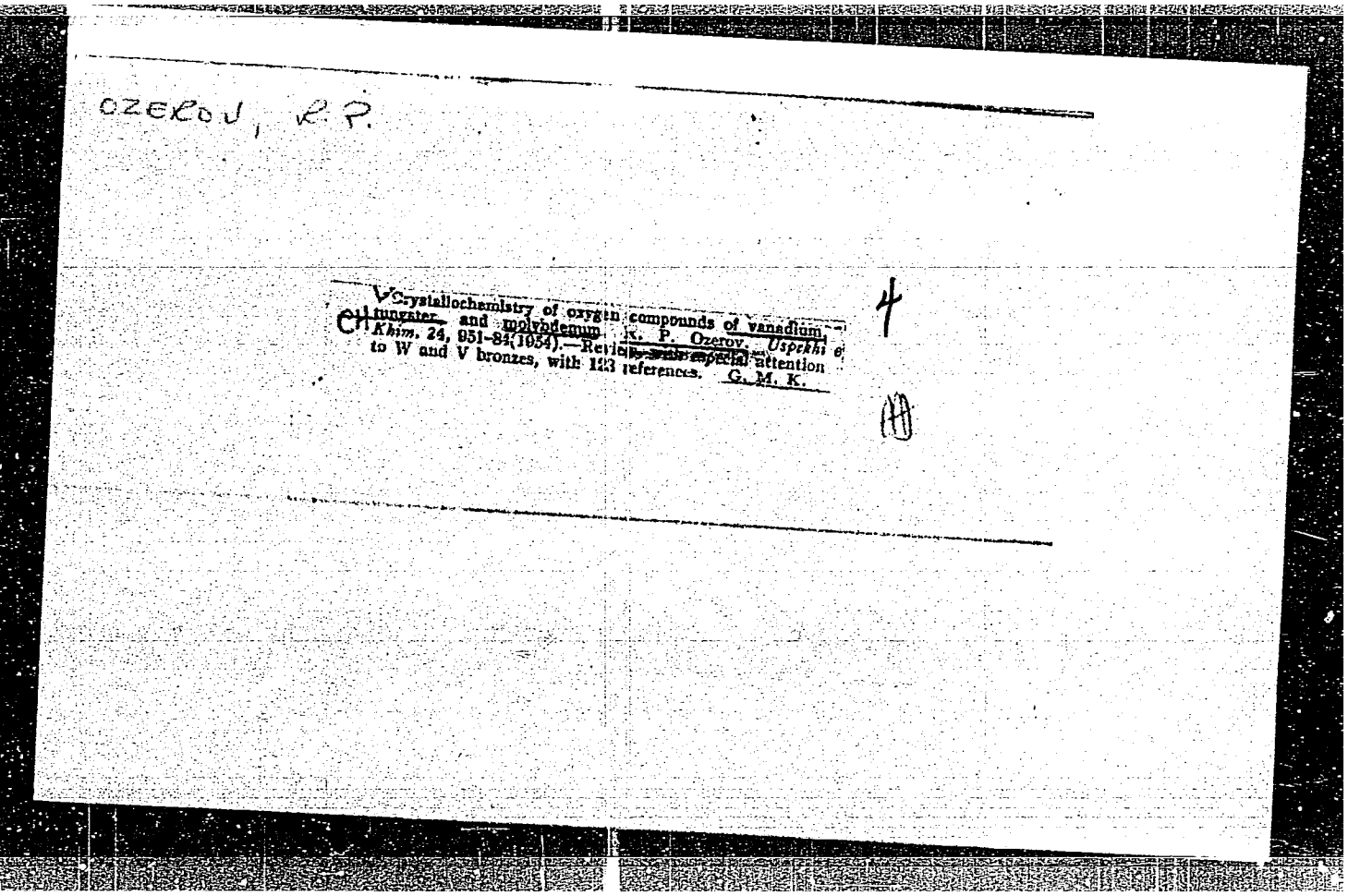
Title : Chemical reactions in V_2O_5-K_2SO_4 and V_2O_5-$K_2S_2O_7$ systems

Periodical : Zhur. ob. khim. 24/1, 23-29, Jan 1954

Abstract : Thermographic and x-ray investigations of V_2O_5-K_2SO_4 and V_2O_5-$K_2S_2O_7$ systems were carried out to determine their reaction characteristics. The formation, in the first of the two systems, of a compound close in its composition to $V_2O_5 \cdot K_2SO_4$ with a melting point of about 500° was discovered. The eutectic point between this compound and K_2SO_4 was established at below 430° which corresponds to an approximate V_2O_5 content of 0.4 mol/fractions. The fusions with larger pyrosulfate contents in the second of the investigated systems were found to have low melting points and easily convert into glass when subjected to cooling. An exothermal effect during the heating of this system was observed at 275° and this is explained by the formation of a $V_2O_5 \cdot K_2S_2O_7$ compound. Eleven references: 3-USSR; 4-German; 2-Italian and 1-Scandinavian (1905-1950). Tables; graphs. Also 1-English reference.

Institution : Scientific Institute of Fertilizers and Insecticides

Submitted : May 26, 1953



OZEROV, R. P.

Crystallochemistry of oxygen compounds of vanadium, tungsten, and molybdenum. R. P. Ozerov. *Uspekhi* *Khim.* 24, 951-84(1954).—Review, with special attention to W and V bronzes, with 123 references. G. M. K.

4

AD

OZEROV, R. P.

USSR/ Chemistry - Metallurgy

Card 1/1 Pub. 22 - 25/47

Authors : Ozerov, R. P.

Title : Tungsten and vanadium bronzes

Periodical : Dok. AN SSSR 99/1, 93-95, Nov 1, 1954

Abstract : The nature of tungsten and vanadium bronzes and the analogy between these two bronzes are discussed. The analogy between tungsten and vanadium bronzes corresponds to the already known analogy in the crystallo-chemistry of oxides of the above mentioned metals. The presence of several structural types in these bronzes which become very complicated in relation to the dimensions of the alkali ion, was determined. Thirteen references: 3-USA; 1-USSR; 5-Swedish; 1-Italian; 2-German and 1-Swiss (1928-1954). Table.

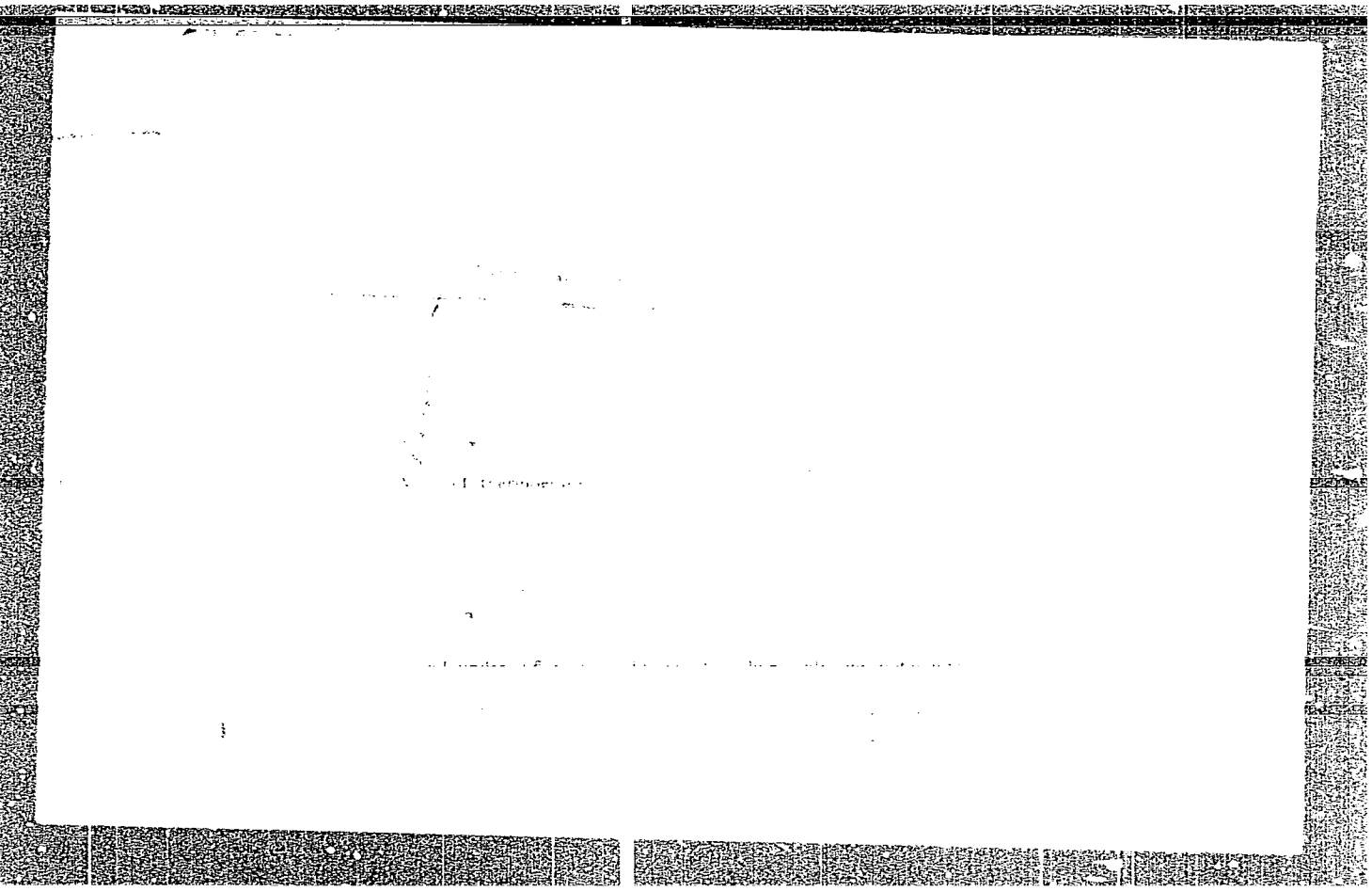
Institution : ...

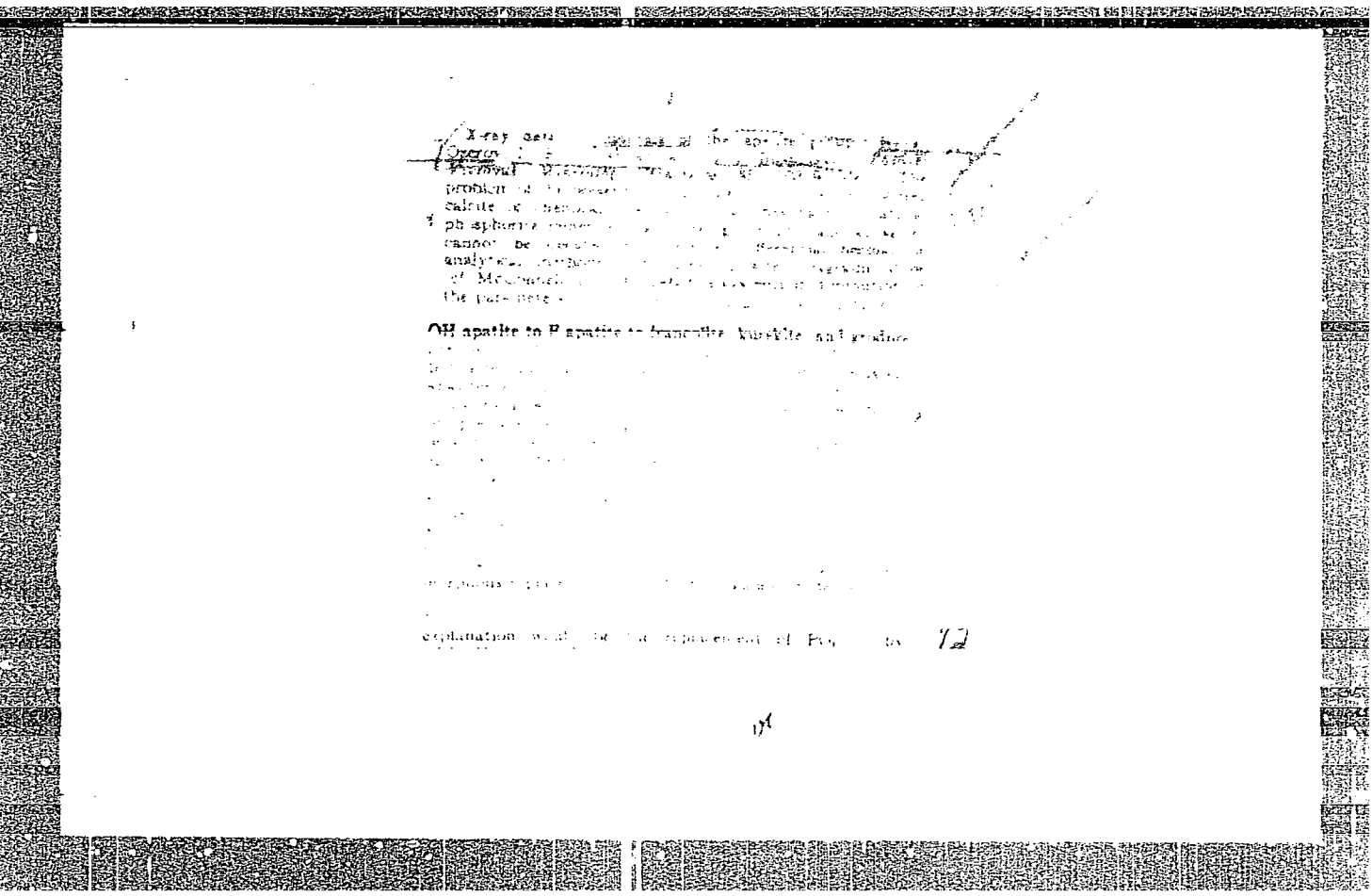
Presented by: Academician S. I. Vol'fkovich, May 11, 1954

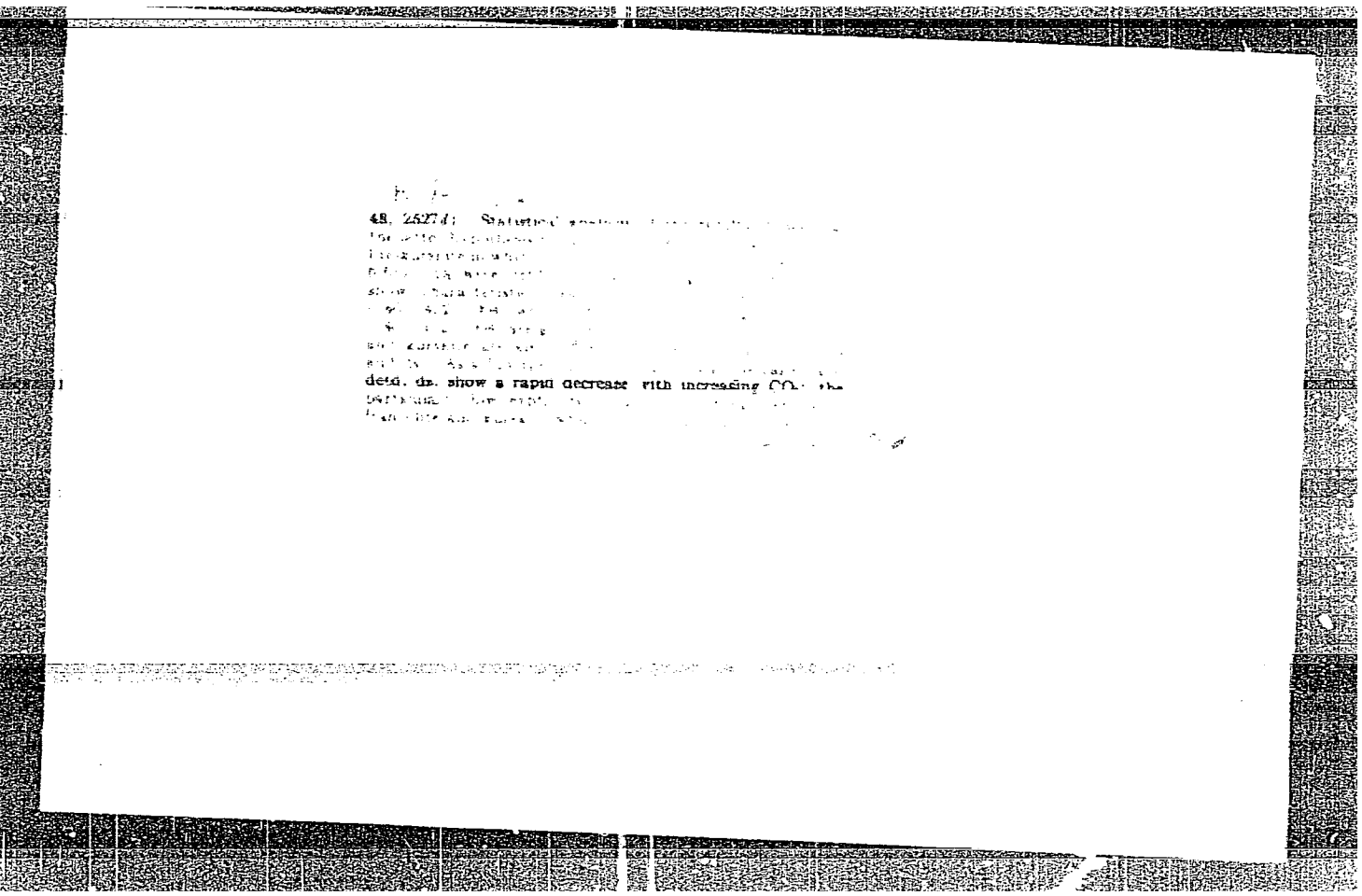
OZEROV, R. P.

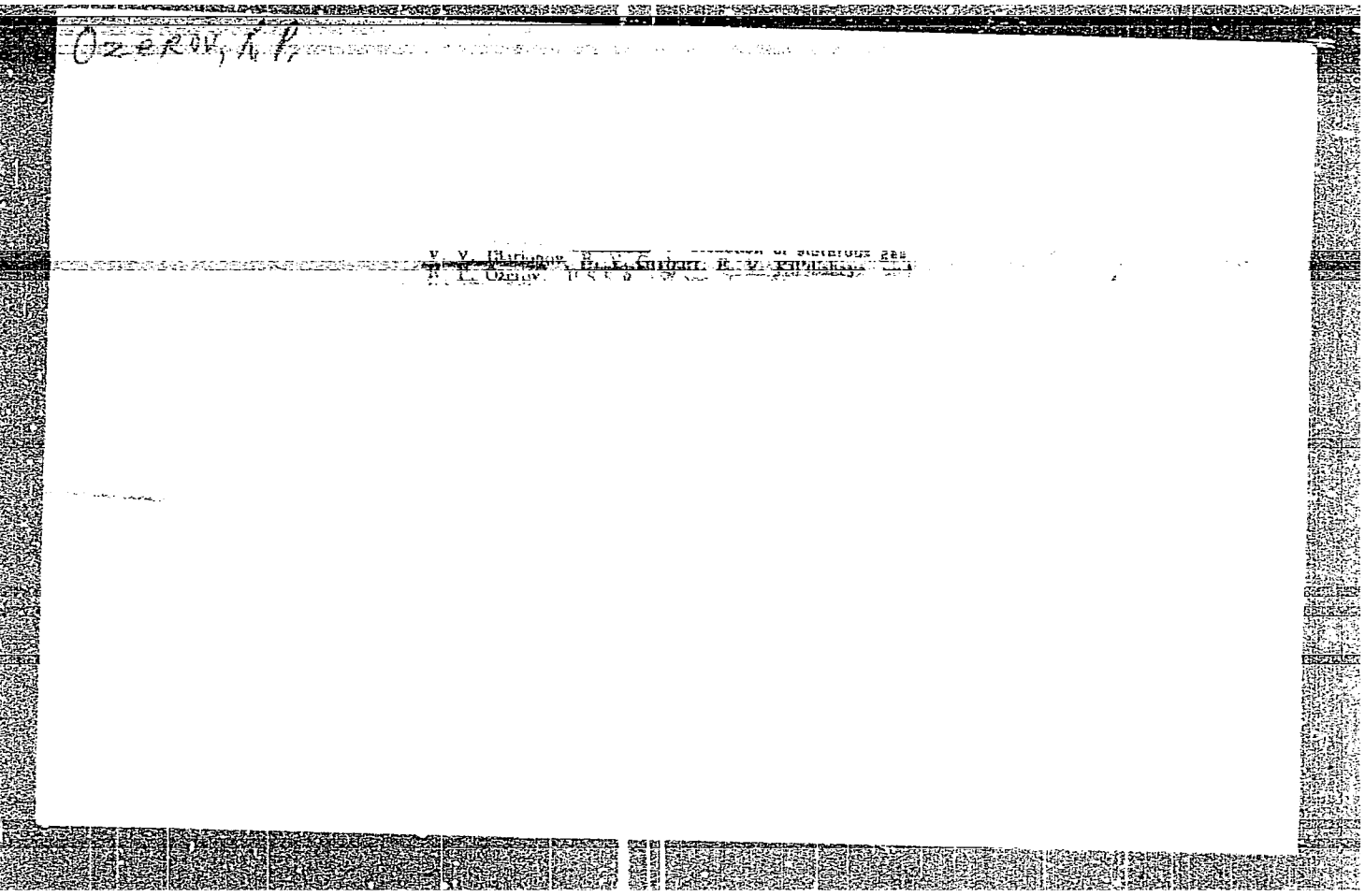
OZEROV, R. P. "The Crystal Chemistry of Vanadic Vanadates, their formation and their Role in Vanadium Sulfuric-acid Catalysts." Acad Sci USSR. Inst of Crystallography. Moscow, 1956 (Dissertation for the Degree of Candidate in Chemical Science.

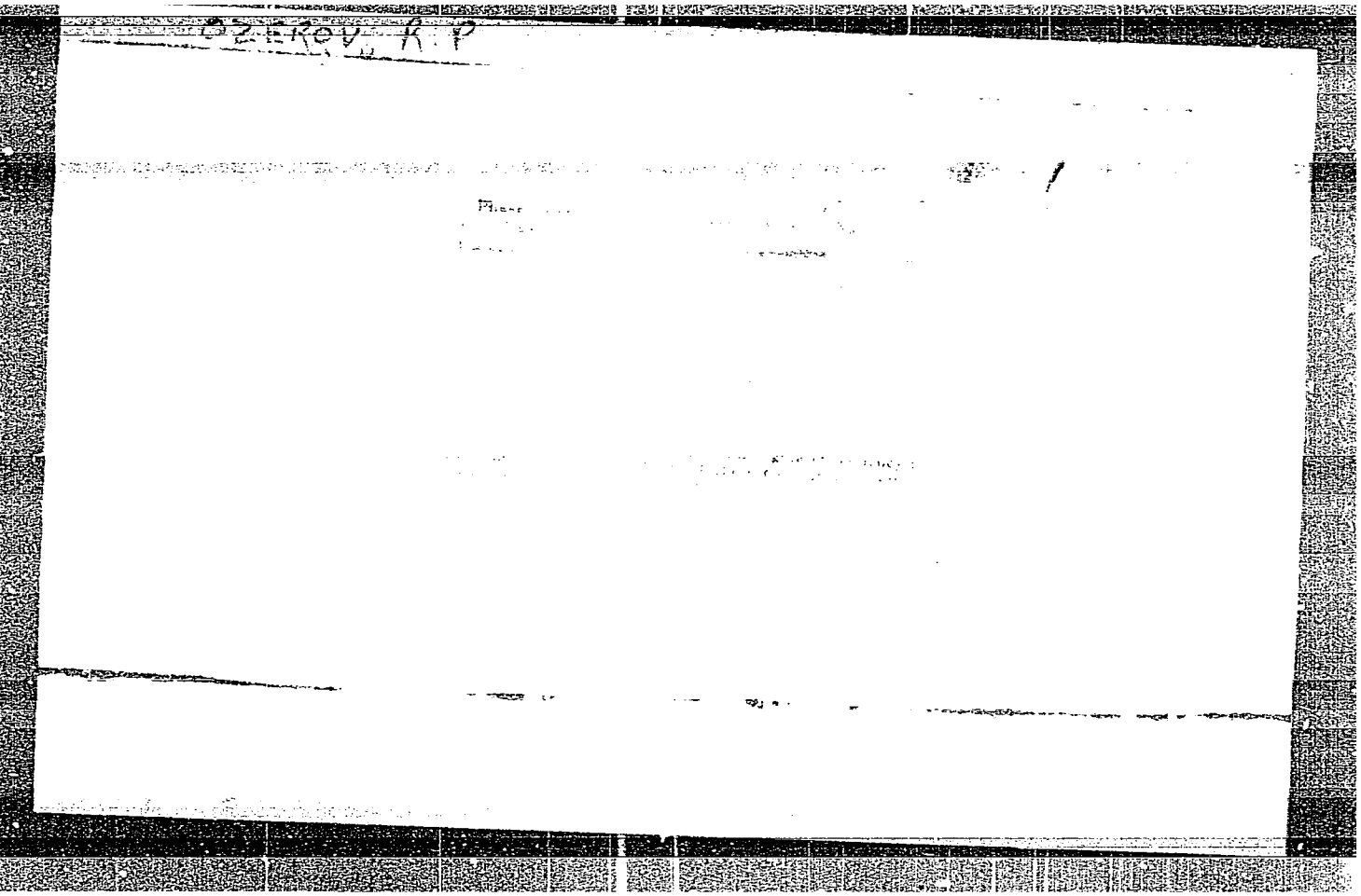
So: Knizhnaya letopis' No. 24, 1956











OZEROV, R.P.; KOGAN, V.S.; ZHDANOV, G.S.; KUKHTO, O.L.

Crystalline structure of solid hydrogen isotopes. Kristallografiia 6 no.4:631-632 Jl-Ag '61. (MIRA 14:8)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova i Fiziko-tekhnicheskiy institut AN USSR.
(Hydrogen--Isotopes) (Crystallography)

AUTHOR: Ozerov, R.P. SOV/70-4-2-9/36

TITLE: On the Crystal Chemistry of Oxygen Vanadium Bronzes of Elements in the First Group of the Periodic System (K kristallokhimii kislorodnykh vanadiyevykh bronz elementov pervoy gruppy periodicheskoy sistemy)

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 2, pp 201-203 (USSR)

ABSTRACT: The vanadium bronzes of Li, Ag and Cu have been examined from a crystal chemical point of view and those of Na and K studied earlier have been reconsidered. According to their abilities for forming vanadium bronzes the first group elements (except Au) can be divided into three groups: 1) Li and Cu which form vanadium bronzes with almost complete filling of the alkali metal positions in the structure; 2) Na, Ag and K forming bronzes with half-occupied positions; 3) Rb and Cs not forming monoclinic bronzes. In this connection the possible states of the valency electrons of the alkali metal atoms and certain physical properties of the bronzes are examined. In particular, D.T.A. records of the thermal decomposition of the bronzes have been made. Anomalous peaks, due

Card1/2

On the Crystal Chemisty of Oxygen Vanadium Bronzes of Elements in the First Group of the Periodic System SOV/70-4-2-9/36

perhaps to the ordering of Na and Li atoms, were found in a mixed bronze of composition about $Na_2Li_{1.5}V_{12}O_{30}$.

Electrical-resistance measurements were made on compressed powders. There are 1 figure and 5 references, 4 of which are Soviet and 1 international.

ASSOCIATION: Nauchnyy institut po udobreniyam i insektofungisidam im. Ya.V. Samoylova (Ya.V. Samoylov Scientific Institute for Fertilisers and Insectofungicides)

SUBMITTED: June 4, 1958

Card 2/2

OZEROV, R. P.

USSR/Physical Chemistry - Crystals. B-5

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 180

Author : R.P. Ozerov.
Inst :
Title : Crystallochemistry of Oxygen-Vanadium Bronzes.

Orig Pub : Kristallografiya, 1957, 2, No 2, 226-232

Abstract : A series of conclusions regarding the crystallochemistry of oxygen-vanadium bronzes was made based on data of x-ray-structural analysis, as well as of some thermal and electrical measurements. It was postulated that atoms of alkali metals in vanadium bronzes were in the metallic state, while the state of vanadium atoms was close to that in V_2O_5. The electrical, thermal and catalytic properties of vanadium bronzes were considered from this point of view. It is shown that the names of these compounds that so far have been used in the literature have no crystallochemical ground.

Card 1/1

OZEROV, R.P.

Method for the quantitative radiographic determination of the concentration of a solid solution of carbon in apatite. Zav. lab. 24 no.5:577-579 '58. (MIRA 11:6)

1. Nauchnyy institut po udobreniyam i insektofungisidam im. Ya.V. Samoylova.

(Carbon—Analysis) (Apatite—Analysis)
(Radiography)

AUTHORS: Illarionov, V.V., Ozerov, R.P. 32-24-4-22/67

TITLE: A Method for the Precise Determination of the Temperatures of Thermal Effects in Thermograms (Metod utochneniya temperatur teplovykh effektov na termogrammakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 434-435 (USSR)

ABSTRACT: The thermograms obtained according to the system developed by N.S. Kurnakov represent two curves plotted simultaneously: the ordinary- and the differential curve. The former is obtained from standard samples, in which a large number of secondary factors influences measuring accuracy. For the precise determination of the positions of thermal effects it is suggested to add an "active" standard substance with known thermal effect positions instead of the inert ballast substance to the second pyrometer vessel (according to Kurnakov). The addition of an active standard substance was already suggested by L.G. Berg and Ye.Ya.Rode (Ref 1). In this way several additional inversion effects become noticeable on the differential curve, the majority of which is known for the standard samples, so that in this way a calibration

Card 1/2

of recordings is possible. Besides this no change of the normal curve takes place, and in the case that a superposition of effect should be unavoidable, two thermograms with inert-, and active substance can be made. If possible such standard substances should be used of which the position of effects is known with the greatest accuracy; on the other hand, it is possible, by the method described, to determine also relative temperatures with the greatest accuracy, which are frequently just as important as absolute temperature. Thermograms for investigations carried out on K_2SO_4 and KPO_3 by using an eutectic mixture of Na_2 + NaCl as an active substance are given. When carrying out determination in KPO_3-V_2O_5-systems it was found that the error limit amounts to + 1-2°, whereas it is four times this amount when working with an inert substance. There is 1 figure.

ASSOCIATION: Nauchnyy institut po udobreniyam i insektofungisidam im. Ya.V. Samoylova (Scientific Institute for Fertilizers and Insecti- and Fungicides imeni Ya.V. Samoylov)

1. Temperature---Recording devices 2. Thermographs---Errors
3. Thermographs---Calibration

SOV/78-4-5-17/46

5(2)
AUTHOR: Ozerov, R. P.

TITLE: The Oxygen-containing Vanadium Bronzes of the Elements of the First Group of the Periodic System
(Kislorodnyye vanadiyevyye bronzy elementov pervoy gruppy periodicheskoy sistemy)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 1047-1054 (USSR)

ABSTRACT: The present investigation was carried out in cooperation with Ye. V. Kil'disheva. The process of the formation of vanadium bronzes with elements of the first group of the periodic system, their composition, as well as the possibilities of a formation of bronze with other elements was investigated. The synthesis of vanadium bronzes with sodium and potassium was carried out in a vacuum by the crystallization of the melt of a mixture of V_2O_5 with the salts of alkali metals. The vacuum apparatus for the production of vanadium bronze is schematically shown by figure 1. Figure 2

Card 1/4

The Oxygen-containing Vanadium Bronzes of the Elements of the First Group of the Periodic System

shows the variation of pressure at constant temperature and during cooling. Radiographic investigations of the bronzes obtained show that they are nearly homogeneous. The outer appearance of the potassium bronze crystals formed is shown by figure 3. The purest form of potassium vanadate and potassium carbonate was used for the production of potassium bronze, but potassium carbonate is less suited for this purpose. In the systems V_2O_5-K_2SO_4 and $K_2S_2O_7$ no potassium-vanadium bronzes are formed under the same working conditions. The vanadium bronzes with other elements of the first group of the periodic system, such as Li, Ag and Co, are isomorphous with the monoclinic bronzes of sodium and potassium. Bronzes with rubidium- and cesium salts could not be produced. A chemical analysis of all synthetized compounds was carried out and showed that in the bronzes the lithium- and copper content is nearly double the content of silver, sodium, and potassium in the corresponding bronzes.

SOV/78-4-5-17/46

The Oxygen-containing Vanadium Bronzes of the Elements of the First Group of the Periodic System

The results of the chemical analysis of bronzes are shown by table 1. Among all alkali metals, sodium shows the greatest tendency towards forming vanadium bronzes containing oxygen. Formation of bronze also with tungsten, vanadium and niobium was investigated. The colors of the synthetized oxygen-containing bronzes are shown in table 2. Alkali metals, lithium and sodium form tungsten bronzes with perovskite-structure. Potassium, rubidium and cesium form tungsten bronzes with a comparatively complicated tetragonal and hexagonal structure. The oxides of the alkaline earth metals form, together with niobium, bronzes with perovskite structure. There are 3 figures, 3 tables, and 25 references, 9 of which are Soviet.

Card ~~5/4~~

OZEROV, R.P.; NOGINOV, N.V.

X-ray examination of objects of the Scientific Research Institute of Fertilizers, Insecticides, and Fungicides. [Trudy] NIUIF no.164:43 '59. (MIRA 15:5)
(Phosphorites) (X rays--Industrial applications)

S/120/60/000/006/011/045
E032/E314

5.5800 (1043, 1273, 1221)

AUTHORS: Goman'kov, V.I., Kasatkin, S.N., Kiselev, S.V., Loshmanov, A.A. and Ozerov, R.P.

TITLE: A Neutron-diffraction Apparatus Working in Conjunction with the ИРТ (IRT) Reactor

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6, pp. 45 - 48

TEXT: A description is given of a neutron diffractometer designed for investigating poly- and monocrystals. A collimated neutron beam of 8×10^9 neutrons/cm^2 sec with a horizontal divergence of 7' was employed. The neutrons were monochromatised by a reflection from the (200) plane of a NaCl monocrystal having an area of 12 x 50 mm^2, or from the (111) plane of a lead monocrystal having an area of 80 x 200 mm^2. The reflection curves for the two crystals are shown in Figs. 1 and 2. A photograph of the apparatus as a whole is shown in Fig. 3. The apparatus can be used to measure directly the angular positions of the diffraction maxima ϑ_{200}, ϑ_{400} and ϑ_{600}. By reflecting the neutron beam from NaCl crystals, a

Card 1/3

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S/120/60/000/006/011/045
E032/E314

A Neutron-diffraction Apparatus Working in Conjunction with the IRT Reactor

monochromatic neutron beam with $\lambda = 0.97$ Å was obtained. The wavelength spread was about 0.01 Å and the half-width of the monochromatic peak was 20'. The flux of monochromatic neutrons was $\sim 10^5$ neutrons/cm^2 sec. The crystal-monochromator was set up on a table of a goniometer so that the position of the crystal could be adjusted with respect to the incident beam. The monochromatised beam was then passed through a second cadmium collimator and struck the specimen under investigation which was fixed on the table of the neutron diffractometer. The diffractometer (Fig. 3) is in the form of an H section beam, 180 cm long, which can be rotated about the vertical axis through angles between 0 and 180°. The angular position of the rotating beam can be estimated to within 3 min The beam is rotated by a DC motor and the angular velocity can be varied between 3 and 216 deg/hr. The thermal neutron detector was a high-efficiency end-window proportional counter, (25 mm dia) and having a working length of 130 mm. The counter was described by Bykov and Levdik in Ref. 8, and is filled with

Card 2/3

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E032/E314

A Neutron-diffraction Apparatus Working in Conjunction with the IRT Reactor

83% B^{10} enriched BF_3 gas at atmospheric pressure. The counter is screened with a 100 mm thick layer of paraffin with B_4C. Fig. 5 shows the diffraction pattern obtained in NaCl and Fig. 6 shows the diffraction pattern of a polycrystalline α-iron specimen. In the former case, the monochromatic crystal was NaCl and in the latter case Pb. The instrument was designed at the Institute of Physical Chemistry of the AS USSR. There are 6 figures and 8 references: 4 Soviet and 4 English.

ASSOCIATIONS: Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry of the AS USSR)
Nauchno-issledovatel'skiy fiziko-khimicheskiy institut (Scientific Research Physico-chemical Institute)

SUBMITTED: November 28, 1959

Card 3/3

OZEROV, R.P.; KISELEV, S.V.; KARPOVICH, I.R.; GOMAN'KOV, V.I.; LOSHMANOV, A.A.

Neutron diffractometer based on unit GUR-3 and equipped with remote control. Kristallografiia 5 no.2:317-319 Mr-Ap '60. (MIRA 13:9)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Neutrons—Diffraction)

KOGAN, V.S.; LAZAREV, B.G.; ZHDANOV, G.S.; OZEROV, R.P.

Cryostat for neutron diffraction studies at hydrogen and helium temperatures. Kristallografiia 5 no.2:320-321 Mr-Ap '60.
(MIRA 13:9)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.
(Cryostat) (Neutrons--Diffraction)

S/078/60/005/012/012/016
B017/B064

AUTHORS: Illarionov, V. V., Ozerov, R. P., Kil'disheva, Ye. V.

TITLE: The Phase Diagram of the System V_2O_5 - KPO_3

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 12, pp. 2802-2803

TEXT: The section of the three-component phase diagram of the system V_2O_5 - K_2O - P_2O_5 along the KPO_3 - V_2O_5 line was investigated. The system was thermographically investigated as well as by X-ray analysis, and on the basis of the results obtained the phase diagram was drawn. The formation of the two compounds $KPO_3 \cdot V_2O_5$ (I) and $4KPO_3 \cdot V_2O_5$ (II) was found in the reaction of the solid phases KPO_3 and V_2O_5 at 300° and 380°C. The first compound is brown, and melts at 350°C. The melt of this compound becomes vitreous when cooling down. The second compound is light-green, and melts at 846°C. In contrast to the former, this compound shows no tendency to vitrification. The X-ray pictures of these compounds are compiled in a table. There are 1 figure, 1 table, and 5 Soviet references.

Card 1/2

Concerning the Relationship Between the Composition and Structure of Phosphates in the System $CaO-P_2O_5-SiO_2$ and Their Digestibility by Plants

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SOV/80-33-3-3/47

Consequently, new phases of silicophosphates with lower P_2O_5 content result. Seven phases (Fig. 2) were established, of which five had varying compositions with α-tricalcium phosphate or tetracalcium phosphate as the principal constituents. The authors sought to establish the structure of each phase and its relation to digestibility by plants. The X-ray photographs were taken with Cu-radiation and RKU-8 camera. The specimens proved to contain no thomasite. The same seven phases could be produced by adding limestone and silica to apatite before hydrothermal treatment. Solubility of each phase was examined by shaking 2 g of it with 300 ml distilled water at 20 $\pm$ 3° C for 8 hr, letting it stand overnight, shaking the filtered-out residue with another 300 ml distilled water, and so on for 10 consecutive days. Another 2 g of each specimen was boiled with distilled water for 8 hr, left sealed overnight, filtered, and the residue treated in a similar way for

Card 2/5

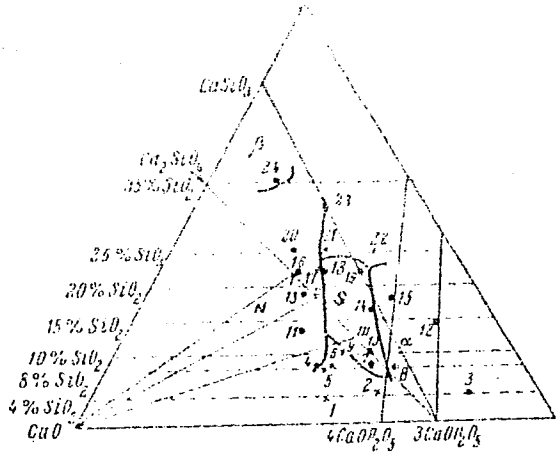

Fig. 2. Phase diagram for $CaO-P_2O_5-SiO_2$ system. (I) $9CaO \cdot P_2O_5 \cdot 3SiO_2$; (II) $7CaO \cdot P_2O_5 \cdot 2SiO_2$; (III) $5CaO \cdot P_2O_5 \cdot SiO_2$; (N) nagelschmitite; (S) silicacarnotite; (α) α-$Ca_3P_2O_8$; (β) β-Ca_2SiO_4; heavy dots = homogeneous, x = heterogeneous specimens.

Card 3/5

30 days. Each partial filtrate and final residue was assayed for CaO and P_2O_5 content, and its pH determined. The assays proved 10-30 times more rapid leach of Ca^{2+} than of PO_4^{3-} ions during the first 5 days, after which a constant ratio of 2 ions was achieved, but pH continued to drop. P_2O_5 concentration in the residue leads to structure alterations (except in SiO_2 + CaO rich silicophosphates), to the formation of hydroxylapatite whose presence reduces citrate-solubility of P_2O_5.

Some of the specimens were tested in the Agrochemical Laboratory of the Scientific Research Institute of Fertilizers and Insectifuges (NIUIF) as to their digestibility by vegetation on sandy, sandy-clay, carbonaceous, alkaline, and acid soils. In 34 cases out of 36, harvest was improved 1.6 to 9.9-fold. Silicophosphates rich in CaO and SiO_2 proved to be most

effective in neutral and alkaline soils, while acid soils showed no preference to one or another silicophosphate. A. B. Sokolov and T. D. Koritskaya are thanked for presenting the data of agrochemical experiments. There are 2 figures; 3 tables; and 19 references, 6 Soviet, 4 German, 3 Polish, 3 U.S., 2 French, 1 Belgian. The U.S. references are: R. L. Barett, W. I. McCaughey, Am. Mineralogist, 27, 880 (1942); W. I. Whithey, C. A. Hollingsworth, Ind. Eng. Ch., 41, 1235 (1949); K. L. Elmor, E. O. Huffman, W. W. Wolf, Ind. Eng. Ch., 24, 40 (1942).

SUBMITTED: October 24, 1959

ALIKHANOV, R. A., Institute for Physical Problems imeni S. I. Vavilov, Academy of Sciences USSR, Moscow - "Neutronographic study of $NiCO_3$" (Section J-2)

BELOV, N. V., Associate Director, Institute of Crystallography, Academy of Sciences USSR, Moscow - "Magnetic (ferromagnetic) space group symmetry" (C-6)

BELOV, N. V., NERONOVA, N. N., Both Institute of Crystallography, Academy of Sciences USSR, Moscow, DONNAY, J. D. H., Johns Hopkins University, Baltimore, Md., and DONNAY, G. H., Geophysical Laboratory, Carnegie Institution, Washington, D. C. "Tables of magnetic space groups, II. Special positions" (C-6)

BOROVIK-ROMANOV, A. S., Institute for Physical Problems imeni S. I. Vavilov, Academy of Sciences USSR - "Antiferromagnetic resonance in carbonated of transition elements" [sic] (M-16)

BOROVIK-ROMANOV, A. S., ALEKSANYAN, G. G., RUDASHEVSKIY, G. Ye. - "Piezomagnetic effect in antiferromagnets" (M-10)

KONDORSKIY, Ye. I., Head, Magnetism Laboratory, Moscow State University - (1) "The electrical and galvanomagnetic properties of thin films at very low temperatures" (M-5); (2) "On the connection between the spontaneous magnetization of current carriers and the Nernst-effect in ferromagnetic metals" (M-4); "The exchange interaction and magneto-effects in ferrimagnets" (M-15)

USSR (cont.)

LOBACHEV, B., and VAYNSHTEYN, B., Institute of Crystallography, Moscow - "Electron diffraction study of thiourea $CO(NH_2)_2$"

LYASHENKO, B. G., Central Scientific Research Institute of Metallurgy, Moscow - "The problem of the influence of spontaneous magnetization on crystal structure and phase state of alloys" (M-8)

LYASHENKO, B. G., LIVTIN, D. F., [illegible], I. M., AMOV, Yu. G. Central Scientific Research Institute of Metallurgy, Moscow - "Neutron diffraction investigation of order-disorder in the alloys 'Ferrum-nickel and ferrum-cobalt'" (J-1)

OZEROV, R. P., KOGAN, V. S., ZHDANOV, G. S., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov, Moscow - "Neutron diffraction study of the structure of solid hydrogen and deuterium" (C-8)

PINSKER, Z. G., Institute of Crystallography, Academy of Sciences USSR, Moscow - "Results and progresses of electron diffraction analysis" (C-11)

PUZEY, I. M., Scientific Research Institute of Metallurgy, Moscow - "Magnetic anistropy in monocrystals of Ni-Fe-Co alloys" (M-9)

SHUR, Yakov S., Scientific Research Institute of Metallurgy, Moscow - "Some problems of the physics of high coercive materials" (M-17)

SMOLENSKIY, G. A., Institute of Semiconductors, Leningrad - "Some investigations of non-metallic ferro and antiferromagnetics" (M-13)

VAYNSHTEYN, B. K., Institute of Crystallography, Academy of Sciences USSR - "Development of electron diffraction method" (C-11)

YAMZIN, I. I., BELOV, N. V., NOZIK, Y. Z., Institute of Crystallography, Moscow - "Atomic and magnetic structures of magnese ferrite" (J-2)

VONSOVSKIY, S. V., Institute of the Physics of Metals, Academy of Sciences USSR, Sverdlovsk. A member of the IUPAP Commission on Magnetism. See paragraph 1 of Comment for a complete listing of members of the Commission. "Some investigations of Soviet physics on the theory of ferromagnetism for the last years" (Invited paper. Section M-11)

paper to be submitted for the IUPAP Intl. Conference on Magnetism and Crystallography, Kyoto, Japan, 25-30 Sep 1961

65

KOGAN, V.S.; LAZAREV, B.G.; OZEROV, R.P.; ZHDANOV, G.S.

Neutron diffraction study of the crystalline structure of solid hydrogen and deuterium. Zhur. eksp. i teor. fiz. 40 no.4:1022-1026 Ap '61. (MIRA 14:7)

1. Fiziko-tekhnicheskiy institut AN Ukrainskoy SSR i Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

(Neutrons--Diffraction) (Low temperature research) (Hydrogen crystals) (Deuterium crystals)

ZHDANOV, G.S.; KISELEV, S.V.; OZEROV, R.P.

Magnetic structure of austenitic steel. Kristallografiia 7 no.4: 619-620 Jl-Ag '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Steel--Magnetic properties)

OZEROV, R.P.; RANNEV, N.V.; PAKHOMOV, V.I.; REZ, I.S.; ZHDANOV, G.S.

Structure of KIO_3 at room temperature. Kristallografiia 7 no.4:620-622 Jl-Ag '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Potassium iodide crystals)

OZEROV, R.P , kand.khim.nauk

Congress of magnetism and crystallography. Vest.AN SSSR 32 no.4:93-97 Ap '62. (MIRA 15:5)
(Magnetism—Congresses) (Crystallography—Congresses)

S/053/62/076/002/002/004
B117/B104

AUTHORS: Zhdanov, G. S., and Ozerov, R. P.

TITLE: Neutron diffraction study of magnetic materials

PERIODICAL: Uspekhi fizicheskikh nauk, v. 76, no. 2, 1962, 239 - 282

TEXT: This is a survey on progresses achieved in the field of neutron diffraction study of magnetic materials. It was written on the basis of a lecture on "magnetic structures", read on the occasion of the plenary meeting of the VII Soveshchaniye po primeneniyu rentgenovskikh luchey k issledovaniyu materialov (7th Conference on the Use of X-rays in the Examination of Materials), held in Leningrad on June 19, 1961. The survey summarizes studies of magnetic structures, dealing with the following problems: magnetic neutron scattering; determination of magnetic moments of atoms; magnetic structure of transition metals and of some compounds; magnetic critical and small-angle scattering of neutrons; neutron scattering from spin waves; magnetic scattering of conduction electrons. The authors point out that studies of magnetic structures are of importance for getting a better insight into the elementary structure of

S/020/62/145/006/007/015
B182/B102

AUTHORS: Kiselev, S. V., Ozerov, R. P., and Zhdanov, G. S.

TITLE: Determination of the magnetic order in the ferroelectric $BiFeO_3$ by neutron diffraction patterns

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 6, 1962, 1255-1258

TEXT: Perovskite of type $BiFeO_3$ has ferroelectric properties. On the other hand, compounds of the perovskite type ABO_3 (with B = Fe, Mn) show ferromagnetic and antiferromagnetic properties. The existence of a magnetic order in $BiFeO_3$ is now verified by comparing two neutron diffraction patterns, one of which taken at 600°C shows coherent diffraction peaks as would be expected from a cubic lattice whilst the other taken at room temperature shows the same peaks in addition to reflections in positions where one would not expect them on the basis of the chemical structure of the unit cell. The magnetic nature of these peaks is identified by the temperature dependence of their intensities; a Neel

Determination of the magnetic order... S/020/62/145/006/007/015
B182/B102

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

PRESENTED: April 6, 1962, by N. V. Belov, Academician

SUBMITTED: April 3, 1962

Card 3/3

ZHDANOV, G. S.; KISELEV, S. V.; OZEROV, R. P.

"Neutron-diffraction observation of magnetic ordering and determination of atomic displacements in ferroelectric $BiFeO_3$ and related compounds."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Karpov Inst of Physical Chemistry, Moscow.

OZEROV, R.P.; FYKIN, L.Ye.; RANNEV, N.V.; ZHDANOV, G.S.

Neutron diffraction study for the localization of hydrogen atoms in the structure of lithium sulfate monohydrate $Li_2SO_4 \cdot H_2O$. Dokl. AN SSSR 148 no.5:1069-1072 F '63. (MIRA 16:3)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Predstavleno akademikom N.V.Belovym.
(Neutron diffraction crystallography) (Lithium sulfate) (Hydrogen)

KISELEV, S.V.; KSHNYAKINA, A.N.; OZEROV, R.P.; ZHDANOV, G.S.

Neutron diffraction examination of magnetic ordering and atomic displacements in certain iron-containing Perovskite type substances with special dielectric properties. Fiz. tver. tela 5 no.11: 3312-3316 N '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni L.Ya.Karpova, Moskva.

RANNEV, N.V.; OZEROV, R.P.

Neutron diffraction determination of the position of hydrogen atoms in the structure of dicyanodiamide. Dokl. AN SSSR 155 no.6: 1415-1418 Ap '64. (MIRA 17:4)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Predstavleno akademikom N.V.Belovym.

OZEROV, S.

On the underground railroads. Mast.ugl. 4 no.11:8-9 N '55. (MLRA 9:2)

1.Nachal'nik vnutrishakhtnogo transporta.
(Mine railroads)

OZEROV, S.

Monthly payment of wages on collective farms. Nauka i pered.op. v sel'khoz. 6 no.12:55-57 D '56. (MLRA 10:1)
(Wages) (Collective farms)

OZEROV, S.P.

MALYSHEV, K. A., OZEROV, S. P.

The Effect of Perliminary Hot Mechanical Processing on the Growth of the Austenite Grain. Trudy UFAN 10, 27, 1946.

MALYSHEV, K. A.; OZEROV, S. P.

The Effect of Preliminary Hot Mechanical Processing on the Growth of the Austenite Grain

Trudy IFM UFAN 10, 27, 1946

TVORCHESTVO A. FADEYEVA. MOSKVA, IZD-VO ZNANIYE, 1952. 38 P. ILLUS., PORTS. (VSESOYUZNOYE OBSHCHESTVO PO RASPROSTRANENIYU POLITICHESKIKH I NAUCHNYKH ZNANIY. 1952, SERIYA I, NO. 65)

YERMOLAYEV, Timofey Antonovich; OZEROV, V.S., red.; ONOSHKO, N.G., tekhn.red.

[Factory history room] Kabinet istorii zavoda. Leningrad, Lenizdat, 1959. 28 p. (MIRA 13:10)
(Leningrad--Shipbuilding)

PHASE I BOOK EXPLOITATION 1052

Ozerov, Vladimir Aleksandrovich; Fel'dman, Solomon Samoylovich; and Shklennik, Yan Ivanovich

Lit'ye po vyplavlyayemym modelyam (Investment Casting) Moscow, Mashgiz, 1958. 321 p. 6,000 copies printed.

Reviewer: Kreshchanovskiy, N.S., Candidate of Technical Sciences; Scientific Ed.: Kurchman, B.S., Engineer; Tech. Ed.: Model', B.I.; Managing Ed. for informational literature (Mashgiz): Krylov, V.I.

PURPOSE: This book is intended for engineers, technicians and foremen in founding production and may be useful to students specializing in this field.

COVERAGE: The book covers all aspects of investment casting: pattern-making methods and materials, molding techniques and mold materials, methods of melting and pouring metal, equipment used, principles of casting design, mechanical properties, and accuracy and surface quality of castings. The author stresses that work has been and is being done in the field of application of waterglass for coatings which may bring about a 90 percent reduction in the

Card 1/6

Investment Casting 1052

Card 5/6

SHKLENNIK, Ya.I.; BARANOV, A.V.; IVANOV, V.N.; KAZENNOV, S.A.; KURCHMAN, B.S.; LYASHCHENKO, N.N.; MARULIDI, R.A.; MILITSIN, G.K.; OZEROV, V.A.; SITNICHENKO, A.I.; TKLIS, M.Ya.; KHENKIN, M.L.; TITOV, N.D., kand.tekhn.nauk, retsenzent; KLAUZEN, A.I., inzh., retsenzent; MARKIZ, Yu.L., inzh., red.; TIKHANOV, A.Ya., tekhn.red.; CHERNOVA, Z.I., tekhn.red.; EL'KIND, V.D., tekhn.red.

[Precision casting] Lit'e po vyplavliaemym modeliam. Leningrad, 1961. 455 p. (MIRA 15:2)
(Precision casting)

KOROTKOV, A.I., inzh.; POLEVAYA, A.M., inzh.; SHKLENNIK, Ya.I., kand. tekhn. nauk, retsenzent; OZEROV, V.A., kand. tekhn.nauk, red.; OSIPOVA, L.A., red. izd-va; EL'KIND, V.D., tekhn. red.

[Casting in shell molds] Lit'e v obolochkovye formy. Moskva, 1963. 299 p. (MIRA 16:7)
(Shell molding (Founding))

OZEROV, V.A., kand. tekhn. nauk

Standardization of gating systems for precision casting. Trudy MATI no.56:98-157 '63. (MIRA 16:6)

(Precision casting)
(Foundries—Equipment and supplies)

KOROTKOV, A.I., inzh.; POLEVAYA, A.M., inzh.; SHKLENNIK, Ya.I., kand. tekhn. nauk, retsenzent; OZEROV, V.A., kand. tekhn. nauk, red.; OSIPOVA, L.A., red.izd-va; EL'KIND, V.D., tekhn. red.

[Casting into shell molds] Lit'e v obolochkovye formy. Moskva, Mashgiz, 1963. 299 p. (MIRA 16:9)
(Shell molding)

NEBOGATOV, Yu.Ye.; TAMAROVSKIY, V.I.; OZEROV, V.A., kand. tekhn. nauk, retsenzent; ZHESTKOVA, I.N., inzh., red.

[Special casting processes] Spetsial'nye vidy lit'ia. Moskva, Mashinostroenie, 1965. 158 p. (MIRA 18:9)

KOROTKOV, A.I., inzh.; POLEVAYA, A.M., inzh.; SHKLENNIK, Ya.I., kand. tekhn. nauk, retsenzent; OZEROV, V.A., kand. tekhn. nauk, red.; OSIPOVA, L.A., red.izd-va; EL'KIND, V.D., tekhn. red.

[Casting in shell molds] Lit'e v obolochkovye formy. Moskva, Mashgiz, 1963. 299 p. (MIRA 16:8)
(Shell molding (Founding))

OZEROV, V.H.

PHASE I BOOK EXPLOITATION 989

Moskovskiy dom nauchno-tekhnicheskoy propagandy im. F. E. Dzerzhinskogo

Metody polucheniya otlivok povyshennoy tochnosti (Methods of Making High-Precision Castings), Moscow, Mashgiz, 1958. 140 p. 4,500 copies printed.

Additional Sponsoring Agency: Obshchestvo po rasprostraneniye politicheskikh i nauchnykh znaniy RSFSR

Ed.: Yevseyev, A.S., Engineer; Ed. of Publishing House: Stepanchenko, N.S.; Tech. Ed.: Uvarova, A.F.; Managing Ed. for literature on heavy machine building (Mashgiz): Golovin, S.Ya., Engineer.

PURPOSE: This book is intended for engineers and technicians at plants and institutes, as well as in research and planning organizations in all branches of the machine-building industry.

Card 1/5

OZEROV, V.A.

7

PHASE I BOOK EXPLOITATION SOV/5976

Shklennik, Ya. I., A. V. Baranov, V. N. Ivanov, S. A. Kazennov, B. S. Kurchman, N. N. Lyashchenko, R. A. Marulidi, G. K. Militsin, V. A. Ozerov, A. I. Sitnichenko, M. Ya. Telis, and M. L. Khonkin

Lit'ye po vyplavlyayemym modelyam (Investment Casting) [Leningrad] Mashgiz [1961] 455 p. (Series: Inzhenernyye monografii po litoynomu proizvodstvu) Errata slip inserted. 8000 copies printed.

Eds. (Title page): Ya. I. Shklennik and V. A. Ozerova; Reviewers: N. D. Titov, Candidate of Technical Sciences, and A. I. Klauzen, Engineer; Ed.: Yu. L. Markiz, Engineer; Tech. Eds.: A. Ya. Tikhanov, Z. I. Chernova and V. D. El'kind; Managing Ed. for Literature on Hot-Working of Metals: S. Ya. Golovin, Engineer.

PURPOSE: This book is intended for engineering and technical personnel in the metalworking industry and for scientific research workers. It may also be used by students specializing in foundry work.

COVERAGE: The book reviews the most important problems in investment casting. Among the topics considered are the following: mechanical properties of castings;

Card 1/29

Investment Casting SOV/5976

the manufacture of castings; precision surface quality; materials and methods of making patterns and molds; the melting of metals and alloys; pouring, cleaning, heat treatment, and inspection of castings; economic aspects in the production of castings; organization of production; and modern concepts relating to processes taking place in the manufacture of investment castings. No personalities are mentioned. There are 180 references, mostly Soviet.

TABLE OF CONTENTS:

Card 2/13

IVANOV, Vladimir Nikolayevich; OZEROV, V.A., kand.tekhn.nauk, retsenzent; BEYER, Yu.V., inzh., red.; GRUSHEVSKAYA, G.M., red.izd-va; SMIRNOVA, G.V., tekhn.red.

[Waste and defects in casting using investment patterns] Brak i defekty v lit'e po vyplavliaemym modeliam. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 70 p. (MIRA 12:7)

(Precision casting)

OZEROV, Vladimir Aleksandrovich; FEL'DMAN, Solomon Samoylovich; SHKLENNIK, Yan Ivanovich; KRESHCHANOVSKIY, N.S., kand. tekhn. nauk, retsenzent; KURCHMAN, B.S., inzh., nauchnyy red.; MODEL', B.I., tekhn. red.

[Lost-wax process in precision casting] Lit'e po vyplavliaemym modeliam. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 321 p. (MIRA 11:9)
(Precision casting)

OZEROV, V.A., inzhener.

Effect of some technological factors on surface quality of castings made according to cast patterns. [Trudy] MVTU no.45:85-109 '55.
(Founding--Quality control) (MLRA 10:6)

OZEROV, V.A.; SOSKIN, D.S.; MARKOVA, M.V.

Standardization of gating-pouring systems for precision casting.
Lit.proizv. no.10:3-7 O '64. (MIRA 18:4)

BRUSKIN, David Moiseyevich; OZEROV, V.A., nauchn. red.; KONCHA, F.F., red.

[Making melting-out patterns for precision casting] Izgotovlenie vyplavliaemykh modelei dlia tochnogo lit'ia. Moskva, Vysshaia shkola, 1965. 231 p. (MIRA 18:12)

SHVARTSSHTEYN, G.N., starshiy elektromekhanik; OZEROV, V.B., monter

Improvement of the ICh-1 instrument kit. Avtom., telem. i sviaz' 6 no.3:38 Mr '62. (MIRA 15:3)

1. Kontrol'no-ispytatel'nyy punkt 1-y Kiyevskiy distantsii signalizatsii i svyazi Yugo-Zapadnoy dorogi.
(Electric relays--Testing) (Electric measurements)

GRINGAUZ, K.I.; BEZRUKIKH, V.V.; BALANDINA, S.M.; OZEROV, V.D.; RYBCHINSKIY, R.Ye.

Direct observation of solar plasma streams at a distance about 1,900,000 km.from the earth on February 17, 1961, and simultaneous observations of the geomagnetic field. Isk.sput. Zem. no.15:98-101 '63. (MIRA 16:4)
(Solar radiation) (Plasma (Ionized gases))
(Magnetism, Terrestrial--Observations)

3.9000
3.2100

80082
S/020/60/131/06/20/071
B014/B007

AUTHORS: Gringauz, K. I., Bezrukikh, V. V., Ozerov, V. D., Rybchinskiy, R. Ye.

TITLE: The Investigation of the Interplanetary Ionized Gas of High-energy Electrons and the Corpuscular Emission of the Sun by Means of Three-electrode Catchers for Charged Particles in the Second Soviet Cosmic Rocket

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 131, No. 6, pp. 1301 - 1304

TEXT: During the flight of the rocket the currents generated by the charged particles in the catchers were measured and recorded. For this purpose four three-electrode catchers were fitted, each of which consisted of a semispherical nickel net (radius 30 mm), under which a plane nickel collector was fitted. Between these parts a tungsten net was fitted. The potentials on the electrodes are given and the scheme of the catcher is shown in Fig. 1. The task to be performed by the tungsten net was to prevent the photoelectric effect caused by irradiation by the Sun. The electrons, which moich which sufficient energy to overcome the retarding field between the nets, generated a negative collector current. For the purpose of selecting the characteristic of the apparatus, the following was assumed with

Card 1/3

80082
The Investigation of the Interplanetary Ionized Gas of High-energy Electrons and the Corpuscular Emission of the Sun by Means of Three-electrode Catchers for Charged Particles in the Second Soviet Cosmic Rocket

S/020/60/131/06/20/071
B014/B007

that there exists a flux of positive ions with more than 15 ev and a density of $2 \cdot 10^8 cm^{-2} \cdot sec^{-1}$. In conclusion, the authors draw attention to the proton fluxes with energies higher than 25 ev, which were found to exist by the automatic interplanetary station in October 1959. There are 4 figures and 4 references, 2 of which are Soviet.

ASSOCIATION: Radiotekhnicheskiy institut Akademii nauk SSSR (Radiotechnical Institute of the Academy of Sciences, USSR)

PRESENTED: February 11, 1960, by A. L. Mints, Academician

SUBMITTED: February 5, 1960

Card 3/3

9.9100
3.2100

25987
S/560/61/000/006/005/010
E032/E114

AUTHORS: Gringauz, K.I., Bezrukikh, V.V., and Ozerov, V.D.

TITLE: Results of measurements of the positive ion concentration in the ionosphere using ion traps set up on the third Soviet earth satellite

PERIODICAL: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. No. 6. Moscow, 1961. pp. 63-100

TEXT: The third Soviet satellite (launched on May 15, 1958) carried apparatus designed to measure the positive ion concentration with the aid of ion traps. A preliminary description of the experiment (prior to the launching) was reported by K.I. Gringauz and M.Kh. Zelikman (Ref.1: UFN, 63, 16, 239, 1957). The preliminary description of the experiment is said to have been echoed in the U.S.A. where similar experiments were later described (Ref.5: W.C. Hoffman, Planetary and Space Science, V.1, 238, 1959; Ref.6: J.W. Townsend, J. Geophys. Res., V.64, 1779, 1959). A general view of one of these ion traps is shown in Fig.2. Two identical traps ($Л_1$ and $Л_2$) of this type were attached at the ends of two rods a_1 and a_2 (65 cm long each) which in turn were

Card 1/14

Results of measurements of the .....

fixed to the surface of the satellite as shown in Fig.1. The traps had a central spherical collector kept at ~ -150 v relative to the body of the satellite. The radius of the outer shell was 5 cm and the diameter of the collector 3 cm. The transparency of the outer grid was approximately 0.63. Both the outer grids and the collectors were made from chromium coated brass. The electrical field between the outer grid and the central collector was capable of retaining all atmospheric positive ions (with energies of a few fractions of eV). All negative ions whose energy was less than 150 eV were repelled. These ion traps are said to be modifications of the device described by R.L. Boyd (Ref.15: Proc. Roy. Soc., V.201, 1066, 329, 1950). Bipolar voltage pulses relative to the body of the satellite were applied to the grid envelopes of the trap every 2 sec. The positive pulse had an amplitude of 27 v and a duration of 0.13 sec and the negative pulse had an amplitude of 14 v and a duration of 0.07 sec. These gave rise to a change in the potential φ of the grid envelope relative to the undisturbed external plasma and this in its turn resulted in a change in the thickness of the space-charge surrounding the trap. When φ passed through zero there was a change in the sign of this space-

Results of measurements of the ...

charge. A block diagram of the apparatus is shown in Fig.3. The instantaneous values of the voltage amplitudes applied to the trap envelopes, and of the collector currents in the two traps, were telemetered to the earth. In this way it was possible to plot for each trap the complete ion volt-ampere characteristic, corresponding to each bipolar pulse. With $\varphi \sim 0$ and an ion concentration of 10^7 cm^{-3}, the collector current due to positive ions was of the order of 3×10^{-5}A, while with a concentration of 10^4 cm^{-3} this current was of the order of 5×10^{-8} A. The amplification of such currents presented no particular difficulty. The currents were in fact amplified with the aid of cathode followers with high input resistors and 6Н16Б (6N16B) tubes whose grid current is of the order of a few 10^{-9} A. In order to cover the entire range (5×10^{-8} - 2.5×10^{-5} A) with a single amplifying stage it was necessary to introduce a nonlinear element, i.e. a diode, which was put in parallel with the input resistor of the amplifier and was cut off by a special bias voltage. When the input current exceeded 10^{-6} A the voltage drop across the input resistor compensated the bias voltage and the diode began to conduct and

Results of measurements of the ....

shunted the input resistor, thus reducing the amplification coefficient. Special facilities were provided for spot checks of all the supplies, fields and currents. The sawtooth positive and negative voltage pulses were produced by special oscillators set up on the satellite. In order to economise on energy consumption all the filaments were supplied from 3 v sources. The present authors state that Whipple (Ref.7: E.C. Whipple, Proc. IRE, V.47, 2023, 1959) has derived an expression for the volt-ampere characteristic of the ion traps on the third Soviet satellite and applied it to the data reported by the present authors in Ref.3 (V.I. Krassovskiy, Proc. IRE, V.47, 289, 1959). Whipple based his calculation on the assumption that the components of the ion velocities in the direction of motion of the satellite are distributed in accordance with the Maxwellian law. Whipple concluded that the determination of n_i (the ion density) reported by K.I. Gringauz and M.Kh. Zelikman (Ref.1) and V.I. Krassovskiy (Ref.2: same journal, No.2, izd-vo AN SSSR, 1959, p.36: and Ref.3) is incorrect. It is pointed out by the present authors that Whipple's theory cannot be applied to spherical ion traps since he did not take into account the spherical form of the trap and the associated quasi-radiality

Results of measurements of the ....

of its electric field which distorts the ion trajectories, nor did he take into account the thermal velocity components which lie in the plane perpendicular to the velocity of the satellite. It is stated that Whipple's results strictly apply only to a part of an infinite plane probe. The present authors show that, assuming the ion velocity distribution to be of the form

$$dn_i = n_i \left(\frac{m_i}{2\pi kT}\right)^{3/2} \cdot \exp\left\{-\frac{m_i}{2kT}\left[(v_{i,x} - V_{cn,x})^2 + (v_{i,y} - V_{cn,y})^2 + (v_{i,z} - V_{cn,z})^2\right]\right\} dv_{i,x}dv_{i,y}dv_{i,z} \quad (10)$$

where subscript i refers to the ions and subscript cn refers to the satellite, the correct expression for the collector current is of the form:

$$dI_{k,i} = \alpha Sen_i \left(\frac{m_i}{2\pi kT}\right)^{3/2} \exp\left\{-\frac{m_i}{2kT}\left[(v_{i,x} - V_{cn,x})^2 + (v_{i,y} - V_{cn,y})^2 + (v_{i,z} - V_{cn,z})^2\right]\right\} v_i\left(1 - \frac{2e\varphi}{m_i v_1^2}\right) dv_{i,x}dv_{i,y}dv_{i,z} \quad (11)$$

Card 5/14

Results of measurements of the .....

Fig.8 shows the theoretical volt-ampere characteristics for spherical probes (curves 1 and 2) and a part of an infinitely large plane probe (curves 3 and 4). In computing these curves it was assumed that $T = 0^{\circ}$ (curves 1 and 3), $T = 2000^{\circ}$ (curves 2 and 4); $m_i = 16$ amu, $V_{cr} = 8 \times 10^5$ cm/sec. In fact, curves 1 and 2 represent the present theory and curves 3 and 4 represent Whipple's theory. During the flight of the third satellite more than 10 000 ion volt-ampere characteristics corresponding to different altitudes were obtained. It is stated that rotational effects were clearly distinguishable and could easily be eliminated. Analysis of the ion volt-ampere characteristics (25 such characteristics corresponding to different altitudes are reproduced in this paper) has led to altitude distributions of positive ion concentration between 600 and 1000 km. Figs. 38-43 show some of these distributions. The dashed parts of the curves indicate the absence of reliable data. There are 43 figures, 2 tables and 18 references: 10 Soviet and 8 non-Soviet. The four most recent English language references read as follows:

Ref.4: W.W. Berning. Proc. IRE, V.47, 280, 1959.
Refs. 5, 6, and 7 as quoted above.

Card 6/14

SUBMITTED: March 22, 1960

9.9100 (also 2605)
11.1530

25988
S/560/61/000/006/006/010
E032/E114

AUTHORS: Gringauz, K.I., Bezrukikh, V.V., Ozerov, V.D., and Rybchinskiy, R.Ye.

TITLE: A study of the interplanetary ionized gas, energetic electrons and solar corpuscular emission using three-electrode charged-particle traps on the second Soviet cosmic rocket

PERIODICAL: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. No. 6. Moscow, 1961. pp. 101-107

TEXT: This paper was first published in Doklady AN SSSR, Vol.131, p.1301 (1960).
The first, second and third Soviet space rockets carried three-electrode charged-particle traps. The most valuable data were obtained with the second space rocket (12000 collector current measurements). The present paper is therefore largely concerned with the data obtained during the latter flight. The space rocket which was fired in the direction of the moon on September 12 1959 carried equipment designed to measure interplanetary ionized gas, electrons with energies in excess of 200 eV, and also the corpuscular solar radiation. Four three-electrode traps were set

Card 1/7

A study of the interplanetary ionized...

up on the surface of the space probe and were located at the corners of a tetrahedron inscribed into a sphere. Each trap consisted of a hemispherical outer nickel grid (radius 30 mm) with a plane nickel collector inside the grid. A plane tungsten grid was placed between the collector and the outer grid. The arrangement is illustrated in Fig.1. The potentials of the electrodes relative to the body of the container were: collectors - (60-90) volts, inner grids (g1) - 200 volts, outer grids (g2) - 10, -5, 0 and + 15 volts respectively. The main function of the inner grid was to suppress the photo-electrons from the collectors which are ejected by ultraviolet solar radiation, and to suppress the secondary electron emission due to the bombardment of the collectors by electrons and protons. The various potentials were applied to the outer grids in order to be able to estimate the energy of positive particles and to differentiate between current produced by protons of the interplanetary stationary plasma ($\sim$ 1 eV) and current due to protons in corpuscular streams whose energies are higher by three orders of magnitude. Electrons belonging to the stationary plasma, and solar corpuscular streams with energies up to 25 eV do not give rise to a collector

current since they cannot overcome the retarding field due to the potential difference between the inner and the outer grids. On the other hand, electrons moving in the earth's magnetic trap (the so-called outer radiation belt) do have sufficient energy to overcome the field between the two grids and can give rise to a negative collector current. The collector current amplifiers were sufficient to transmit information about the magnitude of the positive collector currents in the range 10^{-10}- 50 x 10^{-10} amp and negative collector currents in the range 10^{-10}- 15 x 10^{-10} amp. During its translational motion the container also performed complicated and rapid rotational motion. The angular position of each trap was therefore subject to continuous variation giving rise to oscillations in the collector current. This is illustrated in Fig.2, which gives a plot of the collector currents as a function of distance R (km) for the trap with ϕ_{g2} = -10 volt. The maximum and also the minimum values correspond to roughly the same orientations. Thus, changes in the collector current which are mainly due to the surrounding medium can be described by curves passing through points corresponding to the successive maxima and minima in the collector current. In this way, the rotation of the

A study of the interplanetary ionized....

belong to solar corpuscular emission. These results therefore constituted the first direct observation of corpuscular radiation outside the earth's magnetic field.
There are 4 figures and 5 references: 3 Soviet and 2 non-Soviet.
The English language reference reads as follows:
Ref.3: L. Bierman. The Observatory, V.77, 187, 1957.

Card 5/7

OZEROV, V. D.

GRINGAUZ, K. I., BEZRUKIKH, V. V., BALANDINA, S. M., OZEROV, V. D., RYBCHINSKY, R. Ye.

"Direct Observations of Solar Plasma Streams at a Distance of ~1,000,000 KM from the Earth on February 17, 1961, and Simultaneous Observations of the Geomagnetic Field"

Soviet Papers Presented at Plenary Meetings of Committee on Space research (COSPAR) and Third International Space Symposium, Washington, D. C., 23 Apr - 9 May 62

L 22189-66 EPF(n)-2/EWA(h)/EWT(1)/ETC(f)/EWG(m)/FCC IJP(c) AT/GW
ACC NR: AP6002857 SOURCE CODE: UR/0286/65/000/024/0006/0006

AUTHOR: Gringauz, K. I.; Bezrukikh, V. V.; Ozerov, V. D.; Rybchinskiy, R. Ye.

ORG: none

67
B

TITLE: /Plasma layer near the Earth/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 6

TOPIC TAGS: charged particle, plasma sheath, plasma density, plasma charged particle, upper atmospheric radiation

ABSTRACT: This Author Certificate announces the establishment of the existence (at heights of approximately from 2000-20,000 kilometers above the surface of the earth) of a previously unknown region of the earth's plasma sheath. This sheath has an increased concentration of charged particles (in respect tothe interplanetary gas) which decreases with height. The magnitude of the negative gradients of the charged particle concentrations in the upper part of this region consists of some hundreds of particles in 1 cm^3/1000 km of height. The concentration near the upper boundary of the region does not exceed 10^2 particles/cm^3. /Announcement of

Card 1/2

L 22189-66

ACC NR: AP6002857

the change in the formulation of discovery. On the basis of the decision of the Committee for the Affairs of Inventions and Discoveries at the Council of Ministers, SSSR, the new text is published. No. 27 (Application No. OT-2821 of 16 February 1963)

SUB CODE: 04/ SUBM DATE: 16Feb63

Card 2/2 nst

OZEROV, V.I. (Kiyev)

Thermoviscoelastic deformations of some polymers. Prikl. mekh. 1 no.11:113-118 '65. (MIRA 19:1)

1. Institut mekhaniki AN UkrSSR. Submitted April 13, 1965.

L 2602-66 EWT(d)/EWT(m)/EWP(w)/EPF(c)/EWP(j)/T EM/RM

ACCESSION NR: AP5022217 UR/0198/65/001/008/0100/0105

AUTHORS: Van Fo Fy, G. A. (Kiev); Ozerov, V. I. (Kiev)

TITLE: Viscoelastic deformations of some thermoreactive polymers

SOURCE: Prikladnaya mekhanika, v. 1, no. 8, 1965, 100-105

TOPIC TAGS: elastic deformation, viscous flow, polymer, polymer rheology, epoxy resin, Poisson coefficient

ABSTRACT: Experimental and theoretical investigations were made to describe the viscoelastic deformation of some thermoreactive polymers with maleic-epoxy bases. The experiments were done at 280K temperature and under several slowly varying stresses. From a stress-strain diagram the breaking point is found to be ε_B = 2.2 to 2.5%, the yield strength $\sigma_0 = 9.81 \times 750 \times 10^5$ Newtons/m^2 and $E_0 = 9.81 \times 3.15 \times 10^9$ Newtons/m^2. A time-deformation curve for the polymer indicates the development of instantaneous-elastic e_0 and viscoelastic ω deformations. The viscoelastic deformation is described by the formula

$$\sigma - f(e_\infty) = \mu \frac{de_\infty}{dt}. \quad (1)$$

Card 1/2

ACCESSION NR: AP5022217

5

which (over some interval of change in stress) is integrated to yield

$$\sigma(t) \simeq E_0\varepsilon_0 - \frac{\varkappa_0 E_0\varepsilon_0}{\varkappa_0 + \varkappa_\infty}\left\{1 - e^{-(\varkappa_0+\varkappa_\infty)(\lambda t)^\lambda}\right\}. \quad (2)$$

A graphical plot of the results and comparison with the experimental data show that under low stresses the linear theory is quite satisfactory. Furthermore, under the above conditions, it is shown that the Poisson coefficient can be represented quite adequately by

$$\nu^* f(t) = \nu_0\left[f(t) + \frac{1-2\nu_0}{2\nu_0}\varkappa^0\int_0^t \Theta_{1-\lambda}(-\varkappa_0-\varkappa_\infty, t-t')\,f(t')\,dt'\right]. \quad (3)$$

Orig. art. has: 15 formulas and 6 figures.

ASSOCIATION: Institut mekhaniki UkrSSR (Institute of Mechanics, UkrSSR)

SUBMITTED: 15Apr64 ENCL: 00 SUB CODE: MT, ME

REF SOV: 006 OTHER: 000

Card 2/2

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[Management system on a collective farm; the Dzerzhinskii Artel, Sumy Province] Systema vedeniia hospodarstva u kolhospi; artil' imeni Dzerzhyns'koho Sums'koi oblasti. Kharkiv, Kharkivs'ke knyzhkove vyd-vo, 1960. 77 p. (MIRA 14:4)

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